Attachment A to Resolution No. 03-011

Proposed Amendment to the Water Quality Control Plan – Los Angeles Region

to Incorporate the

Santa Clara River Nitrogen Compounds TMDL

Proposed for adoption by the California Regional Water Quality Control Board, Los Angeles Region on August 7, 2003.

Amendments

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Chapter 7. Total Maximum Daily Loads (TMDLs)
Santa Clara River Nitrogen Compounds TMDL

This TMDL was adopted by:

The Regional Water Quality Control Board on [August 7, 2003].

This TMDL was approved by:

The State Water Resources Control Board on [Insert Date].
The Office of Administrative Law on [Insert Date].
The U.S. Environmental Protection Agency on [Insert Date].

The following table describes the key elements of this TMDL.

Table 7-9.1. Santa Clara River Nitrogen Compounds TMDL: Elements

Element	Santa Clara River Nitrogen Compounds TMDL
Problem Statement	Discharge of wastes containing nitrite, nitrate and ammonia to the Santa Clara River causes exceedances of water quality objectives for ammonia, nitrate and nitrite established in the Basin Plan. The Santa Clara River is listed as impaired by ammonia in Reach 3 and by nitrate plus nitrite in Reach 7 on the 2002 303(d) list of impaired water bodies. Reach 8 of the Santa Clara River is included on the State Monitoring List for organic enrichment/dissolved oxygen, which may be caused by excessive nitrogen. Nitrate and nitrate are biostimulatory substances that can cause eutrophic effects such as low dissolved oxygen and algae growth. Excessive ammonia can cause aquatic life toxicity.
Numeric Target (Interpretation of the numeric water quality objective, used to calculate the load allocations)	• Total ammonia as nitrogen (NH_3-N) Reach — One-hour Average (mg/L) — Thirty-day Average (mg/L) Reach 8 — 14.8 — 3.2 Reach 7 above Valencia — 4.8 — 2.0 Reach 7 below Valencia — 5.5 — 2.0 Reach 7 at County Line — 3.4 — 1.2 Reach 3 above Santa Paula — 2.4 — 1.9 Reach 3 at Santa Paula — 2.4 — 1.9 Reach 3 below Santa Paula — 2.2 — 1.7 • Nitrate plus Nitrite as Nitrogen (NO_3-N + NO_2-N) Reach — Thirty-day Average (mg/L) Reach 3 — 4.5 Reach 7 — 4.5 Reach 8 — 9.0 Narrative objectives for biostimulatory substances and toxicity are based on the Basin Plan. The TMDL analysis indicates that the numeric targets will implement the narrative objectives. The Implementation Plan includes monitoring and special studies to verify that the TMDL will implement the narrative objectives.
Source Analysis	The principal source of ammonia, nitrite, and nitrate to the Santa Clara River is discharges from the Saugus and Valencia Water Reclamation Plants (WRPs) and the Fillmore and Santa Paula Publicly Owned Treatment Works (POTWs). Agricultural runoff, stormwater discharge and groundwater discharge may also contribute nitrate loads. Further evaluation of these sources is set forth in the Implementation Plan.
Linkage Analysis	Linkage between nitrogen sources and the in-stream water quality was established through hydrodynamic and water quality models. The Watershed Analysis Risk Management Framework was used to model the

Element	Santa Clara River Nitrogen Compounds TMDL
	hydrodynamic characteristics and water quality of the Santa Clara River. The analysis demonstrated that major point sources (WRPs and POTWs) were the primary contributors to in-stream ammonia and nitrate plus nitrite loads. Nonpoint sources and minor point sources contributed a much smaller fraction of these loads.
Wasteload Allocations (for point sources)	Major point sources: Concentration-based wasteloads are allocated to major point sources of ammonia and nitrate+nitrite in Reach 3, which include the Fillmore and Santa Paula POTWs; concentration-based wasteloads are allocated to major point sources of ammonia and nitrite+nitrate in Reaches 7 and 8, which include the Valencia and Saugus WRPs. • Total ammonia as nitrogen (NH_3-N) in mg/L: POTW — One-hour average — Thirty-day average Saugus WRP — 5.6 — 2.0 Valencia WRP — 5.2 — 1.75 Fillmore POTW — 4.2 — 2.0 Santa Paula POTW — 4.2 — 2.0 • Nitrate-nitrogen (NO_3-N), Nitrite-nitrogen (NO_2-N), and Nitrate plus Nitrite as nitrogen (NO2-N+NO3-N) in mg/L: Thirty-day average WLA* POTW — NO_2-N — NO_3-N — NO2-N+NO3-N Saugus WRP — 0.9 — 7.1 — 7.1 Valencia WRP — 0.9 — 6.8 — 6.8 Fillmore POTW — 0.9 — 8.0 — 8.0 Santa Paula POTW — 0.9 — 8.0 — 8.0 *Receiving water monitoring is required on a weekly basis to ensure compliance with the water quality objectives for nitrite, nitrate, nitrite + nitrate, and dissolved oxygen. Minor Point Sources: Concentration-based wasteloads are allocated to minor discharges enrolled under NPDES or WDR permits. The allocations for minor point sources are based on the water quality objectives for ammonia, nitrite, nitrate and nitrite plus nitrate. For minor dischargers discharging into Reach 7, the thirty-day average WLA for ammonia as nitrogen is 1.75 mg/L, the one-hour WLA for ammonia as nitrogen is 5.2 mg/L, and the thirty-day average WLA for nitrate plus nitrite as nitrogen is 6.8 mg/L. For minor

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	dischargers discharging into Reach 3, the thirty-day average WLA for ammonia as nitrogen is 2.0 mg/L and the one hour average WLA for ammonia as nitrogen is 4.2 mg/L, and the thirty-day average WLA for nitrate plus nitrite as nitrogen is 8.1 mg/L. <u>MS4 and Stormwater Sources</u>: Concentration-based wasteloads are allocated to municipal, industrial and construction stormwater sources regulated under NPDES permits. For stormwater permittees discharging into Reach 7, the thirty-day WLA for ammonia as nitrogen is 1.75 mg/L and the one-hour WLA for ammonia as nitrogen is 5.2 mg/L; the thirty-day average WLA for nitrate plus nitrite as nitrogen is 6.8 mg/L. For stormwater permittees discharging into Reach 3, the thirty-day WLA for ammonia as nitrogen is 2.0 mg/L and the one-hour WLA for ammonia as nitrogen is 4.2 mg/L; the thirty-day average WLA for nitrate plus nitrite nitrogen is 8.1 mg/L.
Load Allocation (for nonpoint sources)	Concentration-based loads for nitrogen compounds are allocated for nonpoint sources. For nonpoint sources discharging to Reach 7, the combined ammonia, nitrate, nitrite (NH_3-N + NO_2-N + NO_3-N) load as nitrogen is 8.5 mg/L. For non-point sources discharging into other reaches of the Santa Clara River, Mint Canyon Reach 1, Wheeler Canyon/Todd Barranca, and Brown Barranca/Long Canyon, the combined ammonia, nitrate, nitrite (NH_3-N + NO_2-N + NO_3-N) loads as nitrogen is 10 mg/L. Monitoring is established in the TMDL Implementation Plan to verify the nitrogen nonpoint source contributions from agricultural and urban runoff and groundwater discharge.
Implementation	• Ammonia, nitrite, and nitrate reductions will be regulated through effluent limits prescribed in POTW and minor point source NPDES Permits, Best Management Practices required in NPDES MS4 Permits, and SWRCB Management Measures for non point source discharges. • At the Regional Board's discretion, the following interim effluent limits will be allowed for a period as short as possible, but not to exceed eight years from the effective date of the TMDL: <u>Interim Limits in mg/L for Nitrite, Nitrate, and Nitrite plus Nitrate as nitrogen</u> Thirty-day Average Interim Limits POTW — NO_2-N — NO_3-N — NO_2-N + NO_3-N Saugus WRP — 1 — 10 — 10 Valencia WRP — 1 — 10 — 10

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	Interim Limits in mg/L for combined Ammonia, Nitrate, and Nitrite as nitrogen POTW — Thirty-day Average — Daily Maximum Fillmore WRP — 32.8 — 38.9 Santa Paula WRP — 41.8 — 49.0 The Implementation Plan also includes special studies and monitoring for ammonia, nitrite, and nitrate to evaluate the effectiveness of nitrogen reductions. The Implementation Plan also includes special studies to address issues regarding water quality standards and site-specific objectives and a reconsideration of waste load allocations based on monitoring data and special studies.
Margin of Safety	An explicit margin of safety of 10 percent of the nitrogen loads is allocated to address uncertainty in the source and linkage analyses. In addition, an implicit margin of safety is incorporated through conservative model assumptions and statistical analysis.
Future Growth	Urban growth in the upper watershed is predicted to require the expansion of the Valencia Water Reclamation Plan, construction of an additional water reclamation plant, and increased use of reclaimed water. Wasteload and load allocations will be developed for these new sources as required to implement appropriate water quality objectives for ammonia, nitrite, and nitrate
Seasonal Variations and Critical Conditions	The critical condition identified for this TMDL is based on the low flow condition defined as the 7Q10. In addition, the driest six months of the year are identified as a more critical condition for nitrogen compounds because less surface flow is available to dilute effluent discharge. The model result also indicates a critical condition during the first major storm event after a dry period. The implementation plan includes monitoring to verify this potential critical condition.

Table 7-9.2. Implementation Schedule

Implementation Tasks, Milestones and Provisions	Responsible Party	Completion Date
1. Apply interim limits for ammonia, nitrite, and nitrate to Fillmore and Santa Paula POTWs. 2. Apply interim limits for Nitrate to Saugus and Valencia WRPs. 3. Apply WLAs to minor point source dischargers and MS4 permittees. 4. Include monitoring for nitrogen compounds in NPDES and WDR permits for minor dischargers as permits are renewed.	Fillmore and Santa Paula POTWs; NPDES and WDR permittees	Effective Date of TMDL
5. Submittal of a Work Plan by Los Angeles County and Ventura County MS4 permittees to estimate ammonia and nitrogen loadings associated with runoff loads from the storm drain system for approval by the Executive Officer of the Regional Board. The Work Plan will include monitoring for ammonia, nitrate, and nitrite. The Work Plan may include a phased approach wherein the first phase is based on monitoring from the existing mass emission station in the Santa Clara River. If the monitoring studies reflect a higher average concentration in stormwater than originally considered, then the linkage analysis would be refined to consider the increased loading. The Work Plan will also contain protocol and a schedule for implementing additional monitoring if necessary. The Work Plan will also propose triggers for conducting source identification and implementing BMPs, if necessary. Source identification and BMPs will be in accordance with the requirements of MS4 permits.	Los Angeles and Ventura Counties MS4 Permittees	1 year after the Effective Date of TMDL
6. Submittal of Work Plan by major NPDES permittees to asses and monitor the surface water quality, including, without limitation, monthly measurement of dissolved oxygen on an hourly basis, pH and instream denitrification processes, and groundwater	Cities of Fillmore and Santa Paula, and County Sanitation Districts of Los Angeles County	1 year after Effective Date of TMDL

Implementation Tasks, Milestones and Provisions	Responsible Party	Completion Date
where appropriate, for aquatic life impacts, macroinvertebrate diversity, algal mass, and nutrient species in the Santa Clara River for approval by the Regional Board's Executive Officer. The Work Plan will include evaluation of the effectiveness of the POTW in meeting WLAs. Submittal of a work plan that demonstrates compliance with final wasteload allocations or demonstrates a schedule for compliance with final wasteload allocations is as short as possible.		
7. Submittal of special studies Work Plan by County Sanitation Districts of Los Angeles County to evaluate site-specific objectives (SSOs) for nitrate for approval by the Regional Board's Executive Officer.	County Sanitation Districts of Los Angeles County	1 year after Effective Date of TMDL
8. Submittal of results from water effects ratio study for ammonia by County Sanitation Districts of Los Angeles County.	County Sanitation Districts of Los Angeles County	Effective Date of TMDL
9. Evaluation of feasibility of including stakeholders in the Upper Santa Clara River watershed in the Regional Board Septic Tank task force.	Regional Board	3.5 year after Effective Date of TMDL
10. Regional Board considers a Basin Plan Amendment for site-specific objectives for ammonia, nitrate and nitrite plus nitrate based on results of Tasks 7 and 8.	Regional Board	1 year after Effective Date of TMDL for ammonia; 4 years after the Effective Date of the TMDL for nitrate and nitrite plus nitrate
11. Based on the results Task 5-10 and NPDES Monitoring, complete implementation of advanced treatment or additional treatment modifications to achieve WLAs for POTWs, if necessary in as short a period of time as possible, as determined during NPDES permit issuance or modification, but not later than eight years after the effective date of the TMDL; if advanced treatment is not required, interim limits will expire in as short a period of time as possible, as determined during NPDES permit reissuance or modification, no later than five years after the effective date of the TMDL. The	POTW Permittees	8 years after Effective Date of TMDL

Implementation Tasks, Milestones and Provisions	Responsible Party	Completion Date
wasteload allocation compliance date will be synchronized with the expiration date of interim limits specified in Task 13.		
12. Interim limits for ammonia and nitrate expire and WLAs apply to WRPs and POTWs. The Regional Board will consider extending the duration of the remaining schedule and re-evaluating interim limits if WLAs for WRPs and POTWs are reduced after SSO considerations.	POTW Permittees; Regional Board	Based on results of Tasks 6 and 10: if additional modifications or advanced nitrification/denitrification facilities are required, interim limits will expire in as short a period of time as possible, as determined during NPDES permit issuance or modification interim limits, but not later than eight years after the effective date of the TMDL; if advanced treatment is not required, interim limits will expire in as short a period of time as possible, as determined during NPDES permit issuance or modification, but not later than 5 years after the Effective Date of the TMDL.
13. Annual progress reports on the Implementation Plan shall be provided to the Regional Board by the responsible parties or their representatives.	➢ NPDES permitees, ➢ Board staff ➢ MS-4 permittees. ➢ Newhall Land and Farming ➢ United Water Conservation District ➢ Friends of the Santa Clara River ➢ Ventura Coast Keeper and Heal the Bay.	Annually after Effective Date of TMDL.