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20 April 2012

Ms. Pamela C. Creedon
Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95870-6114

Attention: Gayleen Perreira, Senior Water Resources Control Engineer
Josh Palmer, Water Resources Control Engineer

Subject: Linda County Water District Wastewater Treatment Plant Tentative Order Comments
K/J 1170001.01

Dear Ms. Creedon:

On 11 May 2011 the Linda County Water District (District) submitted a Report of Waste Discharge (ROWD) to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) in support of a renewal of its National Pollutant Discharge Elimination System Permit (NPDES Permit) for the District's Wastewater Treatment Plant (WWTP or Facility). The WWTP is currently operating under NPDES Order No. R5-2006-0096, Permit No. CA0079651. The District received a copy of the Tentative Order of the proposed NPDES Permit in late March 2012.

We appreciate the opportunity to review this Tentative Order, and have identified the following issues, which are further discussed below:

- Copper effluent limitation,
- Dichlorobromomethane effluent limitation,
- Mercury mass loading limitation,
- Nitrate plus nitrite effluent limitation,
- Request for removal of chlorine residual effluent limitation for discharge to percolation ponds,
- Request for continued, temporary discharge to percolation ponds during rehabilitation of side bank outfall,
- Request for change to pH effluent limitation for discharge to percolation ponds,

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- Request for submittal of mixing zone validation study within 18 months after initiation of discharge from newly rehabilitated side bank outfall, and
- Editorial correction to language in Tentative Order regarding Monitoring Location EFF-002 and Discharge Point No. 002.

Copper Effluent Limitation

The District requests that a reopener provision be included in the Order that would allow the Central Valley Water Board to reopen the Order for modification of final effluent limitations for copper based on the findings of a water effects ratio study, translator study, and/or the mixing zone validation study required by the Tentative Order.

Dichlorobromomethane Effluent Limitation

Section IV. Effluent Limitations and Discharge Specifications of the Tentative Order provides effluent limitations for dichlorobromomethane as shown in **Tables 6, 7 and 8** of the Tentative Order. The WWTP will have difficulty in meeting its proposed final dichlorobromomethane effluent limitation due to the Facility's recent change in chlorination-dechlorination processes, and an associated increase in dichlorobromomethane concentrations measured in the disinfected, tertiary treated effluent. Historic dichlorobromomethane water quality data measured at the Old WWTP and the two dichlorobromomethane data points (9.4 µg/L and 10.2 µg/L) collected at the new Facility compared to the proposed final dichlorobromomethane effluent limitations are shown in **Figure 1**, which demonstrates that the New WWTP will not be able to comply with the proposed performance based dichlorobromomethane effluent limitations calculated with data collected from the Old WWTP; it is technologically infeasible.

The dichlorobromomethane levels in the disinfected, tertiary treated effluent from the new Facility are expected to show concentrations similar to the initial dichlorobromomethane measurement taken 10 weeks after plant start up. The impacts of the upstream process upgrades on the chlorination process are significant. The secondary treatment upgrades impact the quality of the effluent and the chlorine demand behavior. In particular, the removal of ammonia via nitrification in the activated sludge process dramatically alters the chemistry of the disinfection process. The disinfection process is shifted from one form of chloramination to that of free chlorination. Free chlorination possesses more reactive and biocidal properties than chloramination, which has both potential benefits and drawbacks. On the beneficial side, the use of free chlorine results in greater disinfection efficacy and lower TC organism counts. However, the increased reactivity also contributes to the significant formation of regulated DBPs, such as chloroform, chlorodibromomethane, bromoform, and dichlorobromomethane. The increase in DBP concentration levels can be as high as ten times greater as a result of switching from chloramination to free chlorination. While none of these constituents were detected above 1.0 µg/l during the 2002 water quality study, dichlorobromomethane was included in the new permit.

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The District requests that the full water quality-based effluent limitations be implemented in the Permit. Page F-56 of the Fact Sheet lists the average monthly effluent limitation (AMEL) as 139 µg/L and the maximum daily effluent limitation (MDEL) as 253 µg/L based on the 0.56 µg/L CTR criterion for dichlorobromomethane and 347:1 dilution credit for human health constituents. The District further proposes to monitor the disinfected, tertiary treated effluent for a 12-month period to generate data that can be used to calculate new performance-based effluent limitations that can be applied to the discharge as a final effluent limitation. As such, the District requests that a reopener provision be included in the Order that would allow the Central Valley Water Board to reopen the Order for modification of final effluent limitations for dichlorobromomethane based on new data from the upgraded Facility. It is anticipated that the recalculated performance based effluent limitations for dichlorobromomethane would be considerably lower than the 139 µg/L and 253 µg/L water quality-based effluent limitations. The WWTP is still operating under startup phase, and as such, the District has yet to optimize chlorine dosage to provide the required level of disinfection and minimize chlorine usage, and thus reduce the potential for disinfection byproduct formation. The District requests that the Central Valley Water Board establish a time schedule for bringing the discharge into compliance that is as short as possible, to establish interim requirements, and to require the discharger to prepare a disinfection optimization work plan.

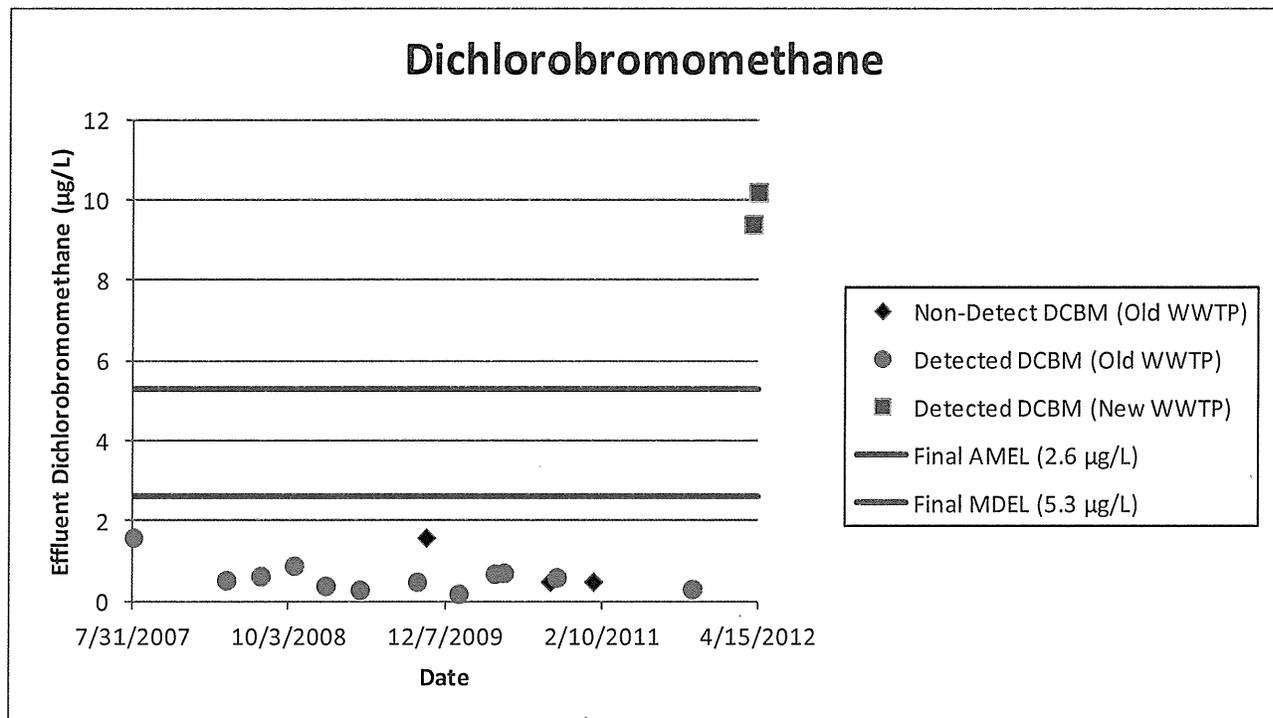


Figure 1: Comparison of Dichlorobromomethane Concentrations Measured in Disinfected, Secondary Treated Effluent (Old WWTP) and Disinfected, Tertiary Treated Effluent (New WWTP).

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Mercury Mass Loading Limitation

The performance-based mass effluent limitations for mercury discharged to the receiving water that are included in the Tentative Order do not provide for an increase in the mass loading of mercury to the Feather River as the WWTP expands its permitted capacity from 1.8 MGD to 5.0 MGD. The District anticipates that the 3.2 MGD of additional permitted capacity at the WWTP will result in an increase in the mass of mercury treated by the Facility, and thus an associated increase in the mass of mercury discharged to the receiving water. The performance-based mass effluent limitations for mercury in the Tentative Order in effect place a cap on the WWTP with regard to mercury loading at the historic permitted capacity of 1.8 MGD. Additionally, the calculation used by Central Valley Water Board staff to account for the increase in mercury loading to the WWTP due to the additional loading from the City of Marysville Wastewater Treatment and Reclamation Facility (WWTRF) uses an average effluent concentration for mercury (0.000019 mg/L) estimated for the combined Marysville and Linda County flows at the new WWTP that does not account for seasonal variability in mercury concentrations and loadings from the City of Marysville WWTRF.

The District requests that the Central Valley Water Board recalculate performance-based mass effluent limitations for mercury discharged to the Feather River by (A) taking into account the additional mass loading of mercury to the WWTP as wastewater flows in the service area increase above the historic WWTP permitted capacity of 1.8 MGD to the new permitted capacity of 5.0 MGD, and (B) using the average effluent concentration for mercury (0.000027 mg/L) calculated for the City of Marysville WWTRF and reported in the District's Antidegradation Analysis (LWA 2011) when calculating the incremental mercury mass loading to the WWTP that is attributable to the City of Marysville WWTRF.

Nitrate Plus Nitrite Effluent Limitation

Section IV. Effluent Limitations and Discharge Specifications of the Tentative Order provides effluent limitations for nitrate plus nitrite (as N) as shown in **Tables 6, 7 and 8** of the Tentative Order. The WWTP will have difficulty in meeting its proposed final nitrate plus nitrite effluent limitation due to the Facility's recent installation of four air activated sludge basins (including nitrification and denitrification) that have yet to achieve optimal operational performance, and thus currently produce nitrate plus nitrite levels in excess of the 10 mg/L as N effluent limitation provided in the Tentative Order. Therefore, the District requests a Time Schedule Order (TSO) that includes interim effluent limitations for nitrate plus nitrite (as N) and protection from the imposition of mandatory minimum penalties. Justification for the TSO is provided in **Attachment A. Figure 2** shows historic nitrate plus nitrite water quality data measured at the Old WWTP and the recent nitrate data collected during the startup phase of the new Facility as compared to the proposed final nitrate plus nitrite effluent limitation, and demonstrates that the New WWTP will not be able to comply with the proposed nitrate plus nitrite effluent limitation. Nitrite (is not currently being evaluated at the WWTP because it is assumed to be non-detect.

The District requests that a performance-based effluent limitation for nitrate plus nitrite be applied to the discharge as an interim effluent limitation for a 6-month period to allow the District

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to optimize the WWTP's nitrification-denitrification processes. During start-up of the New WWTP there have been twenty-three (23) samples taken between 30 January 2012 and 16 April 2012. The infeasibility analysis and TSO justification provided in **Attachment A** are intended to assist the Central Valley Water Board in making the findings necessary to issue a TSO that protects the District from mandatory minimum penalties that would otherwise be assessed pursuant to Water Code Section 13385. The District has invested a great deal in its recent upgrades to the WWTP for the purpose of improving effluent quality and reducing its impact on receiving waters. One of the main design objectives of the WWTP is to achieve nitrogen removal levels to meet effluent limitations. The WWTP is still operating under startup phase, and as such, the District has yet to optimize its nitrification-denitrification processes to consistently provide the required level of nitrogen removal. The District requests that the Central Valley Water Board establish a time schedule for bringing the discharge into compliance that is as short as possible, to establish interim requirements, and to require the discharger to prepare a nitrogen removal optimization work plan.

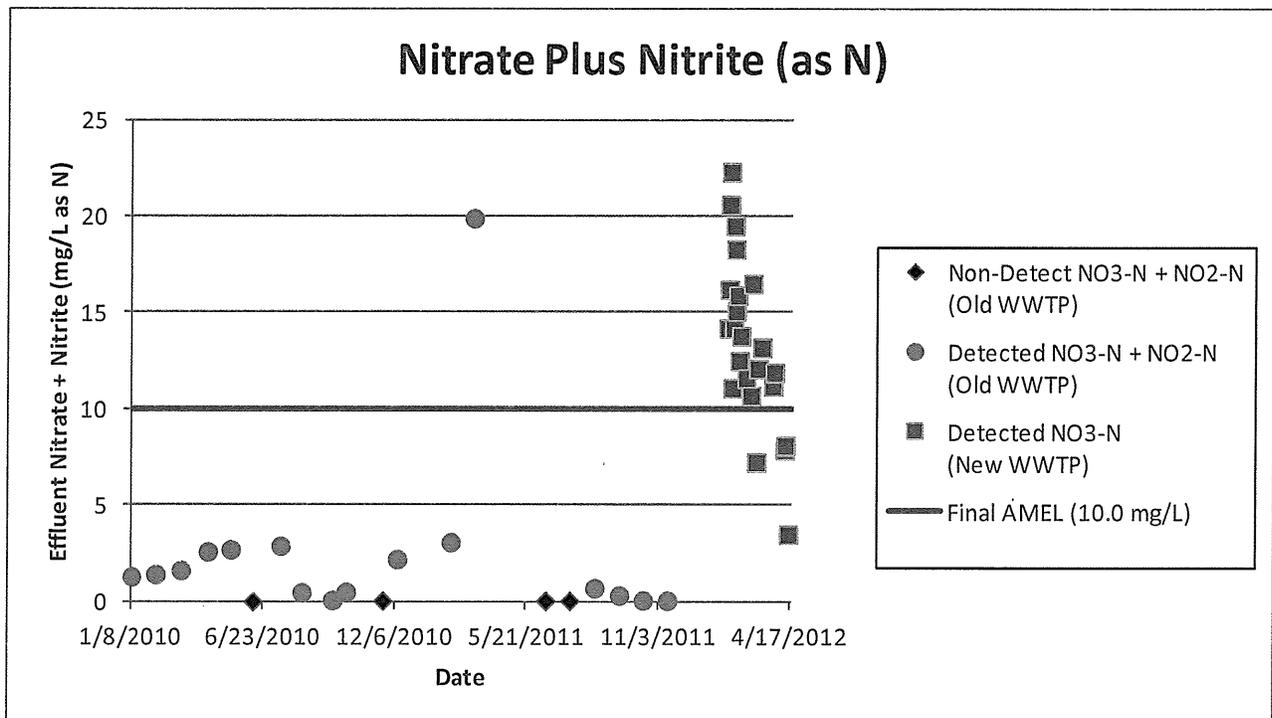


Figure 2: Comparison of Nitrate Plus Nitrite (as N) Concentrations Measured in Disinfected, Secondary Treated Effluent (Old WWTP) and Nitrate (as N) Concentrations Measured in Disinfected, Tertiary Treated Effluent (New WWTP).

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Request for Removal of Chlorine Residual Effluent limitations For Discharge to Percolation Ponds

The District requests that the 4-day average (0.011 µg/L) and 1-hour average (0.019 µg/L) chlorine residual effluent limitations for discharge to the percolation ponds (Discharge Point No. 002) be removed from the Order because the discharge of chlorine to the percolation ponds at concentrations likely to occur in the WWTP's disinfected and dechlorinated effluent does not represent a threat to freshwater aquatic life in the receiving water. Additionally, a nearby and similarly situated discharger, the City of Yuba City (Order No. R5-2007-0134 and Order No. R5-2010-0007), is not required to meet chlorine residual effluent limitations when discharging disinfected effluent to its percolation ponds.

Request for Continued Temporary Discharge to Percolation Ponds

The District requests that it be allowed to discharge disinfected, tertiary treated effluent to the percolation ponds for a limited 36-month period, beginning 31 December 2012, to allow for rehabilitation of the existing side bank outfall structure for the purpose of erosion protection prior to discharging to the Feather River. Once the side bank outfall structure is suitable for discharging to the Feather River, discharges to the percolation ponds only would occur under emergency conditions or upset (e.g., dechlorination failure) and when maintenance may degrade water quality.

Request for Change to pH Effluent limitation For Discharge to Percolation Ponds

The District requests that the instantaneous minimum effluent limitation for pH when effluent is discharged to the percolation ponds (Discharge Point No. 002) be changed to 6.0 standard units from 6.5 standard units. This request for lowering of the instantaneous minimum effluent limitation for pH at the percolation ponds should not have a detrimental impact on groundwater due to the buffering capacity of the soil underneath the percolation ponds.

Request for Submittal of Mixing Zone Validation Study within 18 Months after Initiation of Discharge from newly Rehabilitated Side Bank outfall

The District requests that the submittal date for the mixing zone validation study that it is required to perform be changed from the 1 July 2014 date in the Tentative Order to a date within 18 months after the District begins discharging from the newly rehabilitated side bank outfall to the Feather River. The District would still submit a work plan and schedule for conducting the study to the Central Valley Water Board within 6 months of adoption of the Tentative Order.

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Request for Removal Chemical Additives Evaluation and Minimization Study

The Tentative Order requires that the District undertake a Chemical Additives Evaluation and Minimization Study (pp. 30, E-20, F-107) due to concerns that chemical additives for alkalinity control used to stabilize the WWTP's biological nitrification/denitrification process may increase effluent salinity concentrations. The District is concerned that information from the study will be used to constrain the District's operational flexibility in operating its nitrification/denitrification process. The District acknowledges the increase in the electrical conductivity (EC) effluent limitation for the discharge granted by the Regional Board once the New WWTP begins operation at a permitted discharge capacity of 5.0 MGD. The raising of the effluent limitation for EC from 843 $\mu\text{mhos/cm}$ (pre-plant upgrade) to 1,000 $\mu\text{mhos/cm}$ (post-plant upgrade) was granted due to the expectation that effluent EC will increase with chemical addition for alkalinity control necessary to maintain a stable biological nitrification/denitrification process. The District also understands that the Chemical Additives Evaluation and Minimization Study requirement is a potential safeguard put in place by the Regional Board in light of the increased EC effluent limitation. However, the District will operate the WWTP to minimize chemical additions as a means to both minimize its operational costs and maintain compliance with its EC and other effluent limitations. The District respectfully requests that the Regional Board remove the Chemical Additives Evaluation and Minimization Study requirement from the Tentative Order because it is an unnecessary measure that will not lead to increased compliance with the EC effluent limitation, and may in fact act to destabilize the biological nitrification/denitrification process that could in turn lead to exceedances of the effluent limitation for nitrate plus nitrite.

Editorial Corrections to Tentative Order, Monitoring and Reporting Program (Attachment E), and Fact Sheet (Attachment F)

- The District requests the deletion of the word "*coagulated*" from the Tentative Order as the wastewater will not be coagulated by the upgraded treatment system. The reference to this term is found on page 31 of the Limitations and Discharge Requirements, and pages F-62 and F-108 of the Fact Sheet (Attachment F).
- Table E-1 of Section II. Monitoring Locations of the Monitoring and Reporting Program (Tentative Order Attachment E) describes the monitoring location named "EFF-001" as the single compliance monitoring location for effluent discharged to the Feather River (Discharge Point No. 001) or the percolation ponds (Discharge Point No. 002). However, while not listed in Table E-1, an additional effluent monitoring location named "EFF-002" is mentioned in various sections of the Monitoring and Reporting Program (Tentative Order Attachment E), Fact Sheet (Tentative Order Attachment F), and Effluent and Receiving Water Characterization Study (Attachment I). Mention of the monitoring location EFF-002 appears in the following attachments at the specified page numbers: Attachment E – pp. E-8, E-21; Attachment F – pp. F-7, F-102; and Attachment I – p. I-1. If monitoring location EFF-002 is not a valid monitoring location name, then all references to it should be removed from the Tentative Order.

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- Item b. Flow on p. F-21 of the Fact Sheet (Attachment F) contains a sentence that states, "Therefore, this Order contains an average dry weather flow effluent limit of 1.8 MGD applicable to discharges to the ponds at Discharge Point No. 001." Discharges to the percolation ponds occur at Discharge Point No. 002 as specified in Table 2. Discharge Location on p. 2 of the Tentative Order. The above sentence should be changed to state, "... discharges to the ponds at Discharge Point No. 002."

Thank you for your consideration of the above issues in the District's Tentative Order. The District appreciates the efforts that the Central Valley Water Board has taken in this Permit Renewal Process. Please contact Brian Davis at (916) 858-2710 or BrianDavis@KennedyJenks.com if you have any questions regarding this permit application.

Sincerely,

KENNEDY/JENKS CONSULTANTS

Brian G. Davis FOR

Brian G. Davis
District Engineer

Enclosure

cc: Doug Lofton, LCWD

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References

Larry Walker Associates (LWA). (2011). *Antidegradation Analysis of Proposed Discharge Modification for the Linda County Water District Wastewater Treatment Plant*. May 2011.

APRIL 20, 2012

LINDA COUNTY WATER DISTRICT

Linda County Water District Wastewater Treatment Plant Infeasibility Analysis

submitted to

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

prepared by

LARRY WALKER ASSOCIATES

LARRY
WALKER



ASSOCIATES

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INTRODUCTION

Linda County Water District (District) has upgraded its wastewater treatment plant (WWTP) to increase pollutant removal. Completion of the WWTP upgrades are projected by December 31, 2012. The WWTP is currently operating under NPDES Order No. R5-2006-0096, Permit No. CA0079651. The District received a copy of the Tentative Order of the proposed NPDES Permit in late March 2012, which contained an effluent limit for nitrate plus nitrite (as nitrogen). The District will have difficulty complying with this effluent limit, as the WWTP's new air activated sludge basins are not expected to achieve optimal operational performance by the permit adoption date. Therefore, the District requests an extension of the startup period and interim effluent limitations for nitrate plus nitrite (as nitrogen) as protection from the imposition of mandatory minimum penalties, until the treatment process has reached optimal operational performance.

BACKGROUND

Water Code Section §13385(j)(1)(D)(i) provides a new biological treatment plant with protection from mandatory minimum penalties for the first 90 days after startup (anticipated date of February 7, 2012). The District has complied with the requirements necessary to receive that coverage, which extends to May 7, 2012. However, due to unforeseeable difficulties with the biological treatment system startup, the WWTP will be unable to consistently achieve compliance with the final limits for nitrate plus nitrite (as nitrogen) by that date. The District respectfully requests that the Regional Water Board extend the startup period and issue an interim limit and compliance schedule for nitrate plus nitrite (as nitrogen). The infeasibility analysis provided here is intended to assist the Regional Water Board in making the findings necessary to issue an extension of the startup period to protect the District from mandatory minimum penalties that would otherwise be assessed pursuant to Water Code Section 13385.

EFFLUENT LIMIT ATTAINABILITY

The permit limits for nitrate plus nitrite (as nitrogen) are compared to the maximum observed effluent concentrations measured in WWTP effluent between February 7, 2012 and April 16, 2012 in the table below.

Constituent	Average Monthly Effluent Limit (mg/L)	Effluent Quality (mg/L)
Nitrate plus nitrite (as nitrogen)	10	19.5

An infeasibility analysis and compliance schedule justification is presented in the following sections.

PRETREATMENT PROGRAM

The purpose of the District's pretreatment program is to protect the treatment plant and environment from adverse impacts from hazardous or toxic wastes discharged to the sewage system. The pretreatment ordinance is available upon request. The service area is over 80% residential and no industries currently have pretreatment permits.

POLLUTANT ANALYSIS - NITRATE PLUS NITRITE (AS NITROGEN)

The maximum observed nitrate (as nitrogen) concentration measured in the upgraded treatment plant's effluent is 19.5 mg/L (measured in February 7, 2012), which exceeds the average monthly effluent limit of 10 mg/L in the Tentative Order, along with 13 of the 17 additional samples. The maximum average monthly concentration is 14.7 mg/L (February 2012), which also exceeds the average monthly effluent limit. The statistical probability of effluent compliance using the daily dataset is 39%, which means that the WWTP can expect to be out of compliance 61% of the time. Therefore, the District may not be able to comply with the final effluent limit for nitrate plus nitrite (as nitrogen) within 90 days from startup. Effluent data for nitrate (as nitrogen) collected at the new treatment plant in 2012 are shown with the effluent limit in Figure 1.

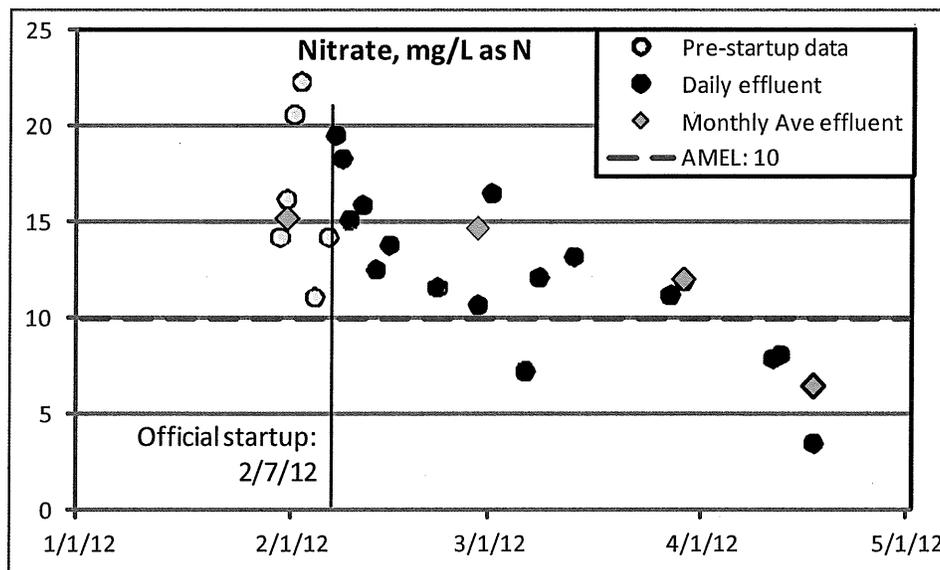


Figure 1. Effluent Nitrate as Nitrogen Concentrations with AMEL

Prior to the treatment process upgrade, average concentrations of nitrate plus nitrite (as nitrogen) were 1.76 mg/L (average between July 2007 and November 2011). No significant changes have occurred within the collection system, therefore the largest source of nitrate to the effluent is most likely the new nitrification and denitrification process. The District will pursue information regarding possible influent sources, which are expected to be small and difficult to control. It is unlikely that a pollution prevention plan with influent source controls would effectively reduce effluent concentrations.

The District plans to achieve compliance with the effluent limit through the stabilization and optimization of the new nitrification and denitrification process. A trend of decreasing concentrations can already be seen in Figure 1. The air activated sludge basins are expected to be fully operational by December 31, 2012.

SUMMARY

This evaluation indicates that compliance with final effluent limit for nitrate plus nitrite (as nitrogen) may not be feasible for the District within 90 days from startup. The District requests that the Regional Water Board extend the startup period and issue an interim limit and

compliance schedule for nitrate plus nitrite (as nitrogen) to provide time for the treatment process mechanism (air activated sludge basins) to achieve optimal operational performance, as described in the table below. The City requests performance-based interim limits with which the WWTP can comply. The schedule presented in this table is as short as practicable.

Proposed Actions and Estimated Time to Complete

Pollutant	Proposed Action	Estimated Time to Complete
Nitrate plus Nitrite as Nitrogen	<ul style="list-style-type: none"> • Effluent monitoring • Stabilization and optimization of upgraded nitrification/denitrification components within the treatment plant 	<ul style="list-style-type: none"> • Ongoing • By December 31, 2012