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OF LOS ANGELES COUNTY

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File No. 31-370-40.4A

Via Electronic Mail

Ms. Shana Rapoport
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Dear Ms. Rapoport:

Comment Letter - Los Angeles River Nitrogen Compounds and Related Effects TMDL

The Sanitation Districts of Los Angeles County (Sanitation Districts) appreciate the opportunity to provide comments on the proposed amendment to the Water Quality Control Plan for the Los Angeles Region (Basin Plan) to revise the total maximum daily load (TMDL) for nitrogen compounds and related effects in the Los Angeles River by incorporating site-specific ammonia objectives (SSOs) for select reaches of the Los Angeles River. As background, the Sanitation Districts operate eleven wastewater treatment facilities in Los Angeles County. One of these facilities, the Whittier Narrows Water Reclamation Plant (WRP), has a discharge outfall in the Los Angeles River watershed and, thus, is directly affected by this TMDL.

The Sanitation Districts worked collaboratively with the Cities of Los Angeles and Burbank, as well as interested parties such as the California Regional Water Quality Control Board, Los Angeles Region (Regional Board), the United States Environmental Protection Agency (USEPA), and the California Department of Fish and Game, to develop these SSOs. While the Sanitation Districts fully support the SSOs, we are strongly opposed to the addition of performance-based limits to this TMDL, and also believe that monitoring requirements in the TMDL associated with the SSOs need to be amended. Our comments are detailed below.

Performance-Based Limits

The Sanitation Districts request the following language be removed from pages 5 and 7 of the proposed amendment:

"Regardless of the SSO and SSO-derived WLAs, for discharges with concentrations below site-specific water quality objectives, effluent limitations shall ensure that effluent concentrations do not exceed the level of water quality that can be reliably maintained by the facility's applicable treatment technologies existing at the time of permit issuance, reissuance, or modification. Regional Water Board staff may consider recommendations from a Regional Water Board-led workgroup that will be charged with evaluating alternative methodologies for calculating effluent limitations for discharges with concentrations below site-specific water quality objectives. Permit compliance with anti-degradation and anti-backsliding requirements shall be documented in the permit fact sheets."

The following sections provide details to support this recommended revision.

Performance-Based Limits Were Not Included in the Basin Plan Amendment Adopting the SSOs

The ammonia SSOs were formally adopted by the Regional Board on June 7, 2007 with adoption of Resolution No. 2007-005 amending the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan). The resolution contained procedures for implementing the SSOs, to supplement the detailed implementation procedures for incorporating ammonia objectives into NPDES permits. These procedures did not include use of performance-based limits; the appropriate time to consider performance-based limits would have been at the time of adoption of the Basin Plan amendment adding the SSOs. The SSOs and their implementation procedures were approved by the State Water Resources Control Board (State Water Board) on January 1, 2008 (Resolution No. 2008-0004), the Office of Administrative Law on May 12, 2008 (File 2008-0401-03S), and the USEPA on March 30, 2009. None of the formal approvals of the SSOs indicated a need for performance-based limits to become part of the implementation process for the SSOs.

Performance-Based Limits Are Not Necessary to Protect Beneficial Uses

Performance-based limits are not necessary to protect the beneficial uses of the Los Angeles River. USEPA-recommended ambient water quality criteria for ammonia are set at the national level to be protective of conditions throughout the United States. However, because of the variety of water bodies and differing conditions throughout the country, the ammonia criteria may be over or under protective for some water bodies. Recognizing this fact, in 1999 when the USEPA issued an update to the ambient water quality criteria for ammonia, it acknowledged that ammonia toxicity is dependent on the ionic composition of the water body, but that the understanding of these effects was insufficient to include them in development of the national criteria. Because of this, the USEPA stated that such effects will "have to be addressed using water-effect ratios or other site-specific approaches."[1] Several studies have been done indicating that the toxicity of ammonia may be reduced in water bodies where there are high hardness and elevated concentrations of certain ions. Since many of the water bodies in the Los Angeles Region are dominated by effluent, the hardness and ion concentrations in these water bodies are much higher than those found in the test water used in the studies as the basis for the USEPA national criteria. For this reason, water-effect ratios for ammonia were developed and incorporated into SSOs.

The SSOs, as stated in findings made by the Water Boards during their adoption and approval, "provide the same level of protection for aquatic life in the affected waterbodies as the national 30-day average criteria are intended to"[2] and "would result in no adverse impact on wildlife."[3] Additionally, during consideration of the SSOs the Regional Board rejected the need to maintain existing ammonia objectives instead of adopting the SSOs, acknowledging that such an action would have "resulted in an objective that is more stringent than the threshold necessary to project aquatic life in these waterbodies."[4] The Regional Board also made it clear in its response to comments on the SSO Basin Plan amendment that the "proposed SSOs are based on a number of conservative assumptions" and "the SSOs are not a 'relaxing' of the objective."[5] Furthermore, USEPA's approval of the ammonia SSOs also recognized that "portions of this amendment which establishes ammonia criteria [are] as protective as those currently applicable for these water bodies in the Los Angeles Region," and that "given available data and expert opinion, the SSOs are protective of aquatic

[1] USEPA 1999 Update of Ambient Water Quality Criteria for Ammonia. EPA 882-R-99-014.
[2] Final Staff Report: Proposed Amendments to the Water Quality Control Plan – Los Angeles Region – To Incorporate Site-Specific Ammonia Objectives for Select Inland Surface Waters in the San Gabriel River, Los Angeles River and Santa Clara River Watersheds, July 2007 (Final Staff Report) at page 11.
[3] State Water Board Resolution No. 2008-0004 at page 1.
[4] Final Staff Report at page 34.
[5] Basin Plan Amendment – Revision to the Early Life Stage [ELS] Implementation Provision of the Freshwater Ammonia Objectives for Inland Surface Waters – Responsiveness Summary for August 2005 Public Notice at page 7 noting the assumption of ELS present without evaluation was a "conservative assumption" and "an environmentally cautious approach."

life."[6] Therefore, requiring stricter, performance based limits would not provide any additional water quality benefits and is not necessary to protect beneficial uses.

Performance-Based Limits Restrict Options for Disinfection

One of the primary reasons the Sanitation Districts pursued the ammonia SSO was to provide operational flexibility to our WRPs. The Sanitation Districts currently operate all of our WRPs, including the Whittier Narrows WRP, with nitrification/denitrification (NDN) to minimize the discharge of ammonia and nutrients. Under typical lower flow conditions, the NDN process removes all the ammonia present in wastewater. Without ammonia present, when chlorine (chlorine gas or sodium hypochlorite) is used for disinfection, the chlorine contact times required for adequate disinfection result in the formation of elevated concentrations of trihalomethanes (THMs). If TMHs exceed drinking water maximum contaminant levels (MCLs), the recycled water that is produced cannot be put to beneficial use. Therefore, ammonia is added back during the disinfection process to form chloramines, which reduces THM formation, but increases effluent ammonia concentrations. It also increases formation of the disinfection by-product NDMA. Balancing the disinfection process to attain adequate disinfection, while minimizing THM formation, minimizing NDMA formation, and meeting effluent ammonia limitations, is not an easy process. Constraining effluent ammonia concentrations to levels tighter than necessary to protect water quality removes operational flexibility, and may impact the ability to beneficially use recycled water.

Not only do performance-based limits unnecessarily complicate efforts to optimize disinfection, but they are counter to the stated intent of the SSOs. The Regional Board has previously acknowledged the need for ammonia SSOs, due to the complexities of the disinfection treatment process and the variability associated with the biological NDN process, in Section VIII.B of the July 2007 Final Staff Report. Setting performance-based limits based on the optimal performance of NDN would restrict operational flexibility and not allow for treatment plants to be optimized to address all constituents of concern, not just ammonia.

Establishing Performance-Based Limits Equates to Derating Plant Capacity

NDN treatment is used to remove ammonia and nutrients from wastewater. The nitrification step, which biologically oxidizes ammonia into nitrite, is dependent on two main factors: the retention time of flow in the biological reactor and the amount of nitrifying bacteria present in the reactor. Since the amount of nitrifying bacteria is fixed, based on the design capacity of the WRP, the variable which will most greatly affect the WRP's ability to nitrify and remove ammonia is the retention time in the reactor. As flow increases, the time in the reactor decreases, resulting in less time for ammonia oxidation to occur and, ultimately, more ammonia in the effluent. Under lower flow conditions, all of the ammonia at the Sanitation Districts' WRPs is typically oxidized to nitrite. However, during high diurnal flow peaks and other high flow events, this not always the case. Additionally, temperature can impact ammonia removal as well, with colder temperatures inhibiting nitrification and thus causing lessened removal of ammonia during the winter months.

Due to the economy and extensive water conservation, the Sanitation Districts' WRPs are currently running well below design capacity. For example, the current influent flowrate at the Whittier Narrows WRP is approximately 8 MGD, while the design capacity of the facility is 15 MGD. If a performance-based limit is set based on current performance, it would prohibit usage of the full 15 MGD capacity and would effectively derate the plant.

Performance-Based Limits Would Restrict Necessary Maintenance Activities

Performance-based limits also limit the ability to maintain a WRP. Occasionally, biological treatment units must be taken out of service for cleaning and routine maintenance. When this is done, flow through other units is increased. As previously described, additional flow through the remaining units in service could result in increased ammonia concentrations in the effluent and possible violations of any performance-based limits.

[6] USEPA March 30, 2009 approval letter at page 2.

Performance-Based Limits are a Disincentive for Improving System Performance

The Sanitation Districts continually strive to improve WRP operation and effluent quality to the extent feasible. One benefit to increasing effluent quality is to increase the margin of safety for compliance, so that effluent violations become less likely. However, performance-based limits remove the incentive to conduct such improvements. If more stringent limits are imposed whenever effluent quality improves, justifying improvements becomes much more difficult. The improvements would no longer serve as a means of ensuring more consistent compliance.

Ability to Supply Recycled Water May Decrease as a Result Performance Based Limits

The Sanitation Districts serve approximately five million people and produce approximately 120 MGD of recycled water in our Joint Outfall System (JOS)[7]. The JOS is designed to allow the flexibility to divert flows, when needed, to specific WRPs. In several locations, flow is diverted to maximize recycled water usage. As the demand for recycled water increases, the Sanitation Districts are making every possible effort to divert flows to locations where it can be reused. If performance-based limits for ammonia are enacted, the Sanitation Districts' ability to divert flows to optimize reuse will be hampered. As stated above, an increase in flow at a WRP may result in increased ammonia in the effluent and, ultimately, a violation of any previously established performance-based limits. As the Sanitation Districts take every step to be in compliance with permit limits, our ability to divert flows to maximize reuse would be limited.

Monitoring Requirements

The Sanitation Districts request the new monitoring requirements on page 9 of the proposed amendment be replaced with the following language:

"Tillman, LA-Glendale, Burbank, and Whittier Narrows POTWs must conduct confirmatory receiving water monitoring to verify that water quality conditions are similar to those of the 2003 ammonia WER study period. Confirmatory monitoring will consist of the following:

1. On an annual basis, receiving water hardness and alkalinity will be evaluated and compared to conditions observed from 2000 to 2007. If the current year's annual mean hardness and alkalinity is 25% lower than the 2000 to 2007 mean, the Discharger will initiate quarterly receiving water chronic testing using the invertebrate *Ceriodaphnia dubia* at the downstream receiving water location 100 feet below the outfall.[8] Results from this toxicity testing will be evaluated to determine if discharged ammonia is causing toxicity (see section (2) below for details on this evaluation).
2. Evaluation of all receiving water toxicity will be conducted to determine if discharged ammonia was a likely cause of any observed toxicity. If it is determined that observed receiving water toxicity is caused by discharged ammonia and discharged ammonia levels were below the SSO adjusted ammonia water quality objective, the Discharger shall develop and submit a plan for reevaluating the SSO to the Executive Officer.
3. Compare downstream ammonia measurements with calculated objectives to ensure adequate protection of beneficial uses. If it is determined that downstream receiving water ammonia objectives are not being met, the Discharger shall evaluate if discharged ammonia concentrations below the SSO adjusted ammonia water quality objective are responsible for the downstream objective exceedances."

The following sections provide details to support this recommended change.

[7] Ownership and operation of the Joint Outfall System is proportionally shared among the signatory parties to the amended Joint Outfall Agreement effective July 1, 1995. These parties include County Sanitation Districts of Los Angeles County Nos. 1, 2, 3, 5, 8, 15, 16, 17, 18, 19, 21, 22, 23, 28, 29, and 34, and South Bay Cities Sanitation District of Los Angeles County.

[8] 25% reduction determined using statistical power analyses of the 2000 through 2007 hardness and alkalinity data assuming a minimum annual sample size of 12.

Monitoring to Verify Continued Applicability of the SSOs Should Follow Existing Procedures

Although the Sanitation Districts support monitoring to ensure the SSOs continue to be appropriate for the water body, we have concerns with the proposed changes to monitoring in the resolution. Given the vast amount of monitoring currently being performed, the requirement for additional monitoring seems unwarranted. As part of the adoption of the ammonia SSO, provisions were included in the Basin Plan to require the collection of monitoring data to allow evaluations that would ensure the SSO remained protective of beneficial uses. In the 2009 renewals of the NPDES permits for the San Jose Creek and Whittier Narrows WRPs, Sanitation Districts' staff worked with Regional Board staff to develop receiving water monitoring requirements to address this Basin Plan requirement. The monitoring program was considered by the Regional Board and adopted at a public hearing, with no opposition, on June 4, 2009. The receiving water monitoring program was determined to be appropriate for ongoing assurance that the SSOs remain protective of beneficial uses.

Since that time, the Sanitation Districts have been conducting the monitoring and submitting reports to Regional Board staff. These reports have been accepted and no indication or evidence has been provided that this monitoring program is not adequate to ensure the protectiveness of the SSOs. Since there is already an existing monitoring protocol that has been established to meet the Basin Plan requirements for confirming the SSOs, the Sanitation Districts request this monitoring program replace the proposed monitoring requirements in the TMDL resolution.

Monitoring to Verify Continued Applicability of the SSO Is Unnecessary Under Some Circumstances

Confirmatory monitoring should not be required when ammonia effluent limits are lower than those provided for through SSOs. The purpose of the proposed confirmatory monitoring in the TMDL is to "verify that water quality conditions are similar to those of the 2003 ammonia WER study period." As such, it is unnecessary to verify this information if the SSO is not being used to set the effluent limit. This monitoring is costly and would provide no additional information or water quality benefits. Similarly, when ammonia concentrations are consistently below thresholds that would be set without use of the SSO, then monitoring to confirm the SSOs is also not necessary.

We appreciate this opportunity to provide comments on the proposed amendments to the TMDL. We have been diligently working with Regional Board staff on establishing ammonia SSOs since 1999 and consider this to be an important issue. If you have any questions concerning this letter or need additional information, please contact Ann Heil at (562) 908-4288, extension 2803, or aheil@lacsd.org

Very truly yours,

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