2.3 Proposed Action

The Santa Ana Water Board is proposing to amend the Basin Plan's TDS and Nitrogen Management Program. The Proposed Action includes adoption of an updated WLAM, updated WLAs for permitted dischargers in the Santa Ana River watershed and provide guidance to permit writers when developing waste discharge requirements for discharging facilities. The following subsections describe the key elements of the Proposed Action.

2.3.1 Adopt 2017 Waste Load Allocation Model (WLAM)

The Santa Ana Water Board proposes to update the WLAs for permitted dischargers in the Santa Ana Watershed using an updated WLAM completed for the Santa Ana River watershed in 2020 (GSSI 2020). The 2017 WLAM (open-source Hydrologic Simulation Program Fortran [HSPF]) replaces the existing 2004 WLAM (proprietary model), which has been relied on by Santa Ana Water Board staff since 2004 to derive effluent limitations in waste discharge requirements for facilities in the watershed for TIN and TDS. Development of the 2017 WLAM incorporated the following elements to establish a more robust model:

- *Expanded Model Domain*: The 2004 model domain, which originally ended at Prado Dam, was enlarged to include Reaches 1 and 2 of the Santa Ana River overlying the Orange County GMZ and Reaches 1 through 6 of Temescal Creek overlying the Upper Temescal Valley GMZ.
- *Longer Precipitation Record*: The range of probable precipitation conditions was expanded from a 50-year historical record to a 67-year historical record.
- *Improved Calibration Process*: WLAM development included a number of new quantitative metrics to evaluate accuracy and precision during the model calibration process.
- *Validation Step*: Prior to developing the updated model for the entire watershed, 2017 WLAM output for Reaches 3 and 4 of the Santa Ana River (above MWD Crossing) was compared with outputs previously obtained from the 2004 WLAM for the same reaches of the Santa Ana River. This step was implemented to verify that the HSPF model results were comparable to the results generated from the existing proprietary model. This analysis effectively showed that regardless of the model source (proprietary vs. open-source HSPF), they produced the same results. This confirmed that any differences in modeling outcomes would be a function of updated inputs to the model (e.g., land use, hydrologic data) and not differences in modeling methodology.

The calibrated 2017 WLAM was used to assess three different discharge assumptions (Maximum Expected, Minimum Expected and Most Likely) under two different land use conditions (2020 and 2040), resulting in the analysis of six total scenarios. Daily river flows and TDS/TIN concentrations were estimated for all six of these scenarios using 67 years of historical precipitation data from numerous rain gages throughout the watershed. Model simulation results were used to determine if the existing effluent limits and waste discharge requirements would

continue to assure compliance with the applicable TIN/TDS water quality objectives in each GMZ. For each simulation, TIN and TDS concentrations in wastewater discharged from all POTWs were assumed to be equal to the maximum allowed discharge in each facility's existing permit. This very conservative approach, which is consistent with the approach used for the 2004 WLAM, provided a significant margin-of-safety around the model estimates.

2.3.2 Adopt Updated Wasteload Allocations (WLAs) for Permitted Facilities

The Santa Ana Water Board proposes to update Basin Plan Table 5-5 based on the 2017 WLAM output. Table 2-1 below provides the updated table, which includes an updated list of permitted facilities in the watershed. Findings from the 2017 WLAM indicate that the updated WLAs under the Proposed Action would (a) not cause an exceedance of water quality objectives in groundwaters affected by recharge from treated wastewater; and (b) are not expected to result in a significant lowering of ambient water quality in any part of the Santa Ana River watershed. This finding is based on use of a conservative approach to establish the WLAs. For example the WLAs are based on a 10-year volume-weighted averaging period (half the 20-year volume-weighted averaging period used to establish TDS/TIN WQOs) and reliance on predicted streambed recharge water quality that will occur under the maximum expected discharge scenario.

The updated WLAs consider the potential need to authorize the use of assimilative capacity to the City of Rialto (City of Rialto Wastewater Treatment Plant) and the Cities of Colton and San Bernardino (Rapid Infiltration-Extraction Facility) ("RIX Facility") that discharge treated effluent to Santa Ana River Reach 4 overlying the Riverside-A GMZ. Although the WLAs take into account the potential need to authorize the use of assimilative capacity, any such authorization would occur through the issuance of waste discharge requirements to these facilities and not adoption of the Proposed Action.

2.3.3 Establish Basis for Evaluating Compliance with TDS and TIN Effluent Limits

The proposed Basin Plan amendment includes explicit guidance to permit writers regarding how to assess compliance with TDS/TIN effluent limitations incorporated into the waste discharge requirements. Specifically:

- TIN - Compliance with the effluent limit will be based on a 12-month (1-year) volume-weighted running average that is updated every month.
- TDS – Compliance with the effluent limit will be based on a 120-month (10-year) volume-weighted running average that is updated every month.

The above requirements are the default approach to evaluating compliance. The Proposed Action also states that the Santa Ana Water Board retains discretionary authority to impose longer or shorter averaging periods, on a case-by-case basis, when it determines that doing so is necessary and appropriate to protect water quality.

The use of a default 12-month volume-weighted running average for TIN as the means to measure compliance with an effluent limitation is consistent with current practice for evaluating compliance with TIN effluent limitations. The purpose of the Proposed Action is to explicitly state that this is the default approach to evaluate compliance when establishing waste discharge requirements.

The proposed approach to evaluate compliance with TDS effluent limitations is a change from current practice, which typically relies on a running 12-month volume-weighted running average. A key basis for the proposed change in how compliance with TDS effluent limitations is evaluated is findings from studies that indicate that while TDS concentrations in groundwater can vary, they tend to vary over long periods of time. This long-term variability is primarily due to regional wet and dry hydrologic cycles that impact the sources of water used in a POTW's service area, e.g., because of differential usage of State Water Project water versus local groundwater as source waters.

2.3.4 Clarify Use of Mineral Increments in Establishment of Waste Discharge Requirements

Basin Plan Chapter 5, Total Dissolved Solids and Nitrogen Management Program, Section III.B.2 (Mineral increments) includes California Department of Water Resources (CA DWR) recommended values for the maximum use incremental additions for specific ions (i.e., chloride, sulfate, sodium, hardness and TDS) that should be allowable through water use (CA DWR 1982). The existing Basin Plan states that these mineral increments "…will be incorporated into waste discharge requirements when appropriate and necessary."

The Santa Ana Water Board is proposing to revise this portion of the Basin Plan to provide guidance to permit writers regarding the application of mineral increments in waste discharge requirements. The proposed revision would clarify that where a POTW discharges to a surface water or groundwater where a numeric WQO for salinity, e.g., TDS, has been established in the Basin Plan and a water quality-based effluent limit has been established based on an approved salinity WLA (e.g., as proposed in Basin Plan Table 5-5), then it is generally not necessary to impose additional waste discharge requirements for mineral increments. Where it may be necessary to establish waste discharge requirements for mineral increments would be a scenario where a facility discharges to a surface water or groundwater where no numeric WQO for salinity has been established. The Santa Ana Water Board would have the discretion to determine the necessity to establish waste discharge requirements for mineral increments in these situations based on local information.

2.3.5 Clarify that the Antidegradation Review Conducted during the Permitting Process for Salinity-related Constituents will Focus on Total Dissolved Solids

The Proposed Action clarifies that the antidegradation review required during development of waste discharge requirements will focus on an analysis of TDS rather than individual salt ions.

This approach to completing the required POTW antidegradation analysis is consistent with the streamlined permitting process described in the resolution adopted to establish that the Basin Plan's TDS/N Management Program is compliant with the State Recycled Water Policy (Santa Ana Water Board 2010). This document stated (Attachment to Resolution No. R8-2010-0012, Page 7):

> *"Finally, the Regional Board streamlined the permitting process by focusing the antidegradation review on TDS as a whole rather than analyzing each and every salt ion separately. However, where a water quality objective has been established to protect certain beneficial uses from the adverse effects of specific salt compounds (e.g., chloride, boron or nitrate), the Regional Board will continue to adopt waste discharge requirements designed to assure compliance with these objectives.*

This statement indicates that the antidegradation review should focus on those constituents that have an established WQO to protect a beneficial use in the area under review. Although this approach has been used in practice since adoption of the 2010 resolution, the Proposed Action includes a revision to the Basin Plan to provide an explicit statement of this permitting practice.

Table 2-1. Wasteload Allocations for TDS and TIN for Permitted Discharges in the Santa Ana River (SAR) Watershed, 2020 - 2040 Permitting Period (adapted from GSSI 2020, Table 20)

Permittee/Discharge	Primary Receiving Water(s)		Discharge (mgd)[1]	TDS (mg/L)	TIN (mg/L)
	Surface Stream(s)	Groundwater MZ(s)			
City of Beaumont[2]	Noble Creek & Cooper's Creek to San Timoteo Creek Reach 4	Beaumont & San Timoteo	6.3 (1.8)[3]	300 (400)	3.6 (6.0)
Yucaipa Valley Water District (YVWD)[4]	San Timoteo Creek Reach 3	San Timoteo	8.0	400	6.7
East Valley Water District-SNRC	City Creek to SAR Reach 5	Bunker Hill-B	8.5	500	6.0
City of San Bernardino: Geothermal Discharges	East Twin Creek & Warm Creek to SAR R5	Bunker Hill-A & B	1.0	264	0.7
City of Rialto	SAR Reach 4	Riverside-A	18.0	490	10.0
RIX (Cities of Colton & San Bernardino)	SAR Reach 4	Riverside-A	34.5	550	10.0
City of Riverside-RWQCP[5]	SAR Reach 3	Chino-South[6]	46.0	650	10.0[7]
City of Corona: WWTP-1 & WWTP-2	Temescal Creek Reach 1A	N/A (Prado Basin Management Zone, PBMZ)	15.0	700	10.0
Inland Empire Utilities Agency: RP1, RP4, RP5, & CC	Chino Creek & Cucamonga Creek	Chino-North (or PBMZ)[8]	107.0[9]	550	8.0
Western MWD: WRCRWA	SAR Reach 3	N/A (PBMZ)	15.3	625	10.0
Western MWD: Arlington Desalter	Temescal Creek Reach 1A	N/A (PBMZ)	7.25	260	4.4
Temescal Valley Water District-TVWRF	Temescal Creek Reach 2	Upper Temescal Valley	2.3	650	10.0[10]
Elsinore Valley MWD: RWWRF-DP001	Temescal Creek Reach 5	Upper Temescal Valley	12.0	700	10.0[11]
Eastern MWD: SJV, MV, PV, SC, TV	Temescal Creek Reach 5	Upper Temescal Valley	52.5[12]	650	10.0

[1] Maximum Expected Discharge (2020 or 2040) = average daily flow to surface waters expressed as an annualized average
[2] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Santa Ana Water Board determines that Beaumont failed to comply with Maximum Benefit conditions
[3] Higher effluent limits apply only to first 1.8 mgd; lower effluent limits apply to discharges greater than 1.8 mgd
[4] Effluent limits revert to 320 mg/L for TDS and 4.1 mg/L for TIN if Santa Ana Water Board determines that YVWD failed to comply with Maximum Benefit conditions
[5] Includes the City's planned discharges to Anza Drain, Old Farm Road Channel, Tequesquite Arroyo & Evans Drain (all are tributary to SAR Reach 3)
[6] No significant streambed percolation occurs in the upper segment of SAR Reach 3 overlying the Riverside-A GMZ (i.e., the Riverside Narrows area)
[7] Effluent limit for TIN is more stringent than the 2004 WLA but is consistent with the requirements of Order No. R8-2013-0016 and current plant performance
[8] The PBMZ is a surface water feature where no significant groundwater storage or streambed percolation occurs
[9] Compliance with the applicable effluent limit is evaluated collectively based on the volume-weighted average of all four POTWs (aka "bubble permit")
[10] Effluent limit for TIN is more stringent than the 2004 WLA and is based on Best Practicable Treatment or Control for TIN by POTWs in the region
[11] Effluent limit for TIN is more stringent than the 2004 WLA and based on the treatment plant's design and demonstrated performance
[12] Discharge occurs only in years where average annual rainfall is greater than the long-term median value and only in the wettest six months of those years