

California Regional Water Quality Control Board
Santa Ana Region

RESOLUTION NO. R8-2017-0036

Resolution Amending the Water Quality Control Plan for the Santa Ana River Basin to Revise the Water Quality Objective for Nitrate-as-Nitrogen in the Chino-South Groundwater Management Zone.

WHEREAS, the California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Board), finds that:

1. An updated Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) was adopted by the Regional Board on March 11, 1994, approved by the State Water Resources Control Board (State Water Board) on July 21, 1994, and approved by the Office of Administrative Law (OAL) on January 24, 1995. Subsequent amendments have been made to the Basin Plan.
2. The Basin Plan identifies ground and surface waters within the Santa Ana Region (Region), designates beneficial uses for those waters, establishes water quality objectives for the protection of those uses, prescribes implementation plans to ensure that the objectives are achieved, and establishes monitoring and surveillance programs.
3. The Basin Plan was amended by the Regional Board to establish revised groundwater basin boundaries and revised groundwater quality objectives on January 22, 2004. These amendments were subsequently approved by the State Water Board on September 30, 2004 and by the OAL on December 23, 2004. A water quality monitoring program to implement the revised groundwater objectives was approved by the Regional Board on April 15, 2005.
4. The State Water Board Division of Drinking Water (formerly the California Department of Public Health) has established a Primary Maximum Contaminant Level (MCL) of 10 milligrams per liter (mg/L) nitrate (as nitrogen) to protect drinking water. (22 CCR § 64431(a)).
5. Designated beneficial uses for the Chino-South Groundwater Management Zone (CSGMZ) include Municipal and Domestic Supply (MUN) because water pumped from the CSGMZ is used as a drinking water supply.
6. The current water quality objective for nitrate-nitrogen in the CSGMZ was set at 4.2 mg/L, in accordance with State Water Board Resolution No. 68-16, because the volume-

weighted average concentration in the baseline period (1954-73) was better than necessary to protect the MUN use.

7. Routine water quality monitoring indicates that nitrate-nitrogen concentrations in the CSGMZ have been rising steadily for the last 40 years due to legacy loads passing through the vadose zone. The current volume-weighted average concentration is now about 28 mg/L.
8. Because many discharges from waste water treatment facilities to the Santa Ana River (SAR), a jurisdictional water overlying the CSGMZ, eventually percolate to the CSGMZ, and thereby directly impact the water quality of the CSGMZ, the Regional Board has included effluent limits in NPDES permits for these discharges.
9. In 2004, the Regional Board approved the use of a Waste Load Allocation Model (WLAM) to estimate the collective and cumulative concentration of nitrate-nitrogen, from all sources flowing into the SAR system, and to evaluate whether water percolating from the surface streams to groundwater complies with the water quality objectives for each affected groundwater management zone. The WLAM is periodically updated to reflect changes in land use, stormwater runoff, waste water discharge and variations in precipitation.
10. The Regional Board has previously determined, based on site-specific studies, that 50% of the Total Inorganic Nitrogen (TIN) present in Reach 3 of the SAR overlying the CSGMZ is lost in the process of passing through the vadose zone, and never reaches the groundwater. The WLAM includes an adjustment (called a "nitrogen-loss coefficient") to account for such transformative losses, pursuant to the State Water Board's recommendations in WQO 81-5. Rainfall further reduces the concentration of TIN as the precipitation contains no or very little nitrogen, and thus dilutes the nitrogen in the waste water as it moves through the vadose zone to the groundwater.
11. Consistent with current WLAM, the Regional Board has limited the concentration of nitrate-nitrogen discharges in all municipal waste water to Reach 3 of the SAR overlying the CSGMZ to a volume-weighted annual average no greater than 10 mg/L. Results from the 2004 WLAM demonstrated that these limits would assure that water percolating from the SAR to the CSGMZ would comply with the applicable water quality objective of 4.2 mg/L.
12. In 2015, the Basin Monitoring Program Task Force (coordinated by the Santa Ana Watershed Project Authority) completed an update to the WLAM (2015 WLAM). The 2015 WLAM concludes that, based on data for the past 63 years the volume-weighted average concentration of TIN percolating from the SAR to the CSGMZ will continue to comply with the applicable water quality objective of 4.2 mg/L during typical rainfall years.

13. The 2015 WLAM also demonstrates that during prolonged periods of drought, when discharging TIN at the existing limit of 10 mg/L, the volume-weighted average concentration of TIN percolating from the SAR to the CSGMZ may temporarily exceed the applicable water quality objective of 4.2 mg/L by 0.05 to 0.14 mg/L (approximately 1.1 to 3.3%) until the balance is restored by subsequent wet weather. Accordingly, to be consistent with the 2015 WLAM and to account for severe drought conditions, future limits for TIN would likely need to be reduced to around 8.4 mg/L in order to meet the existing 4.2 mg/L water quality objective.
14. Dischargers who would be subject to these more stringent limits have raised concerns regarding the significant costs associated with the upgrades that would be needed to meet a more stringent limit for TIN. The economic analysis conducted by the Task Force consultant has concluded that the capital cost for plant upgrades ranges from \$400,000 to \$75 million.
15. Imposing more stringent effluent limits may cause permittees to seek approval for a change to relocate their waste water outfalls further downstream, in order to avoid discharging to the CSGMZ. Were this to occur, the resulting loss of recharge from highly treated waste water would cause average nitrate-nitrogen concentrations in CSGMZ to get worse, not better.
16. The Regional Board has determined that revising water quality objectives for nitrate-nitrogen should be permissible when: (i) the new objective is not raised above 5.0 mg/L and (ii) the proposed objective represents a relatively small change in proportion to the current objective. Furthermore, the Regional Board has previously determined that, when both of these conditions are met and the proposed revision to water quality objectives complies with the state Antidegradation Policy, the burden-of-proof shifts to those who oppose the change (Resolution No. R8-2010-0012, see Table A).
17. The Regional Board has considered a number of alternative approaches that would allow Publically-Owned Treatment Works (POTWs) to continue discharging highly treated waste water to Reach 3 of the SAR, without imposing more stringent effluent limits. The Regional Board has determined that raising the nitrate-nitrogen objective for the CSGMZ from 4.2 mg/L to 5.0 mg/L is appropriate. Other options were likely to cost more, take longer and/or provide less regulatory certainty.
18. The proposed Basin Plan amendment will assure continued protection of the beneficial uses of the CSGMZ, will not cause pollution or nuisance, and, as discussed in findings above, will provide maximum benefit to the people of the State, and is consistent with the State Water Board's Antidegradation Policy (Res. No. 68-16).
19. The proposed amendment to the Basin Plan was developed in accordance with Section 13240 et seq. and Section 13241 and Section 13242 of the California Water Code.

20. The Regional Board has considered the costs associated with implementation of this amendment and finds the costs to be reasonable.
21. The proposed Basin Plan amendment results in no potential adverse effects, either individually or cumulatively, on fish and/or wildlife species.
22. The proposed Basin Plan amendment meets the "Necessity" standard of the Administrative Procedure Act, Government Code, Section 11352, subdivision (b).
23. The Regional Board prepared and distributed written reports (staff reports) regarding adoption of the proposed Basin Plan amendment in accordance with applicable state and federal environmental regulations (23 CCR 23 et seq and 40 CFR Parts 25 and 131 et seq).
24. The process of basin planning has been certified by the State Secretary for Resources as exempt from California Environmental Quality Act (CEQA) requirement to prepare an Environmental Impact Report or Negative Declaration (Public Resources Code, Section 2100 et seq). The Basin Plan amendment package includes staff reports, an Environmental Checklist, an assessment of potential environmental impacts, and discussion of alternatives including an economic analysis of the various alternatives. The Basin Plan amendment package and supporting documentation are functionally equivalent to an Environmental Impact Report or Negative Declaration.
25. On August 4, 2017, the Regional Board held a Public Hearing to consider the Basin Plan amendment. Notice of the Public Hearing was given to all interested persons and published in accordance with Section 13244 of the California Water Code.
26. The Basin Plan amendment must be submitted for review and approval by the State Water Board and, then, by the Office of Administrative Law. Because the proposed Basin Plan amendment makes no changes to water quality standards for surface waters or effluent limits in any NPDES permit, U.S. EPA approval is not required. The Basin Plan amendment will become effective upon OAL approval.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Regional Board has reviewed and considered the record for this matter, including the information contained in the Substitute Environmental Document (SED), all written comments, and all oral testimony provided at the public hearing held on August 4, 2017.
2. The Regional Board confirms the preliminary determination by the Regional Board staff that the proposed amendment would not have a significant adverse effect on the environment and hereby certifies the Environmental Checklist and supporting documentation that is part of the SED.

3. The Regional Board hereby adopts the Basin Plan amendment delineated in Attachment 1 (underline/strike-out version) and Attachment 2 ("clean" version) to this resolution which revises the water quality objective for nitrate-nitrogen in the Chino-South Groundwater Management Zone.
4. The Executive Officer is directed to forward copies of the Basin Plan amendment, and related Administrative Record, to the State Water Board in accordance with the requirements in Section 13245 of the California Water Code.
5. The Regional Board requests that the State Water Board review and approve the Basin Plan amendment in accordance with the requirements of Sections 13245 and 13246 of the California Water Code and, thereafter, forward the amendments to OAL for approval.
6. If, during its approval process, the State Water Board or OAL determine that minor, non-substantive corrections to the language of the amendments are needed for clarity or consistency, the Executive Office may make such changes and shall inform the Regional Board forthwith.

I, Hope A. Smythe, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of a resolution adopted by the California Regional Water Quality Control Board - Santa Ana Region on August 4, 2017.

Hope A. Smythe
Executive Officer

Table 4-1 WATER QUALITY OBJECTIVES - Continued

GROUNDWATER MANAGEMENT ZONES	WATER QUALITY OBJECTIVES (mg/L)						Hydrologic Unit	
	Total Dissolved Solids	Hardness	Sodium	Chloride	Nitrate as Nitrogen	Sulfate	Primary	Secondary
UPPER SANTA ANA RIVER BASIN								
Big Bear Valley	300	225	20	10	5.0	20	801.73	
Beaumont "maximum benefit"++	330	---	---	---	5.0	---	801.62	801.63, 801.69
Beaumont "antidegradation"++	230	---	---	---	1.5	---	801.62	801.63, 801.69
Bunker Hill - A	310	---	---	---	2.7	---	801.51	801.52
Bunker Hill - B	330	---	---	---	7.3	---	801.52	801.53, 801.54, 801.57 801.58
Colton	410	---	---	---	2.7	---	801.44	801.45
Chino – North "maximum benefit"++	420	---	---	---	5.0	---	801.21	481.21, 481.23, 481.22 801.21, 801.23, 801.24
Chino 1 – "antidegradation"++	280	---	---	---	5.0	---	802.21	481.21
Chino 2 – "antidegradation"++	250	---	---	---	2.9	---	801.21	
Chino 3 – "antidegradation"++	260	---	---	---	3.5	---	801.21	
Chino – East @	730	---	---	---	10.0	---	801.21	801.27
Chino – South @	680	---	---	---	<u>5.0</u> 4.24.2	---	801.21	801.26
Cucamonga "maximum benefit"++	380	---	---	---	5.0	---	801.24	801.21

Attachment 1. Proposed changes to Chino South Groundwater Management Zone shown as underline/~~strikeout~~

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Cucamonga “maximum benefit”++	380	---	---	---	5.0	---	801.24	801.21

Attachment 2. Proposed changes to Chino South Groundwater Management Zone “clean version”