California Regional Water Quality Control Board
Central Valley Region
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Arnold
Schwarzenegger
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3 September 2009

Ms. Jeanine Townsend, Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor 95814
Sacramento, CA 95812-0100

COMMENTS FOR PETITION OF WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2008-0162 (NPDES NO. CA0084727) FOR THE TUOLUMNE UTILITIES DISTRICT (TUD), SONORA REGIONAL WASTEWATER TREATMENT PLANT, AND JAMESTOWN SANITARY DISTRICT JAMESTOWN WASTEWATER TREATMENT PLANT;

SWRCB/OCC FILE NO. A-1967 - 15 SEPTEMBER 2009 STATE WATER RESOURCES CONTROL BOARD MEETING

Thank you for the opportunity to comment on the 4 August 2009 draft State Water Resources Control Board (State Water Board) Water Quality Order (Draft Order) referenced above. The Draft Order remands Waste Discharge Requirements Order No. R5-2008-0162 (Adopted Permit) to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) to either; (1) amend the Adopted Permit to retain chlorine residual effluent limitations from the previous permit, or (2) amend the Adopted Permit to calculate the chlorine residual effluent limitations using the procedures in USEPA's Technical Support Document for Water Quality-Based Toxics Control (TSD).

The Central Valley Water Board requests the State Water Board to reconsider its Draft Order to remand the adopted Permit to our office. As provided in more detail below, upon receipt of the State Water Board's Draft Order, the Central Valley Water Board realized that critical documentation that was before the Central Valley Water Board at the time it considered the Adopted Permit was inadvertently left out of the Administrative Record that was submitted to the State Water Board. The Central Valley Water Board respectively requests that the State Water Board allow this documentation to be added to the Administrative Record, and that this material be considered by the State Water Board before a final decision is rendered in this case. Based on this additional material, the Central Valley Water Board believes its actions will be fully supported by the record resulting in the Draft Order being revised to affirm the Central Valley Water Board's action.

The water quality-based effluent limits (WQBELs) for chlorine residual were calculated as required in the Draft Order. Below is a brief explanation of the procedures used to develop the WQBELs in the Adopted Permit.

USEPA's recommended National Ambient Water Quality Criteria for chlorine were converted to average monthly effluent limitations (AMEL) and maximum daily effluent limitations (MDEL) using the procedures in State Water Board's "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (SIP), as required in

the Draft Order[1]. However, in the Adopted Permit the WQBELs were rounded to a precision of 0.01 mg/L to be consistent with the available analytical technology and approved analytical methods for measuring chlorine residual in wastewater. The WQBELs calculated by State Water Board staff are at a precision of 0.001 mg/L.

The analytical equipment used to measure chlorine residual does not have the precision and accuracy to measure to 0.001 mg/L. Furthermore, chlorine residual effluent limits with a precision of 0.001 mg/L are more sensitive than the analytical methods in 40 CFR 136 or those certified by the Department of Public Health for measuring chlorine residual in wastewater[2]. Therefore, in the Adopted Permit the chlorine effluent limitations were rounded to the nearest 0.01 mg/L, in this instance to 0.01 mg/L AMEL and 0.02 mg/L MDEL. Although it appears "on paper" that the Draft Order's proposed WQBELs are more stringent, in reality, due to the precision of currently available analytical equipment and approved analytical methods for chlorine, the effluent limits are equivalent.

Converting the chlorine residual effluent limits to an AMEL and MDEL using the SIP procedures and rounding to the nearest 0.01 mg/L was appropriate and does not constitute backsliding. The previous permit required effluent limits that implemented USEPA's recommended National Ambient Water Quality Criteria for chlorine directly, which are established as 1-hour average and 4-day average criteria. To determine compliance with a 1-hour average effluent limitation it is necessary to monitor the effluent continuously. However, as discussed below, because the threat of a chlorine release is negligible, continuous monitoring was not required in the previous permit or the Adopted Permit. Therefore, in the Adopted Permit, the 1-hr and 4-day average criteria were converted to an AMEL and MDEL and the monitoring frequency from the previous permit was maintained (i.e., daily grab sample when discharging to Woods Creek). The change in the averaging period for the chlorine residual effluent limitations is not less stringent than the previous permit, because the previous permit also required daily grab samples for compliance. In addition, the precision of the sampling equipment has not changed. The change in averaging period for the chlorine residual effluent limitations are equally protective of aquatic life and are more appropriate considering the site-specific conditions.

In development of the chlorine effluent limits the Central Valley Water Board interpreted the Basin Plan's narrative toxicity objective. Chlorine is not a California Toxics Rule priority pollutant, so chlorine is not subject to the SIP. However, since chlorine is a toxic pollutant, the Central Valley Water Board used the procedures in the SIP for developing the effluent limits. Since there is no formal water quality policy that governs how chlorine effluent limitations are to be established by the Water Boards, the Central Valley Water Board utilized its discretion when it determined to use the procedures established in the SIP to establish daily and monthly effluent limitations for the Adopted Permit after considering the site specific conditions and characteristics of the discharge and its potential to impact or impair water quality.

Because the effluent limits were rounded to 0.01 mg/L, the Draft Order concludes that the chlorine residual effluent limits in the Adopted Permit are less stringent than the previous order

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1 The procedures in Section 1.4 of the SIP for calculating WQBELs are the same as recommended in USEPA's Technical Support Document for Water Quality-Based Toxics Control (TSD)

2 The sensitivity of the analytical methods and technical capability of analytical equipment was a recognized issue during the development of the State Water Board's Draft *Total Residual Chlorine and Chlorine-Produced Oxidants Policy of California*.

and are not protective of aquatic life. Central Valley Water Board staff does not disagree that since chlorine residual meters can only reliably detect chlorine residual to 0.01 mg/L, a non-detect result could potentially exceed the WQBELs calculated to a precision of 0.001 mg/L. However, due to the limitations in analytical testing, the only way to absolutely assure compliance with effluent limitations at a precision of 0.001 mg/L is to measure a positive dechlorinating agent in the effluent and to require continuous effluent monitoring of chlorine residual and dechlorinating agent. The Central Valley Water Board requires this level of precision for the effluent limitations and continuous monitoring when chlorine is used for disinfection immediately prior to discharge directly to a receiving water and a dechlorinating agent is used. In these situations, the threat of an accidental release of chlorine is real. This is not the case for this discharge. For TUD, due to the long residence time in Quartz Reservoir there is a nearly non-existent probability of a chlorine release due to the dissipation of chlorine in the reservoir. The reservoir has a storage capacity of 1600 acre-feet (see Fact Sheet page F-7) and a water surface area of 50 acres. Secondary/disinfected wastewater enters the reservoir through an open channel that is designed to oxygenate the wastewater. This inlet channel enters the reservoir on the opposite side of the reservoir from the outlet structure used when discharging to Woods Creek. The design average daily flows for the Sonora Regional WWTP and Jamestown WWTP are 2.6 million gallons per day (mgd) and 0.2 mgd, respectively (see Fact Sheet page F-2). At the time when TUD would be discharging to Woods Creek, the detention time in the reservoir is approximately 186 days. Considering the fact that chlorine dissipates quickly, it is impossible that chlorine could be in the discharge to Woods Creek. Therefore, requiring the use of dechlorinating agents to assure zero chlorine is not reasonable. Dechlorinating agents can cause aquatic toxicity and the chemicals increase the salinity of the discharge, and should not be used if there is no environmental benefit.

While the Draft Order states based on monitoring data in the record that chlorine discharges have occurred between 2004 and 2007, the Central Valley Water Board used its discretion to discount samples showing chlorine detections in the Discharger's self-monitoring reports due to false positive chlorine residual results. Important laboratory analytical information in support of this exercise of discretion was inadvertently excluded from the administrative record provided to the State Water Board. This information, which was in the record before the Central Valley Water Board, is attached to this Comment letter, and the Central Valley Water Board respectively requests that it be added to the administrative record and considered by the State Board. The enclosed letters from TUD, dated 25 February, 9 April, and 21 April 2004, demonstrate that the apparent chlorine residual detections shown in the Discharger's self-monitoring reports were caused by interferences when using a hand-held chlorine residual meter and are not representative of the discharge into Woods Creek.

In summary, the Central Valley Water Board respectively requests:

1. The State Water Board reconsider its report findings and conclusions regarding the appropriateness of the chlorine residual effluent limitations and revises the Draft Order to affirm the Central Valley Water Board's action. The Central Valley Water Board acted appropriately in establishing the effluent limits for chlorine residual, finding that anti-backsliding provisions have been adequately addressed and that the limitations will protect water quality. Chlorine residual effluent limitations were established based on the reasonable potential for the discharge to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective. In accordance with the Basin Plan, site specific conditions and characteristics of the facility and its discharge were fully

considered by the Central Valley Water Board when establishing the appropriate standard to use. Further, since there is no formal water quality policy that governs how chlorine effluent limitations are to be established by the Water Boards, the Central Valley Water Board utilized its discretion when it determined to use the procedures established in the SIP to establish daily and monthly effluent limitations for this permit after considering the site specific conditions and characteristics of the discharge and its potential to impact or impair water quality.

2. The State Water Board allow additional documentation to be added to the Administrative Record that would provide the adequate justification for the Central Valley Water Board's action. The Central Valley Water Board requests the additional information be reviewed and fully considered by the State Water Board before a final decision is rendered in this case. Based on this additional material, the Central Valley Water Board believes its actions will be fully supported by the record resulting in the Draft Order being revised to affirm the Central Valley Water Board's action.

If the State Water Board nevertheless directs a remand, the Central Valley Water Board:

1. Will revise the Adopted Permit to clarify the methodology, data, and calculations relied upon in reaching the effluent limitations for chlorine residual.

2. Requests the State Water Board revise the conclusions of the Draft Order to allow the Central Valley Water Board to revise the Compliance Determination provisions of the Adopted Permit, if needed, to address the discrepancy between the precision of the chlorine residual effluent limitations and the precision of the available technology and approved analytical methods for measuring chlorine residual. The current Draft Order requires the Central Valley Water Board to establish effluent limitations for chlorine residual to a precision of 0.001 mg/L, which is not attainable with current analytical equipment.

Thank you again for this opportunity to respond to the Draft Order. If you have any questions, please contact Mr. Kenneth Landau at (916) 464-4726 or klandau@waterboards.ca.gov.

for Pamela C. Creedon
Executive Officer

Encl: TUD letters dated 25 February, 9 April, and 21 April 2004

Cc w/ Encl: Mr. Douglas Eberhardt, USEPA, Region IX, WTR–5, San Francisco
Mr. Phil Isorena, DWQ, State Water Resources Control Board, Sacramento
Ms. Elizabeth M. Jennings, State Water Resources Control Board, Sacramento
Mr. Thomas L. Scesa, Tuolumne Utilities District, Sonora
Mr. Bill Jennings, California Sportfishing Protection Alliance, Stockton
Mr. Mike Jackson, Esq. Law Office of Mike Jackson, Quincy
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TUOLUMNE UTILITIES DISTRICT

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February 25, 2004

NPDES Permit #0084727

Greg Vaughn
Senior Engineer, San Joaquin NPDES Unit
California Regional Water Quality Board Central Valley Region
3443 Routier Road
Sacramento, CA 95827-3003

SUBJECT: Submission of NPDES Data for Quartz Release in January 2004

Enclosed is all data accumulated as required in our NPDES permit.

In our analysis of chlorine residual at the beginning of the month we encountered a problem with being able to demonstrate precision by all personnel when running the analysis. Further investigation revealed that our standard titration, that works well in the high range of 5-10 mg/L of total chlorine, could not produce reliable results at the level of the Quartz Effluent. That level of 0-0.04 mg/L of total chlorine was confirmed by using an outside lab to check our results. The lab informed us that we basically had no chlorine residual in our discharge to Woods Creek. We began running the residual on our HACH spectrophotometer and were able to have consistency with the results.

As we indicated last year when we submitted data from a release in late April and May, please let us know if the format that we are using for reporting is acceptable.

Don Nessl

Don Nessl
Wastewater Superintendent

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April 9, 2004

NPDES Permit #0084727

Mr. Jon Ericson
CA Regional Water Quality Control Board
San Joaquin NPDES Unit
3443 Routier Road
Sacramento, CA 95827-3003

SUBJECT: Problems with chlorine residual measurement in monitoring reports for January 2004 and February 2004

We have experienced problems with getting reliable results for our chlorine residuals in the Quartz effluent.

When we discharged to Woods Creek in May of 2003 we were able to run a titration that indicated "0" chlorine residual. In January 2004 with the same method we found that a residual was indicated and that we could not remove it with our de-chlorination reagents, sodium sulfite and sodium thiosulfate. We took a sample to Aqua Lab in Twain Harte where they ran a chlorine residual test and found "0" residual.

We purchased the same type of instrument that Aqua Lab uses, a pocket colorimeter by HACH, that has helped us to be able to measure at the range specified for reporting. One of the problems is that we have not been accustomed to this procedure and our lab techniques have been subject to a learning curve. Another problem is that there seems to be an interference that gives us false color and thus the appearance of a residual.

In order to narrow down the root of the problem we sent samples to Sierra Foothill Lab in Jackson to have an analysis for oxidized manganese. The manganese has been reported to me as a possible cause of the false color. The result of their analysis was that we have 0.05 mg/L of manganese and 0.01 mg/L of chlorine in the Quartz effluent. The level of manganese in the analysis of Quartz in December 2003 by Basic Lab was 0.07 mg/L.

Because of the uncertainty and our desire to guarantee that we are not above the limit for chlorine in the effluent, we terminated release of effluent to Woods Creek as of April 1st. We are purchasing the equipment and correct chemical in bulk so that we can neutralize any potential chlorine residual in the discharge based on a mass balance calculation.

We have talked to HACH and have been made aware of the procedure for eliminating the interference by manganese in the chlorine residual. The operators will incorporate this procedure into the daily monitoring during periods when we are releasing.

Don Nessl

Don Nessl
Wastewater Superintendent

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April 21, 2004

NPDES Permit #0084727

Mr. Greg Vahn
California Regional Water Quality Control Board
San Joaquin NPDES Unit
3443 Routier Road
Sacramento, CA 95827-3003

SUBJECT: Problems with chlorine residual measurement in monitoring report for March 2004

As stated in a letter to your office on April 9, 2004, our data for chlorine residuals in effluent being released to Woods Creek from Quartz Reservoir have not been reliable.

Quartz Reservoir is a large reservoir with a 50 acre surface area when it approaches its maximum pool size. In general the reservoir has a good quality water but residual amounts of chlorine are oxidized in the reservoir or dissipated in the pipeline between the plant and Quartz. When we found that there appeared to be a residual in January we tried without success to remove the residual with sodium thiosulfate and sodium sulfite. We also took a sample to Aqua Lab in Twain Harte where they ran a chlorine residual test and found "0" residual.

We found, in March, that we were still seeing results that were over the maximum allowable limit of 0.019 mg/L of total chlorine. We subsequently tracked the problem to be an interference that gives us false color and thus the appearance of a residual.

In order to narrow down the root of the problem we sent samples to Sierra Foothill Lab in Jackson to have an analysis for oxidized manganese. The result of their analysis was that we have 0.05 mg/L of manganese and 0.01 mg/L of chlorine in the Quartz effluent.

This uncertainty clouds our goal for total compliance, so to assure that we did not exceed the limit for chlorine, we terminated release of effluent to Woods Creek as of April 1st. We are purchasing the equipment and correct chemical in bulk so that we can neutralize any potential chlorine residual in the discharge based on a mass balance calculation.

The HACH technical staff have briefed our staff on the procedure for eliminating the interference by manganese in the chlorine residual. An order has been placed for the reagents for eliminating the interference in our chlorine residual test and we will be using this procedure when we begin releasing again. We will probably not release until winter of 2004 or sometime thereafter to prevent premature filling of Quartz Reservoir.

Don Nessl

Don Nessl
Wastewater Superintendent