

**State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

**ORDER NO. R4-2008-XXXX
AMENDING THE COPPER WATER EFFECTS RATIO
IN
ORDER NO. R4-2008-0011
(NPDES NO. CA0053651)**

ISSUED TO

**CITY OF SAN BUENAVENTURA
(VENTURA WATER RECLAMATION FACILITY)**

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter Regional Board), finds:

1. The purpose of this Order is to amend Section IV.A.1.a. of Order No. R4-2008-0011 to reflect the revised water effects ratio (WER) for copper. The Regional Board notified the City of San Buenaventura (City) and interested agencies and persons of its intent to amend Section IV.A.1.a. by modifying the copper final effluent limits through the application of a revised copper WER.
2. The California Toxics Rule (CTR), codified as 40 CFR section 131.38, establishes numeric water quality criteria for copper to protect aquatic life, which are expressed as a function of a water effects ratio (WER). A WER is a measure of the toxicity of a pollutant obtained in a site water divided by the same measure of the toxicity of the same pollutant obtained simultaneously in laboratory water. By deriving this ratio, WERs take into account site specific conditions in local waterbodies that alter the toxicity of copper to aquatic life, while still being as protective of aquatic life as the CTR criteria are intended to be.
3. A WER of 1.58 was applied to the final limits for copper in Order No. R4-2008-0011, adopted by Regional Board on March 6, 2008. The value of 1.58¹ was based on the results of the "Copper Water Effects Ratio Study" conducted by Nautilus Environmental between March 2004 and January 2005, and represents the most conservative (i.e., lowest) WER among 15 data points collected during both wet and dry seasons. Regional Board staff recommended a final WER value of 1.58 after an assessment of the study results in which staff concluded that not all of the 15 data points represented the most critical conditions in the Santa Clara River Estuary (Estuary). In light of this conclusion, Regional Board staff suggested that

¹ The copper WER of 1.58 represents the most critical conditions in the Estuary, including when the berm is open, with the lowest EC₅₀, which may represent the scenario where there is the most toxicity to aquatic life, including endangered species.

the City could do additional analyses to determine the critical conditions in the estuary and present it to the Regional Board staff for their consideration. On the basis of the additional data, the permit could be reopened and a new WER proposed, if appropriate. During the March 2008 hearing on this matter, the City strongly opposed using the most stringent WER value and requested a WER value of 3.7 resulting from the geometric mean of the 15 data points collected, based upon the USEPA WER guidance documents (1994b and 2001). After questions of staff and deliberation, the Board adopted the WER of 1.58 proposed by staff, but also directed staff to meet with the City and re-evaluate the possibility of applying a higher copper WER.

4. Following the March 6, 2008 Board Meeting, the City prepared a follow-up response in an effort to reach agreement with Regional Board staff and resolve the issue of which WER is the most appropriate to use in calculating the final copper effluent limits for the discharge. Additional data were provided to staff.
5. Regional Board staff re-evaluated all of the data with regard to critical conditions in the Estuary, and followed the USEPA guidance on using the geometric mean of the individual sample WERs to calculate the final WER. Based upon two sampling periods (five data points) that represent the most critical conditions in the Estuary, which is wintertime with the berm open, a revised WER of 2.08 is found to be protective and appropriate. This final WER is based upon the geometric mean of sample events in March 2004 and January 2005. These sample events generally had the lowest EC50 values, indicating that copper has the most toxicity under these conditions, leading staff to conclude on the basis of available study data that these constitute the critical condition in the Estuary. Additional data points, however, will be necessary in order to confirm this assumption.
6. Section VI.C.1.j. of Order No. R4-2008-0011 states "This Order may be reopened to modify final effluent limits, if at the conclusion of necessary studies conducted by the Discharger, the Regional Water Board determines that dilution credits, attenuation factors, water effects ratio, or metal translators are warranted."

The Regional Board, in a public hearing, heard and considered all testimony pertinent to this matter. All Orders referred to above, Regional Board files on this matter, and records of hearings and testimony therein are included in the administrative record for this matter.

IT IS HEREBY ORDERED that the following Order, adopted by this Regional Board on March 6, 2008, is hereby amended as follows (additions are underlined, deletions are lined through):

1. Order Section IV.A.1.a

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper	µg/L	4.26.7 ¹¹	--	8.814 ¹¹	--	--
	lbs/day ¹²	0.490.78	--	1.01.6	--	--

11. Based on the results of Copper Water Effects Ratio (WER) Study conducted by Nautilus Environmental and Metal Translator Factor (MTF) in the Metal Translator Study conducted by Entrix, A WER of ~~1.58~~ 2.08 and MTF of 0.86 were applied for copper final effluent limitations. This WER of 1.58 was the lowest one among 15 data. The final WER value of 2.08 is calculated as the geometric mean of data points 3.81, 1.84, 1.77, 1.77, and 1.77, collected during critical conditions (determined based on available study data to be wintertime with the berm open) in the months of March 2004 and January 2005. The calculation is summarized as follows:

Step 1: Copper California Toxics Rule (CTR) Criteria

Acute Saltwater Total Recoverable	Chronic Saltwater Total Recoverable
5.78 µg/L	3.73 µg/L

Step 2: Application of Copper Metal Translator Factor (MTF: 0.86) to Copper CTR criteria

Acute Saltwater Total Recoverable with MTF	Chronic Saltwater Total Recoverable with MTF
5.78 µg/L / 0.86 = 6.72 µg/L	3.73 µg/L / 0.86 = 4.34 µg/L

Step 3: Application of Copper Water Effects Ratio (WER: 2.08) to Determine Effluent Concentration Allowance (ECA)

ECA _{acute}	ECA _{chronic}
6.72 µg/L x 2.08 = 13.99 µg/L	4.34 µg/L x 2.08 = 9.03 µg/L

Step 4: Determination of Long-Term Average (LTA) Discharge Condition

LTA _{acute}	LTA _{chronic}
13.99 µg/L x 0.2954 = 4.13 µg/L	9.03 µg/L x 0.4980 = 4.50 µg/L

The values of 0.2954 and 0.4980 are Multiplier_{acute} and Multiplier_{chronic}, respectively, based upon a statistic analysis resulting from Coefficient of Variation (0.66).

Step 5: Selection of Lowest (Most Limiting) LTA.

Lowest LTA
4.13 µg/L

Step 6: Determination of Average Monthly Effluent Limitations (AMEL) and Maximum Daily Effluent Limitation (MDEL).

AMEL _{aquatic life} (Average Monthly)	MDEL _{aquatic life} (Maximum Daily)
$4.13 \times 1.6127 = 6.66 \mu\text{g/L}$	$4.13 \times 3.3850 = 13.99 \mu\text{g/L}$

The values of 1.6127 and 3.3850 are Multiplier_{AMEL} and Multiplier_{MDEL}, respectively, based upon a statistic analysis resulting from Coefficient of Variation (0.66). There are no copper limits applicable for AMEL_{human health} and MDEL_{human health}. The lowest (most restrictive) effluent limits, those based on aquatic life criteria, were incorporated into this Order. Due to rounding of digits in the abovementioned calculation, the final limit for copper in this exercise is slightly different than the limit derived using the SIP spreadsheet, in which the numbers are not rounded off.

2. At a minimum, the City shall conduct additional sampling by December 31, 2009 to confirm the final copper WER. This additional sampling shall include, at a minimum, the following:
 - A. Four sample events covering the following conditions:
 - i. Wintertime, berm open, high tide;
 - ii. Wintertime, berm open, low tide;
 - iii. Summertime, berm open, high tide; and,
 - iv. Summertime, berm closed, high tide.
 - B. For each sampling event, sampling shall be conducted at a minimum of three sites, including previously sampled locations A-2, B-3, and one of the C sites (i.e. C-1, C-2, or C-3);
 - C. For each sampling event, sampling shall be conducted for total and dissolved copper, salinity, total organic carbon (TOC), dissolved organic carbon (DOC), pH, hardness, and total suspended solids (TSS);
 - D. For each sampling event, conditions in the Estuary, such as weather and hydrology, must be noted; and,
 - E. Separate reporting: The City shall submit a separate final report (not combined with regular monthly and annual reports regulated by Monitoring and Reporting Program CI-1822), including all the above data, an evaluation of critical conditions for final WER calculation, and resulting sample WER and final WER calculations by March 1, 2010.

Once the final report above has been submitted to the Regional Board, it will be evaluated by Regional Board staff, and this Order will be reopened to update the final copper WER on the basis of the additional data.

3. Section VI.C.1.j. of Order No. R4-2008-0011 is revised to state, "This Order may be reopened to modify final effluent limits, if at the conclusion of necessary studies conducted by the Discharger, the Regional Water Board determines that dilution credits, attenuation factors, water effects ratio, or metal translators are warranted or need to be revised or revoked based on changed condition(s) in order to be fully protective of beneficial uses in the Estuary."
4. The Expiration Date, and all other Limitations, Requirements, and Provisions of Order No. R4-2008-0011 are unchanged and shall remain in full force and effect.

IT IS SO ORDERED.

I, Tracy J. Egoscue, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 11, 2008.

Tracy J. Egoscue, Executive Officer