

**Regional Water Quality Control Board
Central Valley Region
Board Meeting – 7 December 2006**

**Response to Written Comments for City of Atwater, Wastewater Treatment Facility,
Merced County
Tentative Waste Discharge Requirements/NPDES Permit**

At a public hearing scheduled for 7 December 2006, the Regional Water Quality Control Board, Central Valley Region (Regional Water Board) will consider adoption of Waste Discharge Requirements (NPDES No. CA0079197) for the City of Atwater Wastewater Treatment Facility (WWTF). This document contains responses to written comments received from interested parties regarding the Tentative Waste Discharge Requirements (TWDRs) circulated on 12 October 2006. Written comments from interested parties were required by public notice to be received by the Regional Water Board by 17 November 2006 to receive full consideration. Comments were received from:

1. City of Atwater (City)
2. Central Valley Clean Water Association (CVCWA)
3. United States Fish and Wildlife Service (USFWS)

Written comments from the above interested parties are summarized below, followed by the response of the Regional Water Board staff.

CITY OF ATWATER (CITY) COMMENTS

CITY – COMMENT 1: The fixed ammonia effluent limitations in the TWDRs are overprotective, do not reflect the actual potential impact of the effluent on aquatic life, and are not applied in accordance with the Water Quality Control Plan for the Sacramento and San Joaquin River Basins – Fourth Edition (Basin Plan) or United States Environmental Protection Agency (USEPA) guidelines.

- a. The USEPA publication, *1999 Update of Ambient Water Quality Criteria for Ammonia* (1999 Ammonia Update), contains the appropriate ammonia criteria to implement the Basin Plan's narrative toxicity objective. The 1999 Ammonia Update includes a procedure for determining compliance with the criteria based on changing pH and temperature conditions in the receiving water. The City states that variable ammonia effluent limitations are consistent with the 1999 Ammonia Update and are more appropriate than the procedure used by Regional Water Board staff, which is not based on any guidance document. The City requests that the Regional Water Board remove the fixed ammonia effluent limitations and replace them with the "floating" ammonia effluent limitations included in the TWDRs circulated on 12 July 2006.

RESPONSE: The fixed ammonia effluent limitations have not been removed from the TWDRs. The State Water Board in the Yuba City Decision [WQO 2004-0013] recommended that the Regional Water Board establish either fixed or seasonal effluent limitations rather than using "floating" effluent limitations [Footnote 19, Page 9]. The footnote in the Yuba City Decision dealt specifically with calculation of effluent limits for

hardness-based heavy metals. However, based upon discussion at the Yuba City hearing, we believe the underlying basis for the recommendation is applicable to ammonia and thus, implementing policy as evidenced by recently adopted permits not to regulate discharges with “floating” effluent limitations. In the absence of “floating” effluent limitations, Regional Water Board staff must establish fixed limitations that are protective of beneficial uses during critical conditions. As allowed by the *Technical Support Document For Water Quality-based Toxics Control* (TSD) published by the USEPA, a combination of worst-case assumptions is typically used, and this is the case used to develop the ammonia effluent limitations in the TWDRs.

Regional Water Board staff agree that the 1999 Ammonia Update contains the relevant and appropriate ammonia criteria for implementing the Basin Plan’s narrative toxicity objective. Consequently, the acute and chronic criteria equations in the 1999 Ammonia Update were used to establish the effluent limitations in the TWDRs.

- b. The City states that ammonia effluent limitations in the TWDRs constitute a new interpretation of the Basin Plan objective that 1.) must be adopted in accordance with Section 13241 of the California Water Code (CWC), or 2.) results in limitations more stringent than water quality objectives established in the Basin Plan that must be adopted in accordance with Section 13263 of the CWC.

RESPONSE: The ammonia effluent limitations in the TWDRs are established to implement the Basin Plan’s narrative toxicity objective. The toxicity objective is as follows:

“All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.”

As the City’s current Waste Discharge Requirements do not contain an ammonia effluent limitation, the inclusion of ammonia effluent limitations in the TWDRs may be considered a “new interpretation” of the narrative toxicity objective. However, the narrative toxicity objective remains the same. The Regional Water Board need not address the factors in Section 13241 of CWC when adopting the proposed permit as the ammonia limitations in the TWDRs are not more stringent than the existing Basin Plan objective.

- c. The City states that the pH and temperature values used to establish the final ammonia effluent limitations are arbitrary and overprotective.

RESPONSE: As explained in the response to Comment 1.a., critical pH and temperature conditions were selected to establish the final ammonia effluent limitations. The critical pH value to determine the acute ammonia criterion is 8.5, which is the highest pH allowed by the proposed permit. The median effluent and receiving water pH (7.20) and the highest monthly average receiving water temperature (27.3°C) were selected to represent the critical conditions to determine the chronic ammonia criterion.

Compliance with the resulting (and proposed) effluent limitations will reasonably ensure ammonia effluent concentrations do not produce detrimental physiological responses in human, plant, animal, or aquatic life in the Atwater Drain.

CITY – COMMENT 2: The City has experienced difficulties with the chlorine analyzer’s reliability at the detection levels required to determine compliance with the proposed chlorine residual effluent limitations. Thus, the City plans to modify its back-up monitoring system. The modification includes installing a sulfite residual analyzer and adding a detectable quantity of sodium bisulfite to the effluent (after it has been dechlorinated with calcium thiosulfate). The City requests Regional Water Board staff to change Finding 4 of the TWDRs and to make any appropriate changes to the Fact Sheet to reflect the use of sodium bisulfite.

RESPONSE: Finding 4 of the TWDRs has been modified as follows:

“ . . . Treated wastewater is disinfected with chlorine gas and dechlorinated with calcium thiosulfate and sodium bisulfite. . . .

A similar change was made to the Fact Sheet.

CITY – COMMENT 3: The City is concerned that the Groundwater Limitations may require improvement over natural background conditions, which is not required by the Basin Plan. The City requests the following modification to the Groundwater Limitations:

“Release of waste constituents from any storage, treatment, or disposal component associated with the WWTF shall not cause groundwater within influence of the WWTF to be degraded above naturally occurring background concentrations or, in combination with other sources of the waste constituents, to contain waste constituents in concentrations equal to or greater than that listed below (whichever is greater).”

RESPONSE: The requested modification was made.

CITY – COMMENT 4: The City is concerned that 24-hour composite sampling may lead to false positives for certain constituents (e.g., cyanide and bis(2-ethylhexyl)phthalate)). The City requests the following modification to footnote 16 in the Effluent Monitoring section of the Monitoring and Reporting Program:

“¹⁶ Except where required otherwise by constituent testing protocol or approved by the Executive Officer.”

RESPONSE: The requested modification to footnote 16 was made.

CITY – COMMENT 5: The City requests that proposed receiving water fecal coliform organism testing be reduced from twice a week to weekly with the following footnote:

“One additional sample will be collected per 30-day period to demonstrate compliance with receiving water limitation D.14. Sample must not be collected at the same time as other weekly monitoring.”

RESPONSE: Footnote 5 was added to the table in the Receiving Surface Water Monitoring section of the Monitoring and Reporting Program. Footnote 5 reads as follows:

“⁵ One additional sample shall be collected per 30-day period to demonstrate compliance with receiving water limitation D.14. The sample shall not be collected at the same time as other required weekly monitoring.”

CENTRAL VALLEY CLEAN WATER ASSOCIATION (CVCWA) COMMENTS

CVCWA – COMMENT 1: Using the lowest observed upstream hardness concentration for determining metals criteria without consideration of the effluent hardness is unreasonable and inconsistent with language in the California Toxics Rule.

RESPONSE: Regional Water Board staff concur that downstream hardness data (i.e., receiving water data that accounts for effluent hardness) may be appropriate for establishing hardness-dependant metals criteria in the Atwater Drain; however, no downstream data have been provided. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual conditions at the time of discharge, effluent limitations must be set using the worst-case condition (e.g., lowest ambient hardness) to protect beneficial uses for all discharge conditions. Thus, the proposed effluent limitations are based on the lowest measured upstream hardness.

The lowest upstream hardness concentrations are likely to occur during storm events, which is when the largest upstream flows are expected to occur. The City’s self monitoring reports indicate upstream instantaneous flows as high as 70 million gallons per day (approximately 17.5 times greater than the current WWTF flow). Under these conditions the upstream hardness will significantly influence the downstream hardness.

Our 12 October 2006 response-to-comments letter recognized that developing the effluent limitations based on the lowest measured upstream hardness may be overprotective. The TWDRs include a provision requiring the City to conduct a receiving water hardness study. The study scope will be subject to Executive Officer approval. Pending Executive Officer approval of the technical justification for the receiving water hardness proposed by the City at completion of the study, the permit will be reopened for consideration of modified effluent limitations for metals with hardness-dependent criteria.

CVCWA – COMMENT 2: The fixed ammonia effluent limitations in the TWDRs are overprotective and “floating” effluent limitations are appropriate.

RESPONSE: See response to City - Comment 1.

CVCWA – COMMENT 3: The Fact Sheet and TWDRs do not contain sufficient information to clearly show how the Regional Water Board determined there is reasonable potential to exceed water quality objectives for ammonia and that USEPA's December 1999 publication, *Update of Ambient Water Quality Criteria for Ammonia* (1999 Ammonia Update) is a relevant and appropriate information source for developing numeric criteria to implement a narrative objective.

RESPONSE: As stated in Finding 38, 40 CFR 122.44(d) requires water quality-based effluent limitations (WQBELs) for all pollutants that are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an in-stream excursion above any State water quality standard, including State narrative criteria (or objectives) for water quality. The Basin Plan's narrative toxicity objective states: "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." For determining whether there is reasonable potential for an excursion above a narrative objective, the regulations prescribe three discrete methods (40 CFR 122.44(d)(vi)). The Regional Water Board often relies on the second method because the USEPA's water quality criteria have been developed using methodologies that are subject to public review, as are the individual recommended criteria guidance documents.

In accordance with 40 CFR 122.44(d)(1)(vi)(B), it is appropriate to use the 1999 Ammonia Update. The 1999 Ammonia Update contains USEPA's most recent freshwater aquatic life criteria for ammonia, superseding all previous USEPA recommended freshwater criteria for ammonia.

As explained in the Fact Sheet, untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. The Atwater WWTF operates in a nitrification mode. However, inadequate or incomplete nitrification may result in the discharge of high ammonia concentrations to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Thus, discharges of ammonia have the potential to violate the Basin Plan narrative toxicity objective.

Furthermore, review of the City's self-monitoring reports indicates that the discharge exceeded the chronic ammonia criteria several times between January 2001 and April 2006.

CVCWA – COMMENT 4: CVCWA recommends that the final electrical conductivity (EC) effluent limit of 700 umhos/cm be removed from the TWDRs because it is inappropriate to include a final EC effluent limitation until the City has had an opportunity to complete a site-

specific salinity study. In addition, setting the final effluent limitation at 700 umhos/cm may create an antibacksliding issue if the City's salinity study supports a higher EC limitation.

RESPONSE: The final EC effluent limitation of 700 umhos/cm has not been removed from the TWDRs. Staff's preliminary analysis indicates there is evidence that the soil and climate at the Gallo Ranch is suitable for growing salt sensitive crops. According to 1995 and 2002 Department of Water Resources land use maps, salt sensitive crops (i.e., beans and strawberries) were grown within a four-mile radius of the Gallo Ranch, some as close as one-half mile from the ranch. Precipitation and storm water runoff may have, on average, some mitigating affect on the impact from the discharge on groundwater quality, however, this has not been evaluated and Gallo Ranch has other significant salt sources from confined animal facilities, cheese plants, canning facilities and farming that may have an adverse impact on the water quality of the hydrographic unit. Additionally, the City's self-monitoring shows consistently that it can meet the proposed EC limitation. Therefore, Staff believes an effluent EC limitation of 700 umhos/cm is relevant and appropriate at this time given the circumstances of the City's discharge.

Nonetheless, the TWDRs allow the City to provide a more detailed, site-specific investigation of whether an EC greater than 700 umhos/cm represents its best efforts and is reasonably protective of the agricultural beneficial use. Provision 18 specifies the information that must be included in such an investigation. Pending Executive Officer decision that any investigation result warrants reconsideration of the EC effluent limitation, the permit will be reopened for consideration of a revised EC effluent limitation.

Concerning whether reopening the permit for consideration of a relaxed EC effluent limitation may create a backsliding issue, the antibacksliding provisions in Section 402(o)(2) of the Clean Water Act allow relaxation of an effluent limitation if information not available at the time of permit issuance becomes available, and the new information would have justified different permit conditions at the time of issuance. Relaxation of the EC effluent limitation would be based on new information presented in a site-specific investigation conducted by the City.

UNITED STATES FISH AND WILDLIFE SERVICE (USFWS) COMMENTS

USFWS – COMMENT 1: While the Arena Plains Unit of the Merced National Wildlife Refuge is not currently open to the public, this status can change at any time. In addition, refuge staff, management partners, and independent researchers regularly come into contact with the Atwater Drain. WWTF effluent must be safe for the public.

RESPONSE: Provision 11 in the TWDRs requires the City, by 7 December 2011, to treat the wastewater to a level deemed suitable by the California Department of Health Services for full water contact recreation. In the interim, Provision 6 requires the City to submit a Public Safety Notification Plan that identifies actions the City will take to notify the public that the water in the Atwater Drain is wastewater treatment plant effluent and

that it does not meet the California Department of Health Services criteria for drinking or for full water contact recreation. Provision 7 requires the City to place and maintain warning signs along the Atwater Drain.

USFWS – COMMENT 2: The USFWS is concerned that increased quantities of pollutants associated with an expansion of the WWTF from 6 million gallons per day (mgd) to 12 mgd may affect wetland ecosystems on the refuge. USFWS is also concerned that an increase flow beyond 6 mgd may negatively impact vernal pool habitat.

RESPONSE: The TWDRs do not authorize an increase in flow over that in the existing Waste Discharge Requirements (Order No. 95-034), which limit the average dry weather discharge flow to 6.0 mgd. Any increase beyond a monthly average dry weather discharge flow of 6.0 mgd would require a separate action by the Regional Water Board.

The TWDRs contain effluent limitations for several constituents that were not included in the City's existing waste discharge requirements. Effluent limitations in the TWDRs were included for all pollutants that were found to have a reasonable potential to cause or contribute to an exceedance of a water quality objective. Compliance with the TWDRs will result in lower pollutant concentrations discharged from the WWTF to the Atwater Drain.