California Regional Water Quality Control Board Santa Ana Region

March 12, 2021

Item: 9

Subject: Consideration of Acceptance of the 2018 TDS and Nitrate-Nitrogen Ambient Water Quality Determinations for Groundwater Management Zones in the Santa Ana Region – Resolution No. R8-2021-0020

BACKGROUND

In 2004, the Santa Ana Regional Water Quality Control Board (Santa Ana Water Board) approved amendments to the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) that incorporated a revised Total Dissolved Solids (TDS) and Nitrogen Management Plan (Salt Management Plan). The revised Salt Management Plan addresses total dissolved solids (TDS) and nitrogen in both surface waters and groundwaters throughout the Santa Ana River Basin, in order to control the excess salt buildup in the Region's waters. In part, the 2004 amendments require that the average TDS and nitrate-nitrogen concentrations in every groundwater management zone (GMZ) be reassessed every 3 years. GMZs are shown in Figure 1-1 (below).

The Santa Ana Water Board uses this analysis to determine: 1) whether TDS and nitrate-nitrogen water quality objectives are being met; 2) how much assimilative capacity exists in each groundwater management zone; and 3) if some change in the nitrogen and/or TDS management strategy or wasteload allocation is necessary to protect and/or improve water quality. These determinations are necessary in order to develop appropriate waste discharge requirements.

In 2005, local water supply and wastewater agencies formed the Basin Monitoring Program Task Force (BMPTF), administered by the Santa Ana Watershed Project Authority (SAWPA), to implement some of the monitoring and reporting requirements identified in the 2004 Salt Management Plan. Specifically, the BMPTF accepted responsibility for recomputing the ambient average concentration of TDS and nitrate-nitrogen in each groundwater management zone every 3 years.

The first re-assessment covered the 20-year period from 1978 to 1997 (Wildermuth Environmental Inc. [WEI], 2000); the second update covered the period from 1984 to 2003 (WEI, 2005); the third update covered the period from 1987 to 2006 (WEI, 2008); the fourth covered the period from 1990 to 2009 (WEI, 2011); the fifth covered the period from 1993 to 2012 (WEI, 2014); the sixth covered period from 1996 to 2015 (DBS&A, 2017). In 2019, the BMPTF contracted with Water Systems Consulting Inc. (WSC) to perform the seventh update which covers the 20-year period from 1999 to 2018. The summary report for the most recent update has been submitted to the Santa Ana Water Board for final acceptance (WSC, July 2020).

No substantive computational changes have been made to the ambient water quality calculation procedure since the Santa Ana Water Board first approved the methods in 2004. In all cases, the current ambient concentration of nitrate-nitrogen and TDS is calculated as a 20-year running volume-weighted average. All available groundwater data for the most recent 20-year monitoring period are used to ensure that the computed ambient water quality concentrations account for both temporal and spatial variability, as recommended in the State Board's Administrative Procedures Update #90-004.

All of the data are subjected to a rigorous QA/QC review before beginning the recomputation procedure. Over the years, several minor improvements have been made to better identify potential data errors and anomalies and thereby assure high confidence in the resulting analysis. These procedural improvements are well-documented in the final reports, and questionable data is flagged when the master database is being updated.

For some GMZs, there is not sufficient available data for calculation of TDS and/or nitrate-nitrogen ambient water quality. In those cases, the Basin Plan specifies that these GMZs are assumed to have no assimilative capacity. Dischargers to these GMZs may demonstrate that assimilative capacity for TDS and/or nitrate-nitrogen is available, and if the Santa Ana Water Board approves this demonstration, then the discharger would be regulated accordingly.

2014 BASIN PLAN AMENDMENTS

On April 25, 2014, the Santa Ana Water Board approved Basin Plan amendments that revised, in part, the process for updating the TDS and nitrate-nitrogen ambient water quality and assimilative capacity findings for the Santa Ana Region (Resolution No. R8-2014-0005). Beginning with the 2012 recomputation of ambient water quality, the Santa Ana Water Board must officially approve each triennial Ambient Water Quality Update (AWQU) but a formal Basin Plan amendment is no longer required. Instead, after the BMPTF submits a final report, the Santa Ana Water Board provides public notice of its intent to rely on the findings in future permitting actions and solicits public comment on the report. The notice also schedules a public hearing where the Santa Ana Water Board will hear testimony as it considers whether to accept or reject the most recent AWQU. If approved by the Santa Ana Water Board, the updated findings will be used for various related regulatory purposes.

2018 GROUNDWATER MANAGEMENT ZONE AMBIENT TDS AND NITRATE-NITROGEN UPDATE

As indicated above, the BMPTF completed the 1999 to 2018 ambient water quality determination (2018 AWQU). The final report is entitled: “Recomputation of Ambient Water Quality in the Santa Ana Watershed for the Period 1999 to 2018” (July 2020). A full and complete copy of the report has been posted to the website of the Santa Ana Watershed Project Authority as a downloadable PDF file. Link to that report is provided below.

https://sawpa.org/task-forces/basin-monitoring-program-taskforce/#resources

A summary of the TDS and nitrate-nitrogen ambient water quality determinations for GMZs, including the past and the 2018 AWQU, and assimilative capacity findings, are attached as Table 3-1 and Table 3-2 to Resolution No. R8- 2021-0020). The assimilative capacity is determined based on a comparison of ambient TDS and nitrate-nitrogen water quality to the respective GMZ water quality objectives. For the GMZs where “maximum benefit” programs are in effect, the assimilative capacity determinations are based on the “maximum benefit” water quality objectives, not the "antidegradation" objectives as shown in the tables. TDS and nitrate-nitrogen concentrations in each groundwater management zone for the period 1954-1973 were evaluated to establish historic ambient quality for each zone. This period brackets 1968, when the SWRCB adopted the state’s antidegradation policy (Resolution No. 68-16). The antidegradation policy established a benchmark for assessing and considering authorization of future degradation of water quality. The historic ambient TDS and nitrate-nitrogen concentrations for each management zone were established by the Regional Board as the “antidegradation” objectives for each zone (Resolution No. R8-2004-0001).

When the current ambient average concentration is less than the water quality objective, then a GMZ is deemed to have assimilative capacity available. The amount of assimilative capacity available is indicated by a positive numeric value in the far-right column of each table. Zero or negative values in this column indicate that the GMZ has no assimilative capacity for TDS and/or nitrate-nitrogen. Higher positive values indicate more assimilative capacity is available and larger negative values indicate that average ambient TDS and/or nitrate-nitrogen concentrations are significantly worse than the applicable water quality objective.

Of the 37 GMZs, 29 GMZs lack assimilative capacity for TDS and 28 GMZs lack assimilative capacity for nitrate-nitrogen. Included in the number of GMZs that lack assimilative capacity are 7 GMZs that have insufficient data to calculate the current average concentration of TDS and nitrate-nitrogen. These 7 GMZs are assumed to have no assimilative capacity available for TDS or nitrate-nitrogen. Additional data will be needed, if and when new projects using recycled water are proposed for these 7 GMZs.

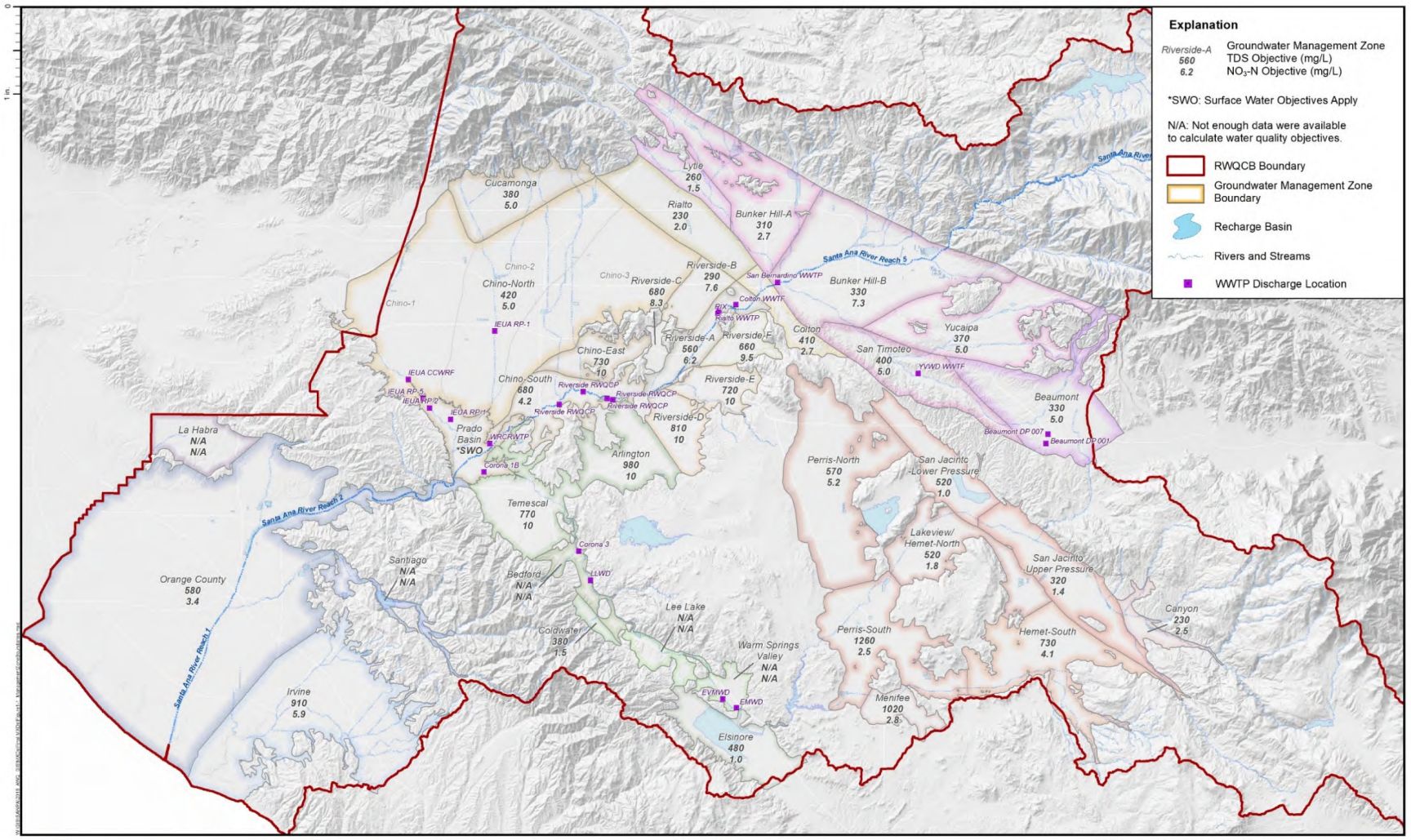
At the regularly scheduled Board meeting on December 5, 2020, the BMPTF and their consultant (WSC) summarized the most recent AWQU report in a presentation to the Santa Ana Water Board. The presentation described the methods used, the updated estimate of average TDS and nitrate- nitrogen concentrations, the amount of assimilative capacity available, and the long-term water quality trends for GMZ for which there was sufficient data to perform the necessary calculations.

It should be noted that, in addition to documenting the current average TDS and nitrate-nitrogen concentrations in each GMZ, the latest report also provides additional information on groundwater levels, the amount of groundwater in storage and how these values change over time. The report also presents high resolution maps showing how water quality varies within each GMZ. Key well data are also provided to help in understanding and interpreting long-term trends at individual wells within the GMZs.

Santa Ana Water Board staff reviewed the draft report and provided written comments to the BMPTF. Staff also reviewed the final report and confirmed that all of the previous comments were adequately addressed in the revised document. Therefore, Staff concludes that the 2018 AWQU report recently completed by the BMPTF meets the requirements specified in the 2004 Basin Plan amendment and is consistent with the related monitoring and reporting plan approved by the Santa Ana Water Board in 2005 (Res. No. R8-2005-0063).

STAFF RECOMMENDATION

Adopt Resolution No. R8-2021-0020 as proposed, accepting the updated 2018 TDS and nitrate-nitrogen determinations and assimilative capacity findings for the GMZs as shown in Table 3-1 and Table 3-2 attached to the proposed Resolution, and direct Staff to rely on these determinations and findings to develop appropriate effluent limitations and/or other waste discharge requirements needed to implement the Salt Management Plan as described in the Basin Plan.


Explanation
Riverside-A
560
6.2
Groundwater Management Zone
TDS Objective (mg/L)
NO3-N Objective (mg/L)
*SWO: Surface Water Objectives Apply
N/A: Not enough data were available to calculate water quality objectives.
RWQCB Boundary
Groundwater Management Zone Boundary
Recharge Basin
Rivers and Streams
WWTP Discharge Location
Cucamonga 380 5.0
Lytle 260 1.5
Rialto 230 2.0
Bunker Hill-A 310 2.7
Chino-2
Chino-North 420 5.0
Chino-1
Chino-3
Riverside-B 290 7.6
Riverside-C 680 8.3
Bunker Hill-B 330 7.3
Santa Ana River Reach 5
San Bernardino WWTP
Colton WWTF
RIX
Rialto WWTP
IEUA RP-1
Riverside-A 560 6.2
Riverside-F 660 3.5
Colton 410 2.7
Yucaipa 370 5.0
San Timoteo 400 5.0
YVWD WWTF
Chino-East 730 10
IEUA CCWRF
IEUA RP-5
IEUA RP-2
Chino-South 680 4.2
Riverside RWQCP
IEUA RP-1
Riverside-E 720 10
Riverside-D 810 10
Beaumont 330 5.0
Beaumont DP 007
Beaumont DP 001
La Habra N/A N/A
Prado Basin *SWO
WRCRWTP
Corona 1B
Arlington 980 10
Perris-North 570 5.2
San Jacinto -Lower Pressure 520 1.0
Temescal 770 10
Santa Ana River Reach 2
Corona 3
Lakeview/ Hemet-North 520 1.8
San Jacinto Upper Pressure 320 1.4
Santiago N/A N/A
Bedford N/A N/A
LLWD
Orange County 580 3.4
Lee Lake N/A N/A
Canyon 230 2.5
Coldwater 380 1.5
Perris-South 1260 2.5
Hemet-South 730 4.1
Warm Springs Valley N/A N/A
Santa Ana River Reach 1
EVMWD
EMWD
Irvine 910 5.9
Menifee 1020 2.8
Elsinore 480 1.0
Prepared by:
WSC
Water Systems Consulting, Inc.
Author: EC
Date: 2/25/2020
File Name: Figure1-1_ManagementZoneBoundaries
N
1 in : 5.5 mi
0 1.75 3.5 7 Mi
0 2.75 5.5 11 Km
References:
1. Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983
Units: Meter
2.
3.
Prepared for:
SAWPA
SAWPA Basin Monitoring Program Task Force
Recomputation of Ambient Water Quality for the Period 1999 to 2018
Groundwater Management Zone Boundaries and Nitrate/TDS Objectives
Santa Ana River Watershed
Figure 1-1

California Regional Water Quality Control Board Santa Ana Region

RESOLUTION NO. R8-2021-0020

Resolution Accepting the 1999 – 2018 Total Dissolved Solids and Nitrate-Nitrogen Groundwater Management Zones Ambient Water Quality Determinations as Required in the Salt Nitrogen Management Plan Specified in the Water Quality Control Plan for the Santa Ana River Basin

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

1. An updated Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) was adopted by the Santa Ana Water 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 on January 24, 1995.

2. Amendments to the Basin Plan to incorporate a revised "Total Dissolved Solids and Nitrogen Management Plan" (Salt Management Plan) into the 1995 Basin Plan were approved by the Santa Ana Water Board on January 22, 2004, by the State Water Board on October 1, 2004 and by the Office of Administrative Law on December 23, 2004. The surface water components of the amendments were approved by the U.S. Environmental Protection Agency (EPA) on January 20, 2007.

3. The 2004 amendments to the Basin Plan established total dissolved solids (TDS) and nitrate-nitrogen water quality objectives for groundwater management zones throughout the region. These water quality objectives are based on historical water quality ("antidegradation objectives"). TDS and nitrate-nitrogen concentrations in each groundwater management zone for the period 1954- 1973 were evaluated to establish historic ambient quality for each zone. This period brackets 1968, when the SWRCB adopted the state's antidegradation policy (Resolution No. 68-16). The antidegradation policy established a benchmark for assessing and considering authorization of future degradation of water quality. The historic ambient TDS and nitrate-nitrogen concentrations for each management zone were established by the Santa Ana Water Boards as the "antidegradation" objectives for each zone (Resolution No. R8-2004-0001).

4. The Basin Monitoring Program Task Force (BMPTF) was formed in 2005 to conduct studies related to the implementation of the Salt Management Plan, including overseeing the recalculation of ambient TDS and nitrate-nitrogen water quality. The BMPTF is comprised of 20 water supply and wastewater agencies throughout the Region. Santa Ana Water Board staff attends all Task Force meetings and serves in an advisory role to the group. The BMPTF effort is coordinated by the Santa Ana Watershed Project Authority.

5. The Salt Management Plan addresses TDS and nitrogen in both surface waters and groundwater management zones throughout the Santa Ana River Basin and requires that the update of ambient TDS and nitrate-nitrogen water quality for each groundwater management zone be conducted every three 3 years. Recomputation of ambient TDS and nitrate-nitrogen water quality has been conducted six times and includes ambient water quality determinations for 20-year periods: 1978-1997, 1984-2003, 1987-2006, 1990-2009, 1993-2012, and 1996 to 2015. The most recent computational update, which is the subject of this Resolution, encompasses the 20-year period from 1999 to 2018.

6. For each groundwater management zone, TDS and nitrate-nitrogen assimilative capacity is determined based on a comparison of ambient TDS and nitrate-nitrogen water quality to the respective management zone water quality objectives. Assimilative capacity findings are utilized in the development of waste discharge requirements.

7. On April 25, 2014, the Santa Ana Water Board approved amendments to the Basin Plan that contained revisions to the Assimilative Capacity Findings specified in the Salt Management Plan (Resolution No. R8-2014-0005). The Basin Plan amendment deleted from the Basin Plan reference to Tables 5-3 and 5-4 that contain the 1978-1997 ambient TDS and nitrate-nitrogen ambient water quality and modified the Basin Plan language to specify that the TDS and nitrate-nitrogen water quality will be updated every 3 years, and those updated values will be reported to the Santa Ana Water Board for acceptance following public review and input. The amendments were approved by the State Water Board on July 15, 2014 (Resolution No. 2014-0034) and approved by the Office of Administrative Law on October 29, 2014.

8. In compliance with the Monitoring Program Requirements of the Salt Management Plan Implementation Plan, Section V.B., the BMPTF submitted the Final 2018 Ambient Recomputation Report Technical Memorandum to the Santa Ana Water Board in July 2020. This Report updates the TDS and nitrate-nitrogen ambient water quality for the 20-year period from 1999 to 2018.

9. The Santa Ana Water Board has reviewed the Final 2018 Ambient Recomputation Technical Memorandum and finds that the report complies with the Salt Management Plan's Monitoring and Reporting Requirements specified in the Basin Plan and is consistent with the Surface Water and Groundwater Monitoring Program approved by the Santa Ana Water Board on April 15, 2005 (Res. No. R8-2005-0063).

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Santa Ana Water Board accepts the Basin Monitoring Task Force submittal of the updated 2018 TDS and nitrate-nitrogen ambient management zone water quality determinations and assimilative capacity findings as shown in Table 3-1 and Table 3-2 attached to Resolution No. R8-2021-0020.

2. The updated 2018 determinations of ambient groundwater quality comply with the Salt Management Plan Monitoring Program Requirements as specified in the Basin Plan.

3. The Santa Ana Water Board directs staff to rely on the updated 2018 ambient TDS and nitrate-nitrogen determinations and assimilative capacity findings to develop appropriate waste discharge requirements or water recycling requirements.

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 March 12, 2021.

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Hope A. Smythe

Executive Officer

Attachments to Resolution No. R8-2021-0020

Table 3-1: TDS Water Quality Objectives, Ambient Water Quality and Assimilative Capacity

Table 3-2: Nitrate Water Quality Objectives, Ambient Water Quality and Assimilative Capacity

Note: Table 3-1 and Table 3-2 were excerpted from the WSC report entitled:

"Recomputation of Ambient Water Quality in the Santa Ana River Watershed for the Period 1999 to 2018"

A copy of WSC's full report can be downloaded from the SAWPA's website using the following link:

https://sawpa.org/task-forces/basin-monitoring-program-taskforce/#resources

Recomputation of Ambient Water Quality for the Period 1999 to 2018 (sawpa.org)

Table 0-1. TDS Water Quality Objectives, Ambient Water Quality, and Assimilative Capacity (Page 1 of 2)

Groundwater Management Zones	Total Dissolved Solids Concentration (mg/L)										
	Water Quality Objective	Historical Ambient[1]	1997 Ambient	2003 Ambient	2006 Ambient	2009 Ambient	2012 Ambient	2015 Ambient	2018 Ambient	Difference from 2015 to 2018	Assimilative Capacity
San Bernardino Valley and Yucaipa / Beaumont Plains											
Beaumont, "maximum benefit"	330	233	290	260	260	280	290	290	280	-10	50
Beaumont, "antidegradation"	230	233	290	260	260	280	290	290	280	-10	None (-50)
Bunker Hill-A	310	313	350	320	330	340	340	330	330	0	None (-20)
Bunker Hill-B	330	332	260	280	280	270	280	290	280	-10	50
Lytle	260	264	240	230	230	240	240	240	240	0	20
San Timoteo, "maximum benefit"	400	303	300	?	?	420	410	420	420	0	None (-20)
San Timoteo, "antidegradation"	300	303	300	?	?	420	410	420	420	0	None (-120)
Yucaipa, "maximum benefit"	370	319	330	310	310	320	320	320	320	0	50
Yucaipa, "antidegradation"	320	319	330	310	310	320	320	320	320	0	0
San Jacinto Basins											
Canyon	230	234	220	420	370	420	340	380	370	-10	None (-140)
Hemet-South	730	732	1030	850	920	910	940	920	940	20	None (-210)
Lakeview/Hemet North	520	519	830	840	880	890	860	850	850	0	None (-330)
Menifee	1020	1021	3360	2220	2140	2050	2030	1970	1960	-10	None (-940)
Perris-North	570	568	750	780	730	770	760	720	730	10	None (-160)
Perris-South	1260	1258	3190	2200	2600	2470	2400	2340	2300	-40	None (-1040)
San Jacinto-Lower Pressure	520	520	730	950	810	800	800	780	760	-20	None (-240)
San Jacinto-Upper Pressure, "maximum benefit"	500	321	370	370	350	350	350	370	350	-20	150
San Jacinto-Upper Pressure, "antidegradation"	320	321	370	370	350	350	350	370	350	-20	None (-30)
Chino, Rialto / Colton, and Riverside Basins											
Chino-North, "maximum benefit"	420	260	300	320	340	340	350	360	350	-10	70
Chino-1, "antidegradation"	280	280	310	330	340	340	350	350	340	-10	None (-60)
Chino-2, "antidegradation"	250	250	300	340	360	360	380	380	380	0	None (-130)
Chino-3, "antidegradation"	260	260	280	280	310	320	320	320	320	0	None (-60)
Chino-East	730	733	760	620	650	770	770	840	840	0	None (-110)
Chino-South	680	676	720	790	940	980	990	940	920	-20	None (-240)
Colton	410	407	430	430	450	430	440	480	490	10	None (-80)
Cucamonga, "maximum benefit"	380	212	260	250	250	250	260	260	260	0	120
Cucamonga, "antidegradation"	210	212	260	250	250	250	260	260	260	0	None (-50)
Rialto	230	230	230	220	230	230	230	240	240	0	None (-10)
Riverside-A	560	560	440	440	440	430	420	440	430	-10	130
Riverside-B	290	289	320	310	340	340	340	360	340	-20	None (-50)
Riverside-C	680	684	760	750	740	740	730	?	?	?	?
Riverside-D	810	812	?	?	?	?	?	?	?	?	?
Riverside-E	720	721	720	700	710	700	740	730	740	10	None (-20)
Riverside-F	660	665	580	570	570	570	560	560	550	-10	110
Prado Basin	SWO applies	618	—	—	—	—	—	—	—	—	—

Table 3-1. TDS Water Quality Objectives, Ambient Water Quality, and Assimilative Capacity (Page 2 of 2)

Groundwater Management Zones	Total Dissolved Solids Concentration (mg/L)										
	Water Quality Objective	Historical Ambient[1]	1997 Ambient	2003 Ambient	2006 Ambient	2009 Ambient	2012 Ambient	2015 Ambient	2018 Ambient	Difference from 2015 to 2018	Assimilative Capacity
Elsinore / Temescal Valleys											
Arlington	980	983	?	1020	960	1020	1030	1020	1020	0	None (-40)
Bedford	?	?	?	740	?	?	?	?	?	?	?
Coldwater	380	381	380	400	420	440	440	460	450	-10	None (-70)
Elsinore	480	476	480	460	470	470	490	490	490	0	None (-10)
Lee Lake	?	?	?	?	?	?	?	?	?	?	?
Temescal	770	771	780	700	780	790	790	810	810	0	None (-40)
Warm Springs Valley	?	?	?	?	?	?	?	?	?	?	?
Orange County Basins											
Irvine	910	908	910	880	920	910	940	920	880	-40	30
La Habra	?	?	?	?	?	?	?	?	?	?	?
Orange County	580	585	560	560	590	600	610	600	600	0	None (-20)
Santiago	?	?	?	?	?	?	?	?	?	?	?

? - Not enough data to estimate TDS concentrations

Data sampling period for all ambient water quality computations was 20 years

Table 0-2. Nitrate Water Quality Objectives, Ambient Water Quality, and Assimilative Capacity (Page 1 of 2)

Groundwater Management Zones	Nitrate Concentration (mg/L)										
	Water Quality Objective	Historical Ambient[1]	1997 Ambient	2003 Ambient	2006 Ambient	2009 Ambient	2012 Ambient	2015 Ambient	2018 Ambient	Difference from 2015 to 2018	Assimilative Capacity
San Bernardino Valley and Yucaipa / Beaumont Plains											
Beaumont, "maximum benefit"	5.0	1.5	2.6	2.0	1.6	2.5	2.9	2.9	2.7	-0.2	2.3
Beaumont, "antidegradation"	1.5	1.5	2.6	2.0	1.6	2.5	2.9	2.9	2.7	-0.2	None (-1.2)
Bunker Hill-A	2.7	2.7	4.5	4.3	4.0	4.0	4.0	3.9	3.8	-0.1	None (-1.1)
Bunker Hill-B	7.3	7.3	5.5	5.8	5.4	5.4	5.6	5.8	5.8	0.0	1.5
Lytle	1.5	1.5	2.8	2.7	2.7	2.6	2.5	2.4	2.4	0.0	None (-0.9)
San Timoteo, "maximum benefit"	5.0	2.7	2.9	?	?	0.8	2.3	2.0	1.5	-0.5	3.5
San Timoteo, "antidegradation"	2.7	2.7	2.9	?	?	0.8	2.3	2.0	1.5	-0.5	1.2
Yucaipa, "maximum benefit"	5.0	4.2	5.2	5.4	5.3	6.2	6.3	6.2	5.9	-0.3	None (-0.9)
Yucaipa, "antidegradation"	4.2	4.2	5.2	5.8	5.3	6.2	6.3	6.2	5.9	-0.3	None (-1.7)
San Jacinto Basins											
Canyon	2.5	2.5	1.6	2.1	1.9	2.7	2.0	2.0	1.7	-0.3	0.8
Hemet-South	4.1	4.1	5.2	5.4	5.5	5.2	5.7	5.7	5.5	-0.2	None (-1.4)
Lakeview/Hemet North	1.8	1.8	2.7	3.4	2.7	2.6	2.5	2.6	2.9	0.3	None (-1.1)
Menifee	2.8	2.8	5.4	6.0	4.7	4.4	4.6	4.5	4.8	0.3	None (-2)
Perris-North	5.2	5.2	4.7	6.7	6.5	7.4	7.3	7.4	7.8	0.4	None (-2.6)
Perris-South	2.5	2.5	4.9	5.9	5.5	5.8	5.8	6.0	6.0	0.0	None (-3.5)
San Jacinto-Lower Pressure	1.0	1.0	1.9	1.8	1.2	1.1	1.1	1.5	1.7	0.2	None (-0.7)
San Jacinto-Upper Pressure, "maximum benefit"	7.0	1.4	1.9	1.7	1.6	1.5	1.4	1.6	1.1	-0.5	5.9
San Jacinto-Upper Pressure, "antidegradation"	1.4	1.4	1.9	1.7	1.6	1.5	1.4	1.6	1.1	-0.5	None (0.3)
Chino, Rialto / Colton, and Riverside Basins											
Chino-North, "maximum benefit"	5.0	3.7	7.4	8.7	9.7	9.5	10.0	10.3	10.3	0	None (-5.3)
Chino-1, "antidegradation"	5.0	5.0	8.4	8.9	9.3	9.1	10.0	10.5	10.4	-0.1	None (-5.4)
Chino-2, "antidegradation"	2.9	2.9	7.2	9.5	10.7	10.3	10.7	10.9	10.9	0	None (-8)
Chino-3, "antidegradation"	3.5	3.5	6.3	6.8	8.2	8.4	8.5	8.9	9.2	0.3	None (-5.7)
Chino-East	10.0	13.3	29.1	9.6	12.7	15.7	21.0	22.0	22.0	0.0	None (-12)
Chino-South	5.0	4.2	8.8	15.3	25.7	26.8	28.0	27.8	27.6	-0.2	None (-22.6)
Colton	2.7	2.7	2.9	2.9	2.9	2.8	2.7	3.3	3.3	0.0	None (-0.6)
Cucamonga, "maximum benefit"	5.0	2.4	4.4	4.3	4.0	4.1	4.1	4.3	4.7	0.4	0.3
Cucamonga, "antidegradation"	2.4	2.4	4.4	4.3	4.0	4.1	4.1	4.3	4.7	0.4	None (-2.3)
Rialto	2.0	2.0	2.7	2.6	2.9	3.1	3.2	3.4	3.5	0.1	None (-1.5)
Riverside-A	6.2	6.2	4.4	4.9	4.9	5.2	5.4	5.6	5.7	0.1	0.5
Riverside-B	7.6	7.6	8.0	7.8	8.3	8.4	6.7	6.6	6.5	-0.1	1.1
Riverside-C	8.3	8.3	15.5	15.3	15.3	14.8	14.5	?	?	?	?
Riverside-D	10.0	19.5	?	?	?	?	?	?	?	?	?
Riverside-E	10.0	13.3	14.8	15.4	15.3	15.2	10.2	10.4	10.2	-0.2	None (-0.19)
Riverside-F	9.5	12.1	9.5	10.6	10.3	10.6	10.1	10.9	10.3	-0.6	None (-0.8)
Prado Basin	SWQO applies	4.3	—	—	—	—	—	—			

Table 3-2: Nitrate Water Quality Objectives, Ambient Water Quality, and Assimilative Capacity (Page 2 of 2)

Groundwater Management Zones	Nitrate Concentration (mg/L)										
	Water Quality Objective	Historical Ambient[1]	1997 Ambient	2003 Ambient	2006 Ambient	2009 Ambient	2012 Ambient	2015 Ambient	2018 Ambient	Difference from 2015 to 2018	Assimilative Capacity
Elsinore / Temescal Valleys											
Arlington	10.0	25.5	?	26.0	20.4	18.1	18.3	17.8	16.6	-1.2	None (-6.6)
Bedford	?	?	?	2.8	?	?	?	?	?	?	?
Coldwater	1.5	1.5	2.6	2.4	2.6	2.8	2.8	2.2	2.3	0.1	None (-0.8)
Elsinore	1.0	1.0	2.6	2.4	2.4	2.2	2.1	2.2	2.3	0.1	None (-1.3)
Lee Lake	?	?	?	?	?	?	?	?	?	?	?
Temescal	10.0	11.8	13.2	12.8	12.6	12.0	10.9	10.9	10.2	-0.7	None (-0.2)
Warm Springs Valley	?	?	?	?	?	?	?	?	?	?	?
Orange County Basins											
Irvine	5.9	5.9	7.4	6.5	6.5	6.7	6.7	6.4	6.4	0	None (-0.5)
La Habra	?	?	?	?	?	?	?	?	?	?	?
Orange County	3.4	3.4	3.4	3.1	3.0	3.0	2.9	3.0	3.0	0	0.4
Santiago	?	?	?	?	?	?	?	?	?	?	?

? - Not enough data to estimate NO3 concentrations

Data sampling period for all ambient water quality computations was 20 years