



# TUOLUMNE UTILITIES DISTRICT

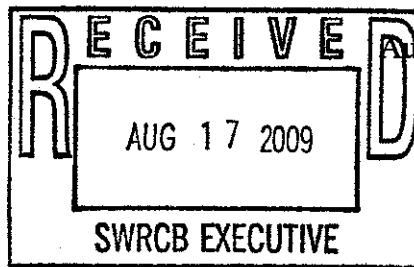
18885 NUGGET BLVD • SONORA, CA 95370  
(209) 532-5536 • Fax (209) 536-6485  
www.tudwater.com

9/15/09 Bd Mtg/Wrkshp Item 12  
A-1967 - Tuolumne  
Deadline: 9/3/09 by 12 noon

## DIRECTORS

Barbara Balen  
Robert M. Behee  
Joseph Day, PhD  
Ralph Retherford, M.D.  
Delbert Rotelli

Ms. Jeanine Townsend  
Clerk to the Board  
State Water Resources Control Board  
1001 I Street, 24<sup>th</sup> Floor [95814]  
P.O. Box 100  
Sacramento, CA 95812-0100



August 13, 2009

## **Subject: COMMENTS to A-1967 – SEPTEMBER 15, 2009 BOARD WORKSHOP**

The Tuolumne Utilities District (hereby referred to as "District") has completed an internal review of the State Water Board's (hereby referred to as "Board") draft proposed order to remand and reconsider the District's 2008 NPDES permit on the grounds that newly adopted effluent limits for discharge of chlorine residual represent a violation of the anti-backsliding requirements of the Clean Water Act.

Prior to addressing the issue of anti-backsliding requirements, the District would like to correct and clarify some of the background information provided in the draft proposed order. The District's effluent disposal system consists of Quartz Reservoir and approximately 10 miles of distribution pipeline serving our land disposal customers. Following chlorination at the Sonora Regional Wastewater Treatment Plant (SRWTP), effluent travels approximately 4.3 miles in pipelines ranging from 16" – 24" diameter prior to being impounded in Quartz Reservoir. The discharge point to Woods Creek is located approximately 1,300 feet downstream of Quartz Reservoir. The reservoir has a permitted capacity of 1,706 acre-feet, of which, 1,416 acre-feet is active storage. The inflow and outflow points of the reservoir are approximately 800 feet apart. The reservoir provides minimum residence times of approximately 4 months during high demands and low plant production. The District believes that after 4 months of storage in an open, earthen reservoir all chlorine would dissipate through oxidation or volatilization, effectively resulting in zero chlorine residual. Furthermore, there is no way for the District to bypass the reservoir and discharge directly to Woods Creek. All discharged effluent must first pass through Quartz Reservoir.

The petition filed by the Sportfishing Protection Alliance exhibits a lack of knowledge of how our system, and that of Jamestown Sanitary District, functions and fails to recognize that, by simple logic, there would not be a chlorine residual following at least 4 months storage in an open body of water with 50 acres of surface area. Nevertheless, the District respects the effluent limits set under our 2008 NPDES Permit and is prepared to comply with the Board's orders.

The petition filed by the Sportfishing Protection Alliance claims that 2008 effluent limits violate anti-backsliding requirements. However, this claim is based predicated on the use of flawed data; data which has been documented as having inaccuracies.



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Assuming the proper procedures for converting to the AMEL and MDEL were followed, the issue should focus on the integrity of the data. It is true that discharge monitoring reports were submitted that noted chlorine residual values above 0.01 mg/L. However, according to the draft proposed order, the petitioner claims that, "It is clear that chlorine does not completely dissipate or oxidize from the effluent being stored in Quartz Reservoir." The District takes issue with this characterization.

The District used a DPD Colorimetric Method to analyze chlorine residual in its wastewater. This method, although simple and versatile, is not accurate at the 0.01 mg/L level. Furthermore, this method is subject to interferences that could result in elevated results. For the record, this issue was brought to the attention of the Board following our first incidence of elevated results in January 2004. A series of three letters were sent to the Board, and are attached as Exhibits A-C, that explained the unreliability of the analysis and that the District was in the process of purchasing new equipment and confirming results with outside labs. At no time did our independent labs, neither Sierra Foothill Labs nor Aqua Labs, detect a chlorine residual greater than our limit of 0.01 mg/L.

Given that the methods used were unreliable and that the results were inaccurate, as documented in the attached letters, the District proposes that any revision to the effluent limits be based on new data generated by superior methods and analytical equipment.

If the permit is to be revised, we also request that the following inconsistencies and ambiguities with the permit be resolved.

1. 2008 Permit - Page 25, Section D: States, "Continuous monitoring analyzers for chlorine residual or for dechlorination agent residual in the effluent are appropriate methods for compliance determination. This seems to contradict a statement on Page F-21 which states, "Continuous monitoring is not appropriate for this Facility due to the long detention time in Quartz Reservoir; therefore, this Order.....requires daily effluent monitoring using grab samples when discharging to Woods Creek." The District believes that the statement on Page F-21 is more suitable to our situation.

*Note: Back in 2001 when the District first became subject to chlorine residual effluent limits based on 1-hour and 4-day average criteria, to our knowledge, there were no on-line, continuous chlorine residual analyzers on the market that would produce accurate, reliable results down the limits being imposed. Thus there was no practical method available to demonstrate compliance without utilizing a dechlorinating agent and doing continuous monitoring for its residual.*



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2. 2008 Permit – Page 25, Section D: States, “Any excursion above the 1-hour average or 4-day average total residual chlorine effluent limitations is a violation.” This is not consistent with the effluent limits based on maximum daily and average monthly criteria.
3. 2008 Permit – Page F3, Section A: States, “Chlorination occurs at the pump station where chlorine is piped as a gas and mixed on demand triggered by pump station controls.” Liquid sodium hypochlorite, not gas, is used at the plant.

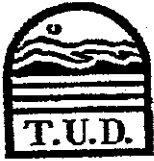
Thank you for the opportunity to comment on the draft proposed order. The Tuolumne Utilities District will continue to do what is necessary to be in compliance with this permit, including any changes that become adopted by the Board. If Board staff has any questions, please contact me at (209) 532-5536 ext. 516 or [tscesa@tuolumneutilities.com](mailto:tscesa@tuolumneutilities.com).

Respectfully,

Thomas L. Scesa  
District Engineer  
T.U.D.

Cc: Anand R. Mamidi, RWQCB

Attachments: Exhibit A: Letter dated February 25, 2004  
Exhibit B: Letter dated April 9, 2004  
Exhibit C: Letter dated April 21, 2004



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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

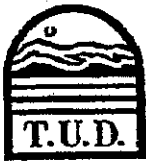
**SUBJECT: Submission of NPDES Data for Quartz Release in January 2004**

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 Nessel  
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 1<sup>st</sup>. 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 Nessel  
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 1<sup>st</sup>. 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 Nessel  
Wastewater Superintendent