Order No. R1-2011-0003

Modification of Waste Discharge Requirements
National Pollutant Discharge Elimination System Permit

For

City of Rio Dell Wastewater Treatment Plant
Order No. R1-2006-0021 (Revised February 8, 2007)
NPDES No. CA0022748 WDID No. 1B83134OHUM

Humboldt County

The California Regional Water Quality Control Board, North Coast Region, hereinafter referred to as the Regional Water Board, finds that:

1. The City of Rio Dell (hereinafter referred to as the Discharger) is currently discharging under Order No. R1-2006-0021 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0022748, revised and adopted on February 8, 2007 (hereinafter Order No. R1-2006-0021). Order No. R1-2006-0021 will expire on April 1, 2012.

2. The Discharger has requested that the Regional Water Board modify final copper effluent limitations in Order No. R1-2006-0021 based upon the development of a discharger-specific water effect ratio (WER).

3. On August 10, 2010, the Discharger submitted a request for modification of final copper effluent limitations and supporting documentation entitled *Performance of Ceriodaphnia dubia Toxicity Testing in Support of Development of a Copper Water-Effect Ration (WER) for Application to the City of Rio Dell Wastewater Treatment Plant*.

4. The Regional Water Board has reviewed the modification request and finds that the Discharger's proposed changes are appropriate.

5. Among other things, Order R1-2006-0021 establishes final effluent limitations for copper in accordance with the California Toxics Rule and procedures set forth in the State Water Resources Control Board (State Water Board) Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (State Implementation Policy or SIP). Section 1.2 of the SIP allows the Regional Water Board to adjust the criteria/objective for metals with discharger-specific WERs established in accordance with U.S. Environmental Protection Agency (EPA) guidance as established in Interim Guidance on Determination and Use of Water Effect Ratios for Metals (EPA-823-B-94-001) or Streamlined Water Effect Ratio Procedure for Discharges of Copper (EPA-822-R-01-005) (Streamlined Procedure). The Streamlined Procedure determines site-specific values for a

WER, a criteria adjustment factor accounting for the effect of site-specific water characteristics on pollutant bioavailability and toxicity to aquatic life.

6. During the term of Order No. R1-2006-0021 the Discharger conducted an individual WER study to determine the site-specific toxicity of copper in the receiving water at the point of discharge. The study concluded that a site specific WER of 8.75 for total recoverable copper and 6.62 for dissolved copper apply to the discharge. Regional Water Board staff evaluated the results of the study and determined that 1) the results of the study are within the expected range for a WER for a municipal wastewater discharge, 2) the study was conducted in accordance with applicable USEPA guidance for Streamlined Procedure EPA-822-R-01-005, and 3) the results of the study are supported by data that generated scientifically defensible results. Based on this new information, effluent copper concentrations no longer demonstrate reasonable potential to exceed water quality criteria for copper.

7. Conditions that support a major modification of an NPDES permit are described in 40 CFR 122.62 and include circumstances where new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance. Since Order No. R1-2006-0021 was adopted and amended, the Discharger has performed a study to determine a site-specific WER for their facility, providing new information that was not available at the time of permit issuance. As explained herein, this new information would have justified new permit conditions at the time of issuance because, with the application of the WER, there is no reasonable potential for toxicity to organisms from copper in the effluent. Accordingly, at the time of permit issuance, no effluent limitations for copper would have been included in Order No. R1-2006-0021.

8. This Order, which modifies Order No. R1-2006-0021 to remove effluent limitations for copper, is consistent with antibacksliding requirements set forth in 40 CFR section 122.44. Effluent limitations for copper have been removed from the permit based upon site-specific conditions at the Rio Dell facility. The new information provided by the Discharger indicates that based upon the relative bioavailability of copper to aquatic organisms; there is no reasonable potential for toxicity to those organisms from copper at concentrations detected in the effluent. Therefore, the protection afforded under the modified permit results in a level of protection for beneficial uses equal to the previous conditions of Order No. R1-2006-0021. Additionally, this Order is consistent with section 303 (d)(4)(B) of the Clean Water Act, which allows for changes to effluent limitations or other permitting standards provided that the quality of receiving waters equals or exceeds levels necessary to protect the beneficial uses for such waters and the change is

consistent with the antidegradation policy. Consistency with the anti-degradation policy is addressed below.

9. The antidegradation policy provides that the lowering of water quality can be allowed only if beneficial uses are protected, and if there is a maximum benefit to the people of the state. While the removal of the effluent limits may result in a slight increase in the amount of copper discharged to the water body when compared with the amount that would be discharged in compliance with the existing effluent limitations, the removal of effluent limitations is predicated on a finding that there is no reasonable potential for toxicity to organisms from copper in the effluent. Accordingly, this action will result in no less protection of beneficial uses and will maintain water quality. In addition, the Discharger has evaluated potential sources in an effort to further reduce copper concentrations in the effluent.

   Furthermore, Discharges regulated in accordance with this Order are for a publicly owned treatment works (POTW). The significant increase in costs for additional treatment that would be required to remove low levels of copper are not in the best interest of the public given that beneficial uses are already shown to be protected and because any resources available for water quality improvements should be used for nonattainment waters or other pressing water quality issues as opposed to treating effluent beyond what is required for protecting beneficial uses.

   The activities allowed in accordance with these modifications to the waste discharge requirements apply to existing facilities. Discharges from the WWTF will be required to maintain protection of the beneficial uses of the receiving water and comply with applicable provisions of the Basin Plan.

10. The State Water Board amended the SIP in 2005 to allow WERs to be established through the normal NPDES permit modification processes, rather than through the Basin Planning process. The procedures followed to develop the copper WER identified in this Order are consistent with the amended SIP requirements and consideration of California Water Code section 13241 factors and California Environmental Quality Act (CEQA) are not triggered. Under Water Code section 13389, this action to modify an NPDES permit is exempt from the provisions of Chapter 3 of CEQA.

11. Pursuant to 40 CFR Sections 124.5(c)(2) and 122.62, only those conditions to be modified by this Order shall be reopened with this amendment. All other aspects of the existing Permit shall remain in effect and are not subject to modification by this amendment.

12. The Discharger and interested agencies and persons have been notified of the Regional Water Board's intent to modify waste discharge requirements for the existing discharge and have been provided opportunities for public meetings and to submit their written views and recommendations. Notification was provided through posting on the Regional Water Board's Internet site at: http://www.waterboards.ca.gov/northcoast/public_notices/public_hearings/npdes_permits_and_wdrs.shtml and through publication in the Eureka Times-Standard on November 11, 2010. On January 27, 2011, after due notice to the Discharger and all other affected persons, the Regional Water Board conducted a public hearing and evidence was received regarding adoption of Order No. R1-2011-0003 modifying Order No. R1-2006-0021.

IT IS HEREBY ORDERED that the Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act as amended, shall comply with the following revisions identified in underline and strikeout format to indicate language to be modified in Order No. R1-2006-0021:

1. Section IV.A.f. Final Effluent Limitations – Discharge Point 001

   f. Priority and non-priority toxic pollutant effluent limitations. During periods of discharge to the Eel River, representative samples of treated wastewater from Discharge Point 001, with compliance measured at Monitoring Location M-001 shall not contain constituents in excess of the following limits:

Parameter	Unit	Average Monthly	Maximum Daily
Cyanide	µg/L	4.3	8.5
Dichlorobromomethane	µg/L	0.56	1.13
Methyl tertiary butyl ether (MtBE)	µg/L	13	26

2. Attachment F section III.C.4. Applicable Plans, Policies, and Regulations, State and Federal Regulations, Policies, and Plans, State Implementation Policy

   Section 1.2 of the SIP allows the Regional Water Board to adjust the criteria/objective for metals with discharger-specific Water Effect Ratios (WER) established in accordance with U.S. EPA guidance – Interim Guidance on Determination and Use of Water Effect Ratios for Metals (EPA-823-B-94-

001) or Streamlined Water-Effect Ratio Procedure for Discharges of Copper (EPA-822-R-01-005) (Streamlined Procedure). The Streamlined Procedure determines site-specific values for a WER, a criteria adjustment factor accounting for the effect of site-specific water characteristics on pollutant bioavailability and toxicity to aquatic life.

3. Attachment F section III.C.5. Applicable Plans, Policies, and Regulations, State and Federal Regulations, Policies, and Plans, Antidegradation Policy

   The antidegradation policy provides that the lowering of water quality can be allowed only if beneficial uses are protected, and if there is a maximum benefit to the people of the state. While the removal of the effluent limits may result in a slight increase in the amount of copper discharged to the water body when compared with the amount that would be discharged in compliance with the existing effluent limitations, the removal of effluent limitations is predicated on a finding that there is no reasonable potential for toxicity to organisms from copper in the effluent. Accordingly, this action will result in no less protection of beneficial uses and will maintain water quality. In addition, the Discharger has evaluated potential sources in an effort to further reduce copper concentrations in the effluent.

   Furthermore, Discharges regulated in accordance with this Order are for a publicly owned treatment works (POTW). The significant increase in costs for additional treatment that would be required to remove low levels of copper are not in the best interest of the public given that beneficial uses are already shown to be protected and because any resources available for water quality improvements should be used for nonattainment waters or other pressing water quality issues as opposed to treating effluent beyond what is required for protecting beneficial uses.

   The activities allowed in accordance with these modifications to the waste discharge requirements apply to existing facilities. Discharges from the WWTF will be required to maintain protection of the beneficial uses of the receiving water and comply with applicable provisions of the Basin Plan.

4. Attachment F section III.C.6. Applicable Plans, Policies, and Regulations, State and Federal Regulations, Policies, and Plans, Anti-Backsliding Requirements

   The protection afforded under the modified permit results in a level of protection for beneficial uses equal to the previous conditions of Order No. R1-2006-0021. Additionally, this Order is consistent with section 303 (d)(4)(B) of the Clean Water Act, which allows for changes to effluent limitations or

other permitting standards provided that the quality of receiving waters equals or exceeds levels necessary to protect the beneficial uses for such waters and the change is consistent with the antidegradation policy. Consistency with the anti-degradation policy is addressed below.

5. Attachment F section IV.C.2. Rationale for Effluent Limitations and Discharge Specifications, Water Quality-Based Effluent Limitations (WQBELs), Applicable Beneficial Uses and Water Quality Criteria and Objectives

Applicable Water Quality Criteria and Objectives

CTR No.	Constituent	Lowest Applicable Criteria	CTR/NTR Water Quality Criteria		
			Freshwater		Human Health for Consumption of
			Acute	Chronic	Water and Organisms
		µg/L	µg/L	µg/L	µg/L
6	Copper [a]	75.7	113.2	75.7	1300

6. Attachment F section IV.C.3.b. Rationale for Effluent Limitations and Discharge Specifications, Water Quality-Based Effluent Limitations (WQBELs), Determining the Need for WQBELs Priority Pollutants

Reasonable Potential Determination

The reasonable potential analysis demonstrated reasonable potential for discharges from Discharge Monitoring Point 001 to cause or contribute to exceedances of applicable water quality criteria for, cyanide, and dichlorobromomethane. The RPA determined that there is either no reasonable potential or there was insufficient information to conclude affirmative reasonable potential for the remainder of the other 126 priority pollutants.

Summary of Reasonable Potential Analysis

CTR No.	Priority Pollutant	Lowest Applicable Water Quality Criteria(C)	Max Effluent Conc (MEC)	Maximum Detected Receiving Water Conc.(B)	RPA Result - Need Limit?	Reason	Recommendation
6	Copper	75.7	16	10	No	MEC<C	continue monitoring
14	Cyanide	5.2	7	0.9	Yes	MEC>C	EL and monitoring needed
27	Dichlorobromo methane	0.56	0.9	0.46	Yes	MEC>C	EL and monitoring needed

Notes: EL – Effluent Limitation
UD – Undetermined: Effluent data and receiving water data are both non-detect.
DL – Detection Limit

Reasonable Potential Analysis: The following section summarizes additional details regarding the data used for the reasonable potential analysis for copper, cyanide, and dichlorobromomethane.

i. Copper

Effluent monitoring data submitted by the Discharger showed concentrations of total recoverable copper ranging from 6 µg/L to 13 µg/L, in two samples. One of the two effluent concentrations exceeded the lowest CTR criterion of 10.9 µg/L. This data demonstrates that there is reasonable potential for copper and effluent limitations are needed.

Two receiving water samples were collected for copper. Both receiving water samples collected contained 10 µg/L of copper.

During the term of Order No. R1-2006-0021 the Discharger conducted an individual WER study to determine the site-specific toxicity of copper in the receiving water at the point of discharge. The study was conducted in accordance with applicable USEPA guidance for Streamlined Procedure EPA-822-R-01-005 and concluded that a site specific WER of 8.75 for total recoverable copper and 6.62 for dissolved copper apply to the discharge.

Using the worst-case measured hardness from the receiving water (96 mg/L as CaCO3), the USEPA recommended dissolved-total translator of 0.96, and the site-specific WER, the applicable chronic criterion (maximum 4-day average concentration) is adjusted to 75.7 ug/L and the applicable acute

criterion (maximum 1-hour average concentration) is 113.2 ug/L, as total recoverable copper. The maximum effluent concentration (MEC) measured for total copper was 16 ug/L, based on samples collected from February 2007 through March 2010. All effluent copper concentrations measured in accordance with Order No. R1-2006-0021 are below the applicable criteria. Based on new WER information, effluent copper concentrations do not demonstrate reasonable potential to exceed water quality criteria for copper.

7. Attachment F section IV.C.4. Rationale for Effluent Limitations and Discharge Specifications, Water Quality-Based Effluent Limitations (WQBELs), WQBEL Calculations

Final WQBELs for cyanide, and dichlorobromomethane have been determined using the methods described in Section 1.4 of the SIP.

Step 1: For each water quality criterion/objective, an effluent concentration allowance (ECA) is calculated from the following equation to account for dilution and background levels of each pollutant.

ECA = C + D (C - B), where

C = the applicable water quality criterion (adjusted for receiving water hardness and expressed as total recoverable metal, if necessary)
D = the dilution credit
B = the background concentration

Because no credit is being allowed for dilution, D = 0, and therefore, ECA = C.

Step 2: For each ECA based on aquatic life criterion/objective (cyanide), the long-term average discharge condition (LTA) is determined by multiplying the ECA times a factor (multiplier), which adjusts the ECA to account for effluent variability. The multiplier varies depending on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the value of the CV. When the data set contains less than 10 sample results (which is the case for the Discharger), or 80 percent or more of the data are reported as non-detect (ND), the CV is set equal to 0.6. Derivation of the multipliers is presented in Section 1.4 of the SIP.

From Table 1 of the SIP, multipliers for calculating LTAs at the 99th percentile occurrence probability are 0.321 (acute multiplier) and 0.527 (chronic multiplier). LTAs are determined as follows.

Pollutant	ECA		ECA Multiplier		LTA (µg/L)	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Cyanide	22	5.2	0.321	0.527	7.062	2.7404

Summary of Water Quality-based Effluent Limitations

Parameter	Units	Effluent Limitations	
		Average Monthly	Maximum Daily
Chlorine Residual (to Eel River)	mg/L	No Detectable Levels using a minimum detection limit of 0.1 mg/l	
pH	pH Units	6.5-8.5	
Methyl tertiary butyl ether (MtBE)	µg/L	13	26
Cyanide	µg/L	4.3	8.5
Dichlorobromomethane	µg/L	0.56	1.13

Notes:

8. Attachment F section IV.D. Final Effluent Limitations, Summary of Final Effluent Limitations Discharge Point 001

   Modify Table to eliminate final effluent limitations for copper.

9. Attachment F section VII.B.4. Rationale for Provisions, Special Provisions, Compliance Schedules
   Detection of cyanide, copper, dichlorobromomethane, and methyl tertiary butyl ether in samples collected during the last permit term indicated reasonable potential for excursions above water quality criteria in the receiving water, requiring establishment of new effluent limitations. During the term of Order R1-2006-0021, the discharger is required to collect additional monitoring data, evaluate WWTF processes, and determine appropriate measures to be taken to meet the newly established water quality effluent limitations no later than May 18, 2010. The Discharger demonstrated compliance with copper criteria on August 10, 2010 through the reasonable potential analysis process.

10. Attachment F section VIII.A. Public Participation, Notification of Interested Parties

    The Discharger and interested agencies and persons have been notified of the Regional Water Board's intent to modify waste discharge requirements for the existing discharge and have been provided opportunities for public meetings and to submit their written views and recommendations. Notification was provided through posting on the Regional Water Board's Internet site at: http://www.waterboards.ca.gov/northcoast/public_notices/public_hearings/npdes_permits_and_wdrs.shtml and through publication in the Eureka Times-Standard on November 11, 2010. On January 27, 2011, after due notice to the Discharger and all other affected persons, the Regional Water Board conducted a public hearing and evidence was received regarding adoption of Order No. R1-2011-0003 modifying Order No. R1-2006-0021.

11. Attachment F section VIII.B. Public Participation, Written Comments

    To be fully responded to by staff and considered by the Regional Water Board, written comments on modifications to Order No. R1-2006-0021 contained in Order No. R1-2011-0003 should be received at the Regional Water Board offices by 5:00 p.m. on December 11, 2010.

Certification:

I, Catherine Kuhlman, 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, North Coast Region, on January 27, 2011.

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Catherine Kuhlman
Executive Officer