3. WATER QUALITY OBJECTIVES

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Introduction

The Clean Water Act (§303) requires states to develop water quality standards for all waters and to submit to the USEPA for approval all new or revised water quality standards which are established for inland surface and ocean waters. Water quality standards consist of a combination of beneficial uses (designated in Chapter 2) and water quality objectives (contained in this Chapter).

In addition to the federal mandate, the California Water Code (§13241) specifies that each Regional Water Quality Control Board shall establish water quality objectives. The Water Code defines water quality objectives as "the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area." Thus, water quality objectives are intended (i) to protect the public health and welfare and (ii) to maintain or enhance water quality in relation to the designated existing and potential beneficial uses of the water. Water quality objectives are achieved through Waste Discharge Requirements and other programs outlined in Chapter 4, Strategic Planning and Implementation. These objectives, when compared with future water quality data, also provide the basis for identifying trends toward degradation or enhancement of regional waters.

These water quality objectives supersede those contained in all previous Basin Plans and amendments adopted by the Los Angeles Regional Board. As new information becomes available, the Regional Board will review the objectives contained herein and develop new objectives as necessary. In addition, this Plan will be reviewed every three years (triennial review) to determine the need for modification.

Statement of Policy with Respect to Maintaining High Quality of Waters in California

A key element of California's water quality standards is the state's Antidegradation Policy. This policy, formally referred to as the *Statement of Policy with Respect to Maintaining High Quality Waters in California* (State Board Resolution No. 68-16), restricts degradation of surface or ground waters. In particular, this policy protects waterbodies where existing quality is higher than is necessary for the protection of beneficial uses.

STATE WATER RESOURCES CONTROL BOARD
RESOLUTION NO. 68-16

STATEMENT OF POLICY WITH RESPECT TO
MAINTAINING HIGH QUALITY OF WATERS IN CALIFORNIA

WHEREAS the California Legislature has declared that it is the policy of the State that the granting of permits and licenses for unappropriated water and the disposal of wastes into the waters of the State shall be so regulated as to achieve highest water quality consistent with maximum benefit to the people of the State and shall be controlled so as to promote the peace, health, safety and welfare of the people of the State; and

WHEREAS water quality control policies have been and are being adopted for waters of the State; and

WHEREAS the quality of some waters of the State is higher than that established by the adopted policies and it is the intent and purpose of this Board that such higher quality shall be maintained to the maximum extent possible consistent with the declaration of the Legislature;

NOW, THEREFORE, BE IT RESOLVED:

1. Whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality will be maintained until it has been demonstrated to the State that any change will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial use of such water and will not result in water quality less than that prescribed in the policies.

2. Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

3. In implementing this policy, the Secretary of the Interior will be kept advised and will be provided with such information as he will need to discharge his responsibilities under the Federal Water Pollution Control Act.

BE IT FURTHER RESOLVED that a copy of this resolution be forwarded to the Secretary of the Interior as part of California's water quality control policy submission.

CERTIFICATION

The undersigned, Executive Officer of the State Water Resources Control Board, does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the State Water Resources Control Board held on October 24, 1968.

Dated: October 28, 1968

Original signed by
Kerry W. Mulligan, Executive Officer
State Water Resources Control Board

Under the Antidegradation Policy, any actions that can adversely affect water quality in all surface and ground waters (i) must be consistent with the maximum benefit to the people of the state, (ii) must not unreasonably affect present and anticipated beneficial use of such water, and (iii) must not result in water quality less than that prescribed in water quality plans and policies. Furthermore, any actions that can adversely affect surface waters are also subject to the federal Antidegradation Policy (40 CFR 131.12), developed under the CWA. The USEPA, Region IX, has also issued detailed guidance for the implementation of federal antidegradation regulations for surface waters within its jurisdiction (USEPA, 1987).

Regional Objectives for Inland Surface Waters

Narrative or numerical water quality objectives have been developed for the following parameters (listed alphabetically) and apply to all inland surface waters and enclosed bays and estuaries (including wetlands) in the Region. *Water quality objectives are in italics.*

Ammonia

Ammonia is a pollutant routinely found in the wastewater effluent of Publicly Owned Treatment Works (POTWs), in landfill-leachate, as well as in run-off from agricultural fields where commercial fertilizers and animal manure are applied. Ammonia exists in two forms – un-ionized ammonia (NH_3) and the ammonium ion (NH_4^+). They are both toxic, but the neutral, un-ionized ammonia species (NH_3) is highly toxic to fish and other aquatic life. The ratio of toxic NH_3 to total ammonia ($NH_4^+ + NH_3$) is primarily a function of pH, but is also affected by temperature and other factors. Additional impacts can also occur as the oxidation of ammonia lowers the dissolved oxygen content of the water, further stressing aquatic organisms. Ammonia also combines with chlorine (often both are present) to form chloramines - persistent toxic compounds that extend the effects of ammonia and chlorine downstream.

Oxidation of ammonia to nitrate may lead to groundwater impacts in areas of recharge.

The freshwater one-hour average objective is dependent on pH and fish species (salmonids present or absent), but not temperature. It is assumed that salmonids may be present in waters designated in the Basin Plan as “COLD” or “MIGR” and that salmonids are absent in waters not designated in the Basin Plan as “COLD” or “MIGR,” in the absence of additional information to the contrary. The freshwater 30-day average objective is dependent on pH temperature, and the presence or absence of early life stages of fish (ELS). Implementation of the ELS Provision is described under “Implementation” subparagraph 3. The freshwater four-day average objective is 2.5 times the 30-day average objective.

The objectives for inland surface waters not characteristic of freshwater are based on US EPA Ambient Water Quality Criteria for Ammonia (Saltwater) -1989. Both the one-hour average and 4-day average objectives are fixed concentrations for un-ionized ammonia, independent of pH, temperature, or salinity.

In order to protect aquatic life, ammonia concentrations in inland surface waters characteristic of freshwater (“freshwater” as determined by the provisions described herein under “IMPLEMENTATION,” 1. Determination of Freshwater, Brackish Water, or Saltwater Conditions) shall not exceed the values calculated for the appropriate instream conditions shown in Tables 3-1 to 3-3 (per U.S. EPA’s most recent criteria guidance document, “1999 Update of Ambient Water Quality Criteria for Ammonia”).

For inland surface waters not characteristic of freshwater (as determined by the procedures in paragraph 1 of the Implementation Provisions below), the four-day average concentration of un-ionized ammonia shall not exceed 0.035 mg/L and the one-hour average concentration shall not *exceed 0.233 mg/L.*

The water quality objectives for ammonia in freshwater may be revised to reflect local waterbody characteristics using one or more of US EPA's procedures for deriving site-specific objectives (SSOs), which include the water-effect ratio (WER) procedure, recalculation procedure, and resident species procedure. In order to establish SSOs for a waterbody, a study must be conducted that is consistent with US EPA guidelines on deriving aquatic life criteria and SSOs, and the resultant SSOs must be fully approved through the Basin Plan amendment process.

In order to protect underlying groundwater basins, ammonia shall not be present at levels that when oxidized to nitrate, pose a threat to groundwater quality.

Table 3-1. One-hour Average Objective for Ammonia-N for Freshwaters (mg N/L)[1]

pH	Waters Designated COLD and/or MIGR	Waters Not Designated COLD and/or MIGR
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia

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1 *For freshwaters, the one-hour average concentration of total ammonia as nitrogen (in mg N/L) shall not exceed the values described by the following equations.*

For waters designated COLD and/or MIGR:

$$\text{One-hour Average Concentration} = \frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}$$

Or for waters not designated COLD and/or MIGR:

$$\text{One-hour Average Concentration} = \frac{0.411}{1+10^{7.204-pH}} + \frac{58.4}{1+10^{pH-7.204}}$$

Table 3-2. 30-day Average Objective for Ammonia-N for Freshwaters Applicable to Waters Subject to the "Early Life Present" Condition (mg N/L)

Temperature, °C

pH	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	6.67	6.46	6.06	5.68	5.33	4.99	4.68	4.39	4.12	3.86	3.62	3.39	3.18	2.98	2.80	2.62	2.46
6.6	6.57	6.36	5.97	5.59	5.25	4.92	4.61	4.32	4.05	3.80	3.56	3.34	3.13	2.94	2.75	2.58	2.42
6.7	6.44	6.25	5.86	5.49	5.15	4.83	4.52	4.24	3.98	3.73	3.50	3.28	3.07	2.88	2.70	2.53	2.37
6.8	6.29	6.10	5.72	5.36	5.03	4.72	4.42	4.14	3.89	3.64	3.42	3.20	3.00	2.82	2.64	2.47	2.32
6.9	6.12	5.93	5.56	5.21	4.89	4.58	4.30	4.03	3.78	3.54	3.32	3.11	2.92	2.74	2.57	2.41	2.25
7.0	5.91	5.73	5.37	5.04	4.72	4.43	4.15	3.89	3.65	3.42	3.21	3.01	2.82	2.64	2.48	2.32	2.18
7.1	5.67	5.49	5.15	4.83	4.53	4.25	3.98	3.73	3.50	3.28	3.08	2.88	2.70	2.53	2.38	2.23	2.09
7.2	5.39	5.22	4.90	4.59	4.31	4.04	3.78	3.55	3.33	3.12	2.92	2.74	2.57	2.41	2.26	2.12	1.99
7.3	5.08	4.92	4.61	4.33	4.06	3.80	3.57	3.34	3.13	2.94	2.76	2.58	2.42	2.27	2.13	2.00	1.87
7.4	4.73	4.59	4.30	4.03	3.78	3.55	3.32	3.12	2.92	2.74	2.57	2.41	2.26	2.12	1.98	1.86	1.74
7.5	4.36	4.23	3.97	3.72	3.49	3.27	3.06	2.87	2.69	2.53	2.37	2.22	2.08	1.95	1.83	1.72	1.61
7.6	3.98	3.85	3.61	3.39	3.18	2.98	2.79	2.62	2.45	2.30	2.16	2.02	1.90	1.78	1.67	1.56	1.47
7.7	3.58	3.47	3.25	3.05	2.86	2.68	2.51	2.36	2.21	2.07	1.94	1.82	1.71	1.60	1.50	1.41	1.32
7.8	3.18	3.09	2.89	2.71	2.54	2.38	2.23	2.10	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
7.9	2.80	2.71	2.54	2.38	2.24	2.10	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17	1.10	1.03
8.0	2.43	2.36	2.21	2.07	1.94	1.82	1.71	1.60	1.50	1.41	1.32	1.24	1.16	1.09	1.02	0.957	0.897
8.1	2.10	2.03	1.91	1.79	1.68	1.57	1.47	1.38	1.29	1.21	1.14	1.07	1.00	0.938	0.879	0.824	0.773
8.2	1.79	1.74	1.63	1.53	1.43	1.34	1.26	1.18	1.11	1.04	0.973	0.912	0.855	0.802	0.752	0.705	0.661
8.3	1.52	1.48	1.39	1.30	1.22	1.14	1.07	1.00	0.941	0.882	0.827	0.775	0.727	0.682	0.639	0.599	0.562
8.4	1.29	1.25	1.17	1.10	1.03	0.966	0.906	0.849	0.796	0.747	0.700	0.656	0.615	0.577	0.541	0.507	0.475
8.5	1.09	1.06	0.990	0.928	0.870	0.816	0.765	0.717	0.672	0.630	0.591	0.554	0.520	0.487	0.457	0.428	0.401
8.6	0.920	0.892	0.836	0.784	0.735	0.689	0.646	0.606	0.568	0.532	0.499	0.468	0.439	0.411	0.386	0.362	0.339
8.7	0.778	0.754	0.707	0.663	0.622	0.583	0.547	0.512	0.480	0.450	0.422	0.396	0.371	0.348	0.326	0.306	0.287
8.8	0.661	0.641	0.601	0.563	0.528	0.495	0.464	0.435	0.408	0.383	0.359	0.336	0.315	0.296	0.277	0.260	0.244
8.9	0.565	0.548	0.513	0.481	0.451	0.423	0.397	0.372	0.349	0.327	0.306	0.287	0.269	0.253	0.237	0.222	0.208
9.0	0.486	0.471	0.442	0.414	0.389	0.364	0.342	0.320	0.300	0.281	0.264	0.247	0.232	0.217	0.204	0.191	0.179

* At temperatures below 14 °C, the objective is the same as that shown for 14 °C.
Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia[2]

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2 *For freshwaters subject to the "Early Life Stage Present" condition, the thirty-day average concentration of total ammonia as nitrogen (in mg N/L) shall not*

exceed the values described by the following equation.

$$\text{30-day Average Concentration} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) * MIN \quad 2.85, 1.45 * 10^{0.028*\ 25-T}$$

Where T = temperature expressed in ºC.

In addition, for freshwaters, the highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

Table 3-3. 30-day Average Objective for Ammonia-N for Freshwaters applicable to Waters Subject to the "Early Life Stage Absent" Condition (mg N/L)

	Temperature, °C								
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641
8.9	0.917	0.86	0.806	0.756	0.709	0.664	0.623	0.584	0.548
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471

* At 15 °C and above, the 30-day average objective for waters subject to the "Early Life Stage ~~Present~~Absent" conditions is the same as that for waters ~~designated SPWN.~~subject to the "Early Life Present" condition

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia[3]

[3] *For freshwaters subject to the "Early Life Stage Absent" condition, the thirty-day average concentration of total ammonia as nitrogen (in mg N/L) shall not exceed the values described by the following equation.*

$$\text{30-day Average Concentration} = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) * 1.45 * 10^{0.028*\ 25-MAX\ \ T,7}$$

Where T = temperature expressed in ºC.
In addition, for freshwaters, the highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

For the following waterbodies, the 30-day average water quality objective for ammonia shall be calculated as set forth below. In addition, the highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective shown in Table 3-4 "Site-specific 30-day Average Objectives for Ammonia by Waterbody Reach". The regional one-hour average objective for ammonia-N for freshwaters, specified in Table 3-1, remains the applicable one-hour objective for these waterbodies.

Notwithstanding the provisions below, regulatory actions, including but not limited to TMDLs and Waste Discharge Requirements, to achieve applicable site-specific objectives must ensure that downstream standards will also be achieved and downstream beneficial uses will also be protected as far as the discharges' impacts may be experienced.

As described in "Implementation", "3. Selection of 30-day Average Objective – Early Life Stage Provision", below, these waterbodies are subject to site-specific ELS provisions as set forth in Table 3-4 "Site-specific 30-day Average Objectives for Ammonia by Waterbody Reach", which incorporate seasonality of early life stages of fish.

Where deemed necessary, additional receiving water monitoring shall be required of dischargers subject to SSOs to ensure that the SSOs are as protective of beneficial uses as the regional objectives are intended to be and downstream standards are achieved. This additional monitoring shall be required through the discharger's NPDES permit monitoring and reporting program or other Board required monitoring programs. If monitoring indicates toxicity due to ammonia or a change in the waterbody that could impact the calculation or application of the SSOs, including either its chemical characteristics or the aquatic species present, including early life stages of fish, the Regional Board may reconsider the SSOs.

Table 3-4. Site-Specific 30-day Average Objectives for Ammonia by Waterbody Reach

WATERBODY	30-DAY AVERAGE OBJECTIVE
Los Angeles River, Reach 5 (Sepulveda Basin)	**ELS Present (from April 1 – September 30)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.854 * MIN(2.85, 2.85 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – March 31)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.854 * 2.85 * 10^{0.028*(25-Max(T,7))}$
Los Angeles River, Reach 4 (Sepulveda Dam to Riverside Drive)	**ELS Absent (year round)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.854 * 2.85 * 10^{0.028*(25-Max(T,7))}$
Los Angeles River, Reach 3 (Riverside Drive to Figueroa Street)	**ELS Present (from April 1 – September 30)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.854 * MIN(2.85, 2.85 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – March 31)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.854 * 2.85 * 10^{0.028*(25-Max(T,7))}$
Burbank Western Wash (Burbank Water Reclamation Plant to confluence with LA River)	**ELS Absent (year round)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.92 * 2.03 * 10^{0.028*(25-Max(T,7))}$
San Gabriel River, Reaches 2 and 3 (Confluence with San Jose Creek to Firestone Blvd.) (including all San Jose Creek WRP discharges)	**ELS Present (from April 1 – September 30)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.89 * MIN(2.85, 2.37 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – March 31)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.89 * 2.37 * 10^{0.028*(25-Max(T,7))}$
San Gabriel River, Reach 1 (Firestone Blvd. to Willow St. or start of estuary)	**ELS Absent (year round)** $CCC = \left(\frac{0.0676}{1+10^{7.688-pH}} + \frac{2.912}{1+10^{pH-7.688}}\right) * 0.854 * 3.34 * 10^{0.028*(25-Max(T,7))}$

WATERBODY	30-DAY AVERAGE OBJECTIVE
Santa Clara River, Reach 6 (Bouquet Canyon Rd. Bridge to West Pier Hwy 99)	**ELS Present (from February 1 – September 30)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * MIN(2.85, 3.24 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – January 31)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * 3.24 * 10^{0.028*(25-Max(T,7))}$
Santa Clara River, Reach 5 (West Pier Hwy 99 to Blue Cut gauging station)	**ELS Present (from February 1 – September 30)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * MIN(2.85, 3.20 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – January 31)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * 3.20 * 10^{0.028*(25-Max(T,7))}$
San Jose Creek (Pomona WRP to confluence with San Gabriel River)	**ELS Present (from April 1 – September 30)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.92 * MIN(2.85, 2.02 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – March 31)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.92 * 2.02 * 10^{0.028*(25-Max(T,7))}$
Rio Hondo (Upstream of Whittier Narrows Dam)	**ELS Present (from April 1 – September 30)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * MIN(2.85, 3.04 * 10^{0.028*(25-T)})$ **ELS Absent (from October 1 – March 31)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * 3.04 * 10^{0.028*(25-Max(T,7))}$
Coyote Creek (Long Beach WRP to confluence with San Gabriel River)	**ELS Absent (year round)** $CCC = \left(\frac{0.0676}{1 + 10^{7.688 - pH}} + \frac{2.912}{1 + 10^{pH - 7.688}} \right) * 0.854 * 2.96 * 10^{0.028*(25-Max(T,7))}$

IMPLEMENTATION

Implementation Provisions for the Application of Ammonia Objectives to Inland Surface Waters in the Los Angeles Region

1. Determination of Freshwater, Brackish Water or Saltwater Conditions[4]

(1) For inland surface waters in which the salinity is equal to or less than 1 part per thousand 95% or more of the time, the applicable objectives are the freshwater objectives, based on the US EPA "1999 Update of Ambient Water Quality Criteria for Ammonia." (2) For waters in which the salinity is equal to or greater than 10 parts per thousand 95% or more of the time, the applicable objectives are a 4-day average concentration of 0.035 mg un-ionized NH_3/L and a one-hour average concentration of 0.233 mg un-ionized NH_3/L. (3) For waters in which the salinity is between 1 and 10 parts per thousand, the applicable objectives are the more stringent of the freshwater or saltwater objectives. (a) However, the Regional Board may by adoption of a resolution approve the use of either freshwater or saltwater objectives for an enclosed bay, wetland or estuary with findings that scientifically defensible information and data demonstrate that on a site-specific basis the biology of the water body is dominated by freshwater aquatic life and that freshwater objectives are more appropriate; or conversely, the biology of the water body is dominated by saltwater aquatic life and that saltwater objectives are more appropriate. When determining the biotic dominance of a water body, the following factors shall be considered: the nature of the conditions causing the dominance (e.g., natural vs. anthropogenic), the historical conditions of the water body, and the reversibility of the existing conditions.

2. Selection of One-hour Average Objective – Salmonids Present vs. Salmonids Absent

It is assumed that salmonids may be present in waters designated in the Basin Plan as "COLD" or "MIGR" and that salmonids are absent in waters not designated in the Basin Plan as "COLD" or "MIGR," in the absence of additional information to the contrary.

3. Selection of 30-day Average Objective – Early Life Stage (ELS) Provision

Early life stages of fish are presumptively present and must be protected at all times of the year unless the water body is listed in Table 3-5 or unless a site-specific study is conducted, which justifies applying the ELS absent condition or a seasonal ELS present condition. Any change in the implementation provision for the ELS present/absent condition, including the assignment of water bodies, must be approved through the Basin Plan Amendment process.

If recent data and information are submitted to the Regional Board that provide substantial evidence that the physical conditions of a water body listed in Table 3-5 have changed due to restoration efforts such that there is habitat suitable for Early Life Stages of fish and one or more fish species that reproduce below 15 degrees Celsius is known to be present, in that or the adjacent water bodies, the Regional Board shall reconsider this implementation provision to ensure protection of Early Life Stages of fish in the water body.

To justify the ELS absent provision, information regarding fish species distributions, spawning periods, nursery periods and the duration of early life stages found in the water body must be presented. Expert opinions from fisheries biologists and other scientists will be considered. Where it can be obtained, a consensus opinion from a diverse body of experts would carry significant weight in determining the presence or absence of the ELS. Information on water body temperature, including spatial, seasonal and inter-annual variability will also be considered. The determination of the time frame during the year when early life stages are most likely not to be present in numbers that, if chronic toxicity did occur, would affect the long-term success of the fish populations, should include adequate scientific justification. The Regional Board will use the record supporting a Basin Plan amendment as the basis upon which to approve or disapprove changes to these implementation provisions for the 30-day average ammonia objective. The record should clearly explain all the factors and information considered in arriving at the determination. The Regional Board will consider and weigh the breadth and depth of scientific evidence in determining whether to remove the early life stage specification of a water body.

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[4] *The procedure described in this section to determine which objectives should be applied is the same method employed in the California Toxics Rule (Title 40, Code of Federal Regulations, § 131.38(c)(3)).*

Where there is a site-specific ammonia objective for the water body, and the water body is not identified as ELS absent due to physical characteristics of the water body, separate implementation provisions to protect Early Life Stages of fish may apply, since the temperature threshold at which ELS are more sensitive than invertebrates may change based on these site-specific conditions. The potential for seasonality for all ELS present water bodies will be considered before the ELS provision is applied to water bodies with a site-specific objective.

Notwithstanding anything to the contrary herein, a watershed may have some reaches and tributaries with ELS present conditions and others with ELS absent conditions. Implementation actions to achieve applicable ammonia objectives must implement downstream objectives.

Table 3-5. Water Bodies Subject to 30-day Average Objective Applicable to "ELS Absent" Condition[*]

HUC 12 No.	Waterbody
CALLEGUAS-CONEJO CREEK WATERSHED	
180701030107	Calleguas Creek Reach 2 (Estuary to Potero Road)
180701030106	Revolon Slough (Calleguas Creek Rch 2 to Pleasant Valley Rd.)
180701030107	Revolon Slough (Pleasant Valley Rd. to Central Ave.)
180701030106	Reach 5 – Beardsley Channel (above Central Ave.)
180701030105	Conejo Creek
180701030107	Arroyo Conejo (Conejo Creek to North Fork Arroyo Conejo)
180701030104	Arroyo Conejo (above confl. with North Fork Arroyo Conejo)
180701030105	Arroyo Las Posas (Calleguas Creek Rch 3 to Long Canyon)
180701030103	Arroyo Las Posas (Long Canyon to Hitch Rd.)
180701030103	Arroyo Simi (Hitch Rd. to Happy Camp Canyon)
180701030102	Arroyo Simi (Happy Camp Canyon to Alamos Canyon)
180701030102	Arroyo Simi (Alamos Canyon to Tapo Canyon Creek)
180701030101	Arroyo Simi (above Tapo Canyon Creek)
MALIBU CREEK WATERSHED	
180701040104	Cold Creek
180701040102	Medea Creek Reach 1 (Malibou Lake to Lindero Creek Reach 1)
180701040102	Medea Creek Reach 2 (above Lindero Creek Reach 1)
180701040104	Triunfo Creek Reach 1 (Malibou Lake to Lobo Canyon)
180701040101	Triunfo Creek Reach 2 (Lobo Canyon to Westlake Lake)
BALLONA CREEK WATERSHED	
180701040300	Ballona Creek Reach 2 (Estuary to National Blvd.)
180701040300	Ballona Creek Reach 1 (above National Blvd.)
DOMINGUEZ CHANNEL WATERSHED	
180701060102	Dominguez Channel (Estuary to 135th St.)
180701060101	Dominguez Channel (above 135th St)
LOS ANGELES RIVER WATERSHED	
180701050402	Los Angeles River Reach 1 (Estuary to Carson St.)
180701050402	Los Angeles River Reach 2 (Carson St. to Rio Hondo Reach 1)
180701050401	Los Angeles River Reach 2 (Rio Hondo Reach 1 to Figueroa St.)

HUC 12 No.	Waterbody
180701050210	Los Angeles River Reach 3 (Figueroa St. to Riverside Dr.)
180701050208	Los Angeles River Reach 4 (Riverside Dr. to Sepulveda Dam)
180701050208	Los Angeles River Reach 5 (Sepulveda Dam to Balboa Blvd.)
180701050208	Los Angeles River Reach 6 (above Balboa Blvd.)
180701050303	Rio Hondo Reach 1 (Los Angeles River Reach 2 to Santa Ana Fwy)
180701050303	Rio Hondo Reach 2 (Santa Ana Fwy to Whittier Narrows Dam)
180701050302	Rio Hondo Reach 3 (except from Whittier Narrows to 4 miles north)
180701050209	Arroyo Seco Reach 3 (above Devils Gate Dam)
180701050208	Tujunga Wash
180701050402	Compton Creek
180701050209	Arroyo Seco Reach 1 (Los Angeles River Reach 2 to Holly St.)
180701050209	Arroyo Seco Reach 2 (Holly St. to Devils Gate Dam)
180701050208	Burbank Western Channel
180701050206	Pacoima Wash
SAN GABRIEL RIVER WATERSHED	
180701060606	San Gabriel River Reach 1 (San Gabriel River Estuary to Firestone Blvd.)
180701060606	San Gabriel River Reach 2 (Firestone Blvd. to Whittier Narrows Dam)
180701060601	San Gabriel River Reach 3 (Whittier Narrows Dam to San Jose Creek)
180701060601	San Gabriel River Reach 3 (San Jose Creek to Ramona Blvd.)
180701060601	San Gabriel River Reach 4 (Ramona Blvd. to Santa Fe Dam)
180701060601	San Gabriel River Reach 5 (Santa Fe Dam to Huntington Dr.)
180701060601	San Gabriel River Reach 5 (Huntington Dr. to Van Tassel Canyon)
180701060506	Coyote Creek (San Gabriel River Estuary to La Cañada Verde Creek)
180701060603	Coyote Creek (above La Cañada Verde Creek)
180701060502	San Jose Creek Reach 1 (San Gabriel River Reach 3 to Temple Ave.)
180701060501	San Jose Creek Reach 2 (Temple Ave. to Thompson Wash)

*Notes:

1) All wetlands/estuaries and lagoons are assumed to have ELS.
2) Whittier Narrows flood control basin is listed separately in the Basin Plan
3) Based on published literature and expert opinion, fish species known to reproduce in significant numbers below 15 degrees Celsius are absent in these water bodies, or the water bodies are known to have physical conditions that preclude reproduction and early development of these species in significant numbers. These species include: steelhead/rainbow trout, three-spine stickleback, brown trout, prickly sculpin, staghorn sculpin, striped mullet, starry flounder, arrow goby, and Pacific lamprey.

4. Existence of Threatened or Endangered Species

Where the Regional Board determines that endangered or threatened species in the Los Angeles Region are more sensitive to a pollutant than the species upon which the objectives are based, more stringent, site-specific *modifications of the objectives shall be performed using U.S. EPA approved methods.[5] Temperature and pH must be adjusted to match the conditions used to calculate the objectives. Tests to determine site-specific objectives for threatened and endangered species can be conducted in site water or laboratory water.*

5. Translation of Objectives into Effluent Limits[6]

If the Regional Board determines that water quality based effluent limitations are necessary to control ammonia in a discharge, the permit shall contain effluent limitations for ammonia using one of the following methods:

1. Use the following procedure based on a steady-state model:

Step 1: Identify the applicable water quality objectives for ammonia for the receiving water immediately downstream of the discharge.

Step 2a: For each water quality objective, calculate the effluent concentration allowance (ECA) using the following steady-state mass balance model:

If a mixing zone has not been authorized by the Regional Board, or when WQO ≤ B:

$$ECA = WQO$$

If a mixing zone has been authorized by the Regional Board:[7]

$$ECA = WQO + D\,(WQO - B) \quad \text{when } WQO > B$$

Where: WQO = water quality objective (adjusted as described in Step 2b, if necessary, for temperature, pH, and salinity.)
D = dilution credit
B = ambient background concentration

The dilution credit (D) shall be derived taking into account water body characteristics and the type of discharge (i.e. completely-mixed or incompletely-mixed with the receiving water), using established procedures in the "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (2000) or other appropriate U.S. EPA approved methodologies. The resulting dilution credit must be approved by the Executive Officer.

The ambient background concentration shall be the observed maximum as determined in accordance with procedures in the "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (2000) or other appropriate U.S. EPA approved methodologies. The resulting ambient background concentration must be approved by the Executive Officer.

Step 2b: In order to adjust the un-ionized saltwater ammonia objective to an ECA expressed as total ammonia, the following equation shall be used:

$$[NH_4^+]+[NH_3] = [NH_3] + [NH_3]*10 \wedge (pK_a^s + 0.0324\,(298-T) + 0.0415\,P/T - pH)$$

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5 *U.S. EPA. 1985. "Guidance for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses". U.S. EPA. 1994. "Water Quality Standards Handbook, Second Edition", Chapter 3, Section 3.7.4 "The Recalculation Procedure".*

6 *The method whereby objectives are translated to effluent limits is similar to the method contained in the "Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California" (2000). The method is also consistent with that outlined in the U.S. EPA "Technical Support Document for Water Quality-based Toxics Control (1991).*

7 *Mixing zones may be authorized on a discharge-by-discharge basis per the mixing zone provision in Chapter 4 of the Basin Plan*.

Where: P = 1 atm
T = temperature (^oK)
*pK_a^s = 0.116 * i + 9.245, the stoichiometric acid hydrolysis constant of ammonium ions in saltwater based on i*
i = 19.9273 S $(1000-1.005109\ S)^{-1}$, the molal ionic strength of saltwater based on S
S = salinity

(Per U.S. EPA Ambient Water Quality Criteria for Ammonia (Saltwater)-1989)

Step 3: For each ECA calculated in Step 2, determine the long-term average discharge condition (LTA) by multiplying the ECA with a factor (multiplier) that adjusts for effluent variability. The multiplier shall be calculated as described below, or shall be found in Table 3-6. To use Table 3-6, the coefficient of variation (CV)[8] for the effluent ammonia concentration must first be calculated. If (a) the number of effluent data points is less than 10, or (b) at least 80 percent of the effluent data are reported as not detected, then the CV shall be set equal to 0.6. When calculating the CV in this procedure, if a data point is below the detection limit in an effluent sample, one-half the detection limit shall be used as the value in the calculation. Multipliers for one-hour average, four-day average, and 30-day average objectives for ammonia that correspond to the CV can be found in Table 3-6.

ECA Multipliers:

$ECA\ multiplier_{1\text{-}hour99} = e^{(0.5s^2 - zs)}$

$ECA\ multiplier_{4\text{-}day99} = e^{(0.5s_4^2 - zs_4)}$

$ECA\ multiplier_{30\text{-}day99} = e^{(0.5s_{30}^2 - zs_{30})}$
Where s = standard deviation

$$s = [\ln(CV^2 + 1)]^{0.5}$$
$$s^2 = \ln(CV^2 + 1)$$
$$s_4 = [\ln(CV^2/4 + 1)]^{0.5}$$
$$s_4^2 = \ln(CV^2/4 + 1)$$
$$s_{30} = [\ln(CV^2/30 + 1)]^{0.5}$$
$$s_{30}^2 = \ln(CV^2/30 + 1)$$

z = 2.326 for 99^{th} percentile probability basis

LTA Equations:

$LTA_{1\text{-}hour99} = ECA_{1\text{-}hour} * ECA\ multiplier_{1\text{-}hour99}$

$LTA_{4\text{-}day99} = ECA_{4\text{-}day} * ECA\ multiplier_{4\text{-}day99}$

$LTA_{30\text{-}day99} = ECA_{30\text{-}day} * ECA\ multiplier_{30\text{-}day99}$

Step 4: Select the lowest (most limiting) of the LTAs derived in Step 3 (LTA_{min}).

[8] *The coefficient of variation (CV) is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.*

Step 5: Calculate water quality based effluent limitations (a maximum daily effluent limitation, MDEL, and an average monthly effluent limitation, AMEL) by multiplying LTA_{min} (as selected in Step 4) with a factor (multiplier) that adjusts the averaging period and exceedance frequency of the objective, and the effluent monitoring frequency, as follows:

MDEL and AMEL Equations:

$MDEL = LTA_{min} * MDEL\ multiplier_{99}$

$AMEL = LTA_{min} * AMEL\ multiplier_{95}$

The MDEL and AMEL multipliers shall be calculated as described below, or shall be found in Table 3-7 using the previously calculated CV and monthly sampling frequency (n) of ammonia in the effluent. If the LTA_{min} selected in Step 4 is $LTA_{4\text{-}day99}$ and the sampling frequency is four times per month or less, then n shall be set equal to 4. If the LTA_{min} selected in Step 4 is $LTA_{30\text{-}day99}$ and the sampling frequency is 30 times per month or less, then n shall be set equal to 30.

MDEL and AMEL Multipliers:

$MDEL\ multiplier_{99} = \quad = e^{(zs-0.5s^2)}$

Where $z = 2.326$ *for 99th percentile probability basis*

$$s = [\ln(CV^2 + 1)]^{0.5}$$
$$s^2 = \ln(CV^2 + 1)$$

$AMEL\ multiplier_{95} = e^{(zs_n-0.5s_n^2)}$

Where $z = 1.645$ *for 95th percentile probability basis*

$$s_n = [\ln(CV^2/n + 1)]^{0.5}$$
$$s_n^2 = \ln(CV^2/n + 1)$$

n = number of samples per month

2. *Apply a dynamic model approved by the Regional Board.*

3. *If a Total Maximum Daily Load (TMDL) for ammonia is in effect, the permit shall contain effluent limitations for ammonia that are based on the waste load allocation for ammonia in the TMDL.*

Table 3-6 - Effluent Concentration Allowance (ECA)
Multipliers for Calculating Long-Term Averages (LTAs)

Coefficient of Variation (CV)	One-hour Multiplier	4-day Multiplier	30-day Multiplier
	99th Percentile Occurrence Probability	99th Percentile Occurrence Probability 4 day	99th Percentile Occurrence Probability 30 day
0.1	0.797	0.891	0.959
0.2	0.643	0.797	0.919
0.3	0.527	0.715	0.882
0.4	0.440	0.643	0.846
0.5	0.373	0.581	0.812
0.6	0.321	0.527	0.78
0.7	0.281	0.481	0.75
0.8	0.249	0.440	0.721
0.9	0.224	0.404	0.693
1.0	0.204	0.373	0.667
1.1	0.187	0.345	0.642
1.2	0.174	0.321	0.619
1.3	0.162	0.300	0.596
1.4	0.153	0.281	0.575
1.5	0.144	0.264	0.555
1.6	0.137	0.249	0.535
1.7	0.131	0.236	0.517
1.8	0.126	0.224	0.5
1.9	0.121	0.214	0.483
2.0	0.117	0.204	0.468
2.1	0.113	0.195	0.453
2.2	0.110	0.187	0.438
2.3	0.107	0.180	0.425
2.4	0.104	0.174	0.412
2.5	0.102	0.168	0.4
2.6	0.100	0.162	0.388
2.7	0.098	0.157	0.377
2.8	0.096	0.153	0.366
2.9	0.094	0.148	0.356
3.0	0.093	0.144	0.346
3.1	0.091	0.141	0.337
3.2	0.090	0.137	0.328
3.3	0.089	0.134	0.32
3.4	0.088	0.131	0.312
3.5	0.087	0.128	0.304
3.6	0.086	0.126	0.297
3.7	0.085	0.123	0.29
3.8	0.084	0.121	0.283
3.9	0.083	0.119	0.277
4.0	0.082	0.117	0.271

Table 3-7 - Long-Term Average (LTA) Multipliers for Calculating Effluent Limitations

Coefficient of Variation	MDEL Multiplier	AMEL Multiplier		
	99th Percentile Occurrence Probability	95th Percentile Occurrence Probability		
(CV)		n=4	n=8	n=30
0.1	1.25	1.08	1.06	1.03
0.2	1.55	1.17	1.12	1.06
0.3	1.90	1.26	1.18	1.09
0.4	2.27	1.36	1.25	1.12
0.5	2.68	1.45	1.31	1.16
0.6	3.11	1.55	1.38	1.19
0.7	3.56	1.65	1.45	1.22
0.8	4.01	1.75	1.52	1.26
0.9	4.46	1.85	1.59	1.29
1.0	4.90	1.95	1.66	1.33
1.1	5.34	2.04	1.73	1.36
1.2	5.76	2.13	1.80	1.39
1.3	6.17	2.23	1.87	1.43
1.4	6.56	2.31	1.94	1.47
1.5	6.93	2.40	2.00	1.50
1.6	7.29	2.48	2.07	1.54
1.7	7.63	2.56	2.14	1.57
1.8	7.95	2.64	2.20	1.61
1.9	8.26	2.71	2.27	1.64
2.0	8.55	2.78	2.33	1.68

6. Receiving Water Compliance Determination

Per Implementation Provision No. 1, the following methods for determining compliance with proposed objectives shall be used:

If salinity sampled at a particular receiving water station indicates saline conditions (equal to or greater than 10 ppt), then saltwater objectives shall apply.

If salinity sampled at a particular receiving water station indicates freshwater conditions (equal to or less than 1 ppt), then freshwater objectives shall apply.

If salinity sampled at a particular receiving water station indicates brackish conditions (greater than 1 but less than 10 ppt), then the more stringent of the freshwater or saltwater objectives shall apply except where the Regional Board, by adoption of a resolution, approves the use of either freshwater or saltwater objectives per Implementation Provision 1(3)(a).

Bacteria, Coliform

Total and fecal coliform bacteria are used to indicate the likelihood of pathogenic bacteria in surface waters. Water quality objectives for total and fecal coliform bacteria vary with the beneficial uses of the waterbody and are described below:

In Marine Waters Designated for Water Contact Recreation (REC-1)

1. Geometric Mean Limits
a. Total coliform density shall not exceed 1,000/100 ml.
b. Fecal coliform density shall not exceed 200/100 ml.
c. Enterococcus density shall not exceed 35/100 ml.

2. Single Sample Limits
a. Total coliform density shall not exceed 10,000/100 ml.
b. Fecal coliform density shall not exceed 400/100 ml.
c. Enterococcus density shall not exceed 104/100 ml.
***d.** Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.*

In Fresh Waters Designated for Water Contact Recreation (REC-1)

1. Geometric Mean Limits
a. E. coli density shall not exceed 126/100 ml.

2. Single Sample Limits
a. E. coli density shall not exceed 235/100 ml.

In Fresh Waters Designated for Limited Contact Recreation (LREC-1)

1. Geometric Mean Limits
a. E. coli density shall not exceed 126/100 ml.

2. Single Sample Limits
a. E. coli density shall not exceed 576/100 ml.

The single sample limit for E. coli is based on EPA's determination of the most appropriate single sample maximum density for water bodies infrequently used for full-body recreation[9].

Implementation Provisions for Water Contact Recreation Bacteria Objectives

The geometric mean values should be calculated based on a statistically sufficient number of samples (generally not less than 5 samples equally spaced over a 30-day period).

If any of the single sample limits are exceeded, the Regional Board may require repeat sampling on a daily basis until the sample falls below the single sample limit in order to determine the persistence of the exceedance.

When repeat sampling is required because of an exceedance of any one single sample limit, values from all samples collected during that 30-day period shall be used to calculate the geometric mean.

The single sample bacteriological objectives shall be strictly applied except when provided for in a Total Maximum Daily Load (TMDL). In all circumstances, including in the context of a TMDL, the geometric mean objectives shall be strictly applied. In the context of a TMDL, the Regional Board may implement the single sample objectives in

[9] *U.S. EPA. 1986. Ambient Water Quality Criteria for Bacteria-1986. Report No. EPA 330/5-84-002. January 1986.*

fresh and marine waters by using a 'reference system/antidegradation approach' or 'natural sources exclusion approach' as discussed below. A reference system is defined as an area and associated monitoring point that is not impacted by human activities that potentially affect bacteria densities in the receiving water body.

These approaches recognize that there are natural sources of bacteria, which may cause or contribute to exceedances of the single sample objectives for bacterial indicators. They also acknowledge that it is not the intent of the Regional Board to require treatment or diversion of natural water bodies or to require treatment of natural sources of bacteria from undeveloped areas. Such requirements, if imposed by the Regional Board, could adversely affect valuable aquatic life and wildlife beneficial uses supported by natural water bodies in the Region.

Under the reference system/antidegradation implementation procedure, a certain frequency of exceedance of the single sample objectives above shall be permitted on the basis of the observed exceedance frequency in the selected reference system or the targeted water body, whichever is less. The reference system/anti-degradation approach ensures that bacteriological water quality is at least as good as that of a reference system and that no degradation of existing bacteriological water quality is permitted where existing bacteriological water quality is better than that of the selected reference system.

Under the natural sources exclusion implementation procedure, after all anthropogenic sources of bacteria have been controlled such that they do not cause or contribute to an exceedance of the single sample objectives and natural sources have been identified and quantified, a certain frequency of exceedance of the single sample objectives shall be permitted based on the residual exceedance frequency in the specific water body. The residual exceedance frequency shall define the background level of exceedance due to natural sources. The 'natural sources exclusion' approach may be used if an appropriate reference system cannot be identified due to unique characteristics of the target water body. These approaches are consistent with the State Antidegradation Policy (State Board Resolution No. 68-16) and with federal antidegradation requirements (40 CFR 131.12).

The appropriateness of these approaches and the specific exceedance frequencies to be permitted under each will be evaluated within the context of TMDL development for a specific water body, at which time the Regional Board may select one of these approaches, if appropriate.

These implementation procedures may only be implemented within the context of a TMDL addressing municipal storm water, including the municipal storm water requirements of the Statewide Permit for Storm Water Discharges from the State of California Department of Transportation (Caltrans), and non-point sources discharges. These implementation provisions do not apply to NPDES discharges other than MS4 discharges.[10]

In Waters Designated for Non-contact Water Recreation (REC-2)

In waters designated for non-water contact recreation (REC-2) and not designated for water contact recreation (REC-1), the fecal coliform concentration shall not exceed a log mean of 2000/100 ml (based on a minimum of not less than four samples for any 30-day period), nor shall more than 10 percent of samples collected during any 30-day period exceed 4000/100 ml.

In Waters Designated for Shellfish Harvesting (SHELL)

In all waters where shellfish can be harvested for human consumption (SHELL), the median total coliform concentration throughout the water column for any 30-day period shall not exceed 70/100 ml, nor shall more than ten percent of the samples collected during any 30-day period exceed 230/100 ml for a five-tube decimal dilution

[10] *Municipal storm water discharges in the Los Angeles Region are those with permits under the Municipal Separate Storm Sewer System (MS4) NPDES Program. For example, the MS4 permits at the time of this amendment are the Los Angeles County Municipal Storm Water NPDES Permit, Ventura County Municipal Storm Water NPDES Permit, City of Long Beach Municipal Storm Water NPDES Permit, and elements of the statewide storm water permit for the California Department of Transportation (Caltrans).*

test or 330/100 ml when a three-tube decimal dilution test is used.

Bioaccumulation

Many pollutants can bioaccumulate in fish and other aquatic organisms at levels which are harmful for both the organisms as well as organisms that prey upon these species (including humans).

Toxic pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels which are harmful to aquatic life or human health.

Biochemical Oxygen Demand (BOD_5)

The 5-day BOD test indirectly measures the amount of readily degradable organic material in water by measuring the residual dissolved oxygen after a period of incubation (usually 5 days at 20 °C), and is primarily used as an indicator of the efficiency of wastewater treatment processes.

Waters shall be free of substances that result in increases in the BOD which adversely affect beneficial uses.

Biostimulatory Substances

Biostimulatory substances include excess nutrients (nitrogen, phosphorus) and other compounds that stimulate aquatic growth. In addition to being aesthetical unpleasant (causing taste, odor, or color problems), this excessive growth can also cause other water quality problems.

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

Chemical Constituents

Chemical constituents in excessive amounts in drinking water are harmful to human health. Maximum levels of chemical constituents in drinking waters are listed in the California Code of Regulations and the relevant limits are described below.

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.

Water designated for use as Domestic or Municipal Supply (MUN) shall not contain concentrations of chemical constituents in excess of the limits specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into this plan: Table 64431-A of Section 64431 (Inorganic Chemicals) and Table 64444-A of Section 64444 (Organic Chemicals). This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Tables 3-8 and 3-9.)

Table 3-8. The Maximum Contaminant Levels: Inorganic Chemicals (for MUN beneficial use) specified in Table 64431-A of Section 64431 of Title 22 of the California Code of Regulations as of February 2013.

Constituent	Maximum Contaminant Level mg/L
Aluminum	1.
Antimony	0.006
Arsenic	0.010
Asbestos	7 MFL*
Barium	1.
Beryllium	0.004
Cadmium	0.005
Chromium	0.05
Cyanide	0.15
Fluoride	2.0
Mercury	0.002
Nickel	0.1
Nitrate (as NO_3)	45.
Nitrate + Nitrite (sum as nitrogen)	10.
Nitrite (as nitrogen)	1.
Perchlorate	0.006
Selenium	0.05
Thallium	0.002

(MFL = million fibers per liter; MCL for fibers> 10 microns long)

Chlorine, Total Residual

Disinfection of wastewaters with chlorine produces a chlorine residual. Chlorine and its reaction products are toxic to aquatic life.

Chlorine residual shall not be present in surface water discharges at concentrations that exceed 0.1 mg/L and shall not persist in receiving waters at any concentration that causes impairment of beneficial uses.

Color

Color in water can result from natural conditions (e.g., from plant material or minerals) or can be introduced from commercial or industrial sources. Color is primarily an aesthetic consideration, although extremely dark colored water can limit light penetration and cause additional water quality problems. Furthermore, color can impact domestic and industrial uses by discoloring clothing or foods. The secondary drinking water standard is 15 color units (DHS, 1992).

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

Exotic Vegetation

Exotic (non-native) vegetation introduced in and around stream courses is often of little value as habitat (food and cover) for aquatic-dependent biota. Exotic plants can quickly out-compete native vegetation and cause other water quality impairments.

Exotic vegetation shall not be introduced around stream courses to the extent that such growth causes nuisance or adversely affects beneficial uses.

Floating Material

Floating materials can be an aesthetic nuisance as well as provide substrate for undesirable bacterial and algal growth and insect vectors.

Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

See additional regulatory guidelines described under the San Gabriel River (East Fork) Trash Total Daily Maximum Load (Chapter 7).

See additional regulatory guidelines described under the Los Angeles River Trash Total Maximum Daily Load (Chapter 7).

See additional regulatory guidelines described under the Ballona Creek Trash Total Maximum Daily Load (Chapter 7).

Table 3-9. The Maximum Contaminant Levels: Organic Chemicals (for MUN beneficial use) specified in Table 64444-A of Section 64444 of Title 22 of the California Code of Regulations as of February 2013

Constituent	Maximum Contaminant Level (mg/L)
(a) Volatile Organic Chemicals (VOCs)	
Benzene	0.001
Carbon Tetrachloride	0.0005
1,2-Dichlorobenzene	0.6
1,4-Dichlorobenzene	0.005
1,1-Dichloroethane	0.005
1,2-Dichloroethane	0.0005
1,1-Dichloroethylene	0.006
cis-1,2-Dichloroethylene	0.006
trans-1,2-Dichloroethylene	0.01
Dichloromethane	0.005
1,2-Dichloropropane	0.005
1,3-Dichloropropene	0.0005
Ethylbenzene	0.3
Methyl-tert-butyl ether	0.013
Monochlorobenzene	0.07
Styrene	0.1
1,1,2,2-Tetrachloroethane	0.001
Tetrachloroethylene	0.005
Toluene	0.15
1,2,4-Trichlorobenzene	0.005
1,1,1-Trichloroethane	0.200
1,1,2-Trichloroethane	0.005
Trichloroethylene	0.005
Trichlorofluoromethane	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	1.2
Vinyl Chloride	0.0005
Xylenes	1.750*
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)	
Alachlor	0.002
Atrazine	0.001
Bentazon	0.018
Benzo(a)pyrene	0.0002
Carbofuran	0.018
Chlordane	0.0001
2,4-D	0.07
Dalapon	0.2
Dibromochloropropane	0.0002
Di(2-ethylhexyl)adipate	0.4
Di(2-ethylhexyl)phthalate	0.004
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene Dibromide	0.00005
Constituent	**Maximum Contaminant Level (mg/L)**

Glyphosate	0.7
Heptachlor	0.00001
Heptachlor Epoxide	0.00001
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.03
Molinate	0.02
Oxamyl	0.05
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated Biphenyls	0.0005
Simazine	0.004
Thiobencarb	0.07
Toxaphene	0.003
2,3,7,8-TCDD (Dioxin)	$3x10^{-8}$
2,4,5-TP (Silvex)	0.05

*MCL is for either a single isomer or the sum of the isomers.

Methylene Blue Activated Substances (MBAS)

The MBAS procedure tests for the presence of anionic surfactants (detergents) in water. Positive results can indicate the presence of domestic wastewater. This test can be used to indicate impacts from septic systems. Surfactants disturb the surface tension which affects insects and can affect gills in aquatic life. The secondary drinking water standard for MBAS is 0.5 mg/L (DHS, 1992).

Waters shall not have MBAS concentrations greater than 0.5 mg/L in waters designated MUN.

Mineral Quality

Mineral quality in natural waters is largely determined by the mineral assemblage of soils and rocks and faults near the land surface. Point and nonpoint source discharges of poor quality water can degrade the mineral content of natural waters. High levels of dissolved solids renders waters useless for many beneficial uses. Elevated levels of boron affect agricultural use (especially citrus).

In the late 1980s, many dischargers started to experience compliance problems with chloride limits largely due to chloride levels in supply waters imported into the Region. In order to provide a long-term solution to chloride compliance problems while continuing to protect beneficial uses, the Regional Board adopted Resolution No. 97-002: Policy for Addressing Levels of Chloride in Discharges of Wastewater (Chapter 5). This Chloride Policy revised water quality objectives in selected surface waters based upon chloride levels in supply waters imported into the Region plus a loading factor. The policy also set forth measures to address salinity loading throughout the Region.

Due to concerns expressed about the potential for future adverse impacts to agricultural resources in Ventura County, water quality objectives for chloride in the Santa Clara River and Calleguas Creek watersheds were not revised under the Chloride Policy in 1997. However, the Regional Board granted variances (interim relief) from surface water chloride limits in NPDES permits that are based on existing water quality objectives in the Santa Clara River and Calleguas Creek watersheds. These variances expired in January 2001 and are no longer applicable.

Numerical mineral quality objectives for individual inland surface waters are contained in Table 3-10.

Nitrogen (Nitrate, Nitrite)

High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). Excess nitrogen in surface waters also leads to excess aquatic growth and can contribute to elevated levels of NO_3 in ground water as well. The primary drinking water standard for nitrate (as NO_3) is 45 mg/L (DHS, 1992).

Waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO_3-N + NO_2-N), 45 mg/L as nitrate (NO_3), 10 mg/L as nitrate-nitrogen (NO_3-N), or 1 mg/L as nitrite-nitrogen (NO_2-N) or as otherwise designated in Table 3-10.

Oil and Grease

Oil and grease are not readily soluble in water and form a film on the water surface. Oily films can coat birds and aquatic organisms, impacting respiration and thermal regulation, and causing death. Oil and grease can also cause nuisance conditions (odors and taste), are aesthetically unpleasant, and can restrict a wide variety of beneficial uses.

Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

Oxygen, Dissolved (DO)

Adequate dissolved oxygen levels are required to support aquatic life. Depression of dissolved oxygen can lead to anaerobic conditions resulting in odors or, in extreme cases, in fish kills. Dissolved oxygen requirements are dependent on the beneficial uses of the waterbody.

A*t a minimum (see specifics below), the* ***mean*** *annual dissolved oxygen concentration of* ***all*** *waters shall be greater than 7 mg/L, and no single determination shall be less than 5.0 mg/L, except when natural conditions cause lesser concentrations.*

The dissolved oxygen content of all surface waters designated as WARM shall not be depressed below 5 mg/L as a result of waste discharges.

The dissolved oxygen content of all surface waters designated as COLD shall not be depressed below 6 mg/L as a result of waste discharges.

The dissolved oxygen content of all surface waters designated as both COLD and SPWN shall not be depressed below 7 mg/L as a result of waste discharges.

For that area known as the Outer Harbor area of Los Angeles-Long Beach Harbors, the mean annual dissolved oxygen concentrations shall be 6.0 mg/L or greater, provided that no single determination shall be less than 5.0 mg/L.

Table 3-10. Water Quality Objectives for Selected Constituents in Inland Surface Waters[a].

Reaches are in upstream to downstream order.

WATERSHED/STREAM REACH[b]	TDS (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Boron[c] (mg/L)	Nitrogen[d] (mg/L)	SAR[e] (mg/L)
Miscellaneous Ventura Coastal Streams	*no waterbody specific objectives* [f]					
Ventura River Watershed:						
Above Camino Cielo Road	700	300	50	1.0	5	5
Between Camino Cielo Road and Casitas Vista Road	800	300	60	1.0	5	5
Between Casitas Vista Road and confluence with Weldon Canyon	1000	300	60	1.0	5	5
Between confluence with Weldon Canyon and Main Street	1500	500	300	1.5	10	5
Between Main St. and Ventura River Estuary	*no waterbody specific objectives* [f]					
Santa Clara River Watershed:						
Above Lang gaging station	500	100	50	0.5	5	5
Between Lang gaging station and Bouquet Canyon Road Bridge	800	150	100	1.0	5	5
Between Bouquet Canyon Road Bridge and West Pier Highway 99	1000	300	100	1.5	10	5
Between West Pier Highway 99 and Blue Cut gaging station	1000	400	100	1.5	5	10
Between Blue Cut gaging station and Piru Creek	1300	600	100	1.5	5	5
Between Piru Creek and A Street, Fillmore	1300	600	100	1.5	5	5
Between A Street, Fillmore and Freeman Diversion "Dam" near Saticoy	1300	650	100[l]	1.5	5	5
Between Freeman Diversion "Dam" near Saticoy and Highway 101 Bridge	1200	600	150	1.5	-	-
Between Highway 101 Bridge and Santa Clara River Estuary	*no waterbody specific objectives* [f]					
Santa Paula Creek above Santa Paula Water Works Diversion Dam	600	250	45	1.0	5	5
Sespe Creek above gaging station, 500' downstream from Little Sespe Creek	800	320	60	1.5	5	5
Piru Creek above gaging station below Santa Felicia Dam	800	400	60	1.0	5	5
Calleguas Creek Watershed:						
Arroyo Simi and tributaries-upstream Madera Road	850	250	150	1.0	10	f

Table 3-10. Water Quality Objectives for Selected Constituents in Inland Surface Waters[a] (cont.)

Reaches are in upstream to downstream order.

WATERSHED/STREAM REACH[b]	TDS (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Boron[c] (mg/L)	Nitrogen[d] (mg/L)	SAR[e] (mg/L)
Arroyo Simi-downstream Madera Road, Arroyo Las Posas, and tributaries	850	250	150	1.0	10	f
Calleguas Creek and tributaries-between Potrero Road and Arroyo Las Posas. Includes Conejo Creek, Arroyo Conejo, and Arroyo Santa Rosa	850	250	150	1.0	10	f
Below Potrero Road	*no waterbody specific objectives* [f]					
Miscellaneous Los Angeles County Coastal Streams	*no waterbody specific objectives* [f]					
Malibu Creek Watershed	2000	500	500	2.0	10	-
Ballona Creek Watershed	*no waterbody specific objectives* [f]					
Dominguez Channel Watershed	*no waterbody specific objectives* [f]					
Los Angeles River Watershed:						
Los Angeles River and tributaries-upstream Sepulveda Flood Control Basin	950	300	150	g	8	g
Los Angeles River-between Sepulveda Flood Control Basin and Figueroa Street. Includes Burbank Western Channel only	950	300	190[k]	g	8	g
Other tributaries to Los Angeles River-between Sepulveda Flood Control Basin and Figueroa Street	950	300	150	g	8	g
Los Angeles River-between Figueroa Street and Los Angeles River Estuary (Willow Street). Includes Rio Hondo below Santa Ana Freeway only[h].	1500	350	190[k]	g	8	g
Other tributaries to Los Angeles River-between Figueroa Street and Los Angeles ~~river~~ River Estuary. Includes Arroyo Seco downstream spreading grounds.	1500	350	150	g	8	g
Rio Hondo-between Whittier Narrows Flood Control Basin and Santa Ana Freeway	750	300	180[k]	g	8	g
Rio Hondo-upstream Whittier Narrows Flood Control Basin	750	300	150	g	8	g
Santa Anita Creek above Santa Anita spreading grounds	250	30	10	g	f	g
Eaton Canyon Creek above Eaton Dam	250	30	10	g	f	g
Arroyo Seco above spreading grounds	300	40	15	g	f	g
Big Tujunga Creek above Hansen Dam	350	50	20	g	f	g
Pacoima Awash above Pacoima spreading grounds	250	30	10	g	f	g

Table 3-10. Water Quality Objectives for Selected Constituents in Inland Surface Waters[a] (cont.)

Reaches are in upstream to downstream order.

WATERSHED/STREAM REACH[b]	TDS (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Boron[c] (mg/L)	Nitrogen[d] (mg/L)	SAR[e] (mg/L)
San Gabriel River Watershed						
San Gabriel River-Above Morris Dam	250	30	10	0.6	2	2
San Gabriel River-Between Morris Dam and Ramona Blvd.	450	100	100	0.5	8	g
San Gabriel River and tributaries-between Ramona Blvd. and Valley Blvd	750	300	150	*1.0*	8	g
San Gabriel River-between Valley Blvd and Firestone Blvd. Includes Whittier Narrows Flood Control Basin, and San Jose Creek-downstream 71 Freeway only.	750	300	180[k]	*1.0*	8	g
San Jose Creek and tributaries-upstream 71 Freeway.	750	300	150	*1.0*	8	g
San Gabriel River-Between Firestone Blvd. and San Gabriel River Estuary (downstream from Willow Street) Includes Coyote Creek.	*no waterbody specific objectives* [f]					
All other minor San Gabriel Mountain streams tributary to ~~san~~ San Gabriel Valley[i]	300	40	15	g	f	g
Island Watercourses:						
Anacapa Island	*no waterbody specific objectives* [f]					
San Nicolas Island	*no waterbody specific objectives* [f]					
Santa Barbara ~~island~~Island	*no waterbody specific objectives* [f]					
Santa Catalina Island	*no waterbody specific objectives* [f]					
San Clemente Island	*no waterbody specific objectives* [f]					
Other Watercourses:						
San Antonio Creek[j]	225	25	6	--	--	--
Chino Creek[j]	--	--	--	--	--	--

a. As part of the State's continuing planning process, data will continue to be collected to support the development of numerical water quality objectives for waterbodies and constituents where sufficient information is presently unavailable. Any new recommendations for water quality objectives will be brought before the Regional Board in the future.

b. All references to watersheds, streams and reaches include all tributaries. Water quality objectives are applied to all waters tributary to those specifically listed in the table. See Figures 2-1 to 2-10 for locations.

c. Where naturally occurring boron results in concentrations higher than the stated objective, a site-specific objective may be determined on a case-by-case basis.

d. Nitrate-nitrogen plus nitrite-nitrogen (NO3-N + NO2-N). The lack of adequate nitrogen data for all streams precluded the establishment of numerical objectives for all streams.

e. Sodium adsorption ratio (SAR) predicts the degree to which irrigation water tends to enter into cation-exchange reactions in soil.

SAR = Na+/((Ca++ + Mg++)/2)1/2

f. Site-specific objectives have not been determined for these reaches at this time. These areas are often impaired (by high levels of minerals) and there is not sufficient historic data to designate objectives based on natural background conditions. The following table illustrates the mineral or nutrient quality necessary to protect different categories of beneficial uses and will be used as a guideline for establishing effluent limits in these cases. Protection of the most sensitive beneficial use(s) would be the determining criteria for the selection of effluent limits.

Recommended objective (mg/L)	**Beneficial Use Categories**				
	MUN (Drinking Water Standards) [1]	**PROC**	**AGR**	**AQ LIFE*(Frshwtr)**	**GWR**
TDS	500 (USEPA secondary MCL)	50-1500 [2,7,9]	450-2000 [2,3,6]		Limits based on appropriate groundwater basin objectives and/or beneficial uses
Chloride	250 (USEPA secondary MCL)	20-1000 [2,9]	100-355 [2,3,8]	230 (4 day ave. continuous conc) [4]	
Sulfate	400-500 (USEPA proposed MCL)	20-300 [2,9]	350-600 [2,8]		
Boron			0.5-4.0 [2,6,8]		
Nitrogen	10 (USEPA MCL)				

References: 1) USEPA CFR § 141 et seq., 2) McKee and Wolf, 1963, 3) Ayers and Westcot, 1985, 4) USEPA, 1988, 5) Water Pollution Control Federation, 1989, 6) USEPA, 1973, 7) USEPA 1980, 8) Ayers, 1977.

* Aquatic life includes a variety of Beneficial Uses including WARM, COLD, SPWN, MIGR and RARE.

g. Agricultural supply is not a beneficial use of the surface water in the specified reach.

h. Rio Hondo spreading grounds are located above the Santa Ana Freeway

i. The stated objectives apply to all other surface streams originating within the San Gabriel Mountains and extend from their headwaters to the canyon mouth.

j. These watercourses are primarily located in the Santa Ana Region. The water quality objectives for these streams have been established by Santa Ana Region. Dashed lines indicate that numerical objectives have not been established, however, narrative objectives shall apply. Refer to the Santa Ana Region Basin Plan for more details.

k. These objectives were updated through a Basin Plan amendment adopted by the Regional Board on January 27, 1997 (Resolution No. R97-02) and went into effect on February 26, 1998.

l. This objective was updated though a Basin Plan amendment adopted by the Regional Board on November 6, 2003 (Resolution No. R03-015) and went into effect on August 4, 2004.

Table 3-10a. Conditional Site Specific Objectives for Santa Clara River Surface Waters

WATERSHED/STREAM REACH	Chloride (mg/L)
Santa Clara River Watershed:	
Between Bouquet Canyon Road Bridge and West Pier Highway 99	150 (12-month average)
Between West Pier Highway 99 and Blue Cut gaging station	150 (12-month average)
Between Blue Cut gaging station and confluence of Piru Creek	117/130[a] (3-month average)[b]

a. The conditional site specific objective of 130 mg/L applies only if the following conditions and implementation requirements are met:
   1. Water supply chloride concentrations measured in Castaic Lake are ≥ 80 mg/L.
   2. The Santa Clarita Valley Sanitation District (SCVSD) shall provide supplemental water to salt-sensitive agricultural uses that are irrigated with surface water during periods when Reach 4B (between Blue Cut gaging station and confluence of Piru Creek) surface water exceeds 117 mg/L.
   3. By May 4, 2020, the 10-year cumulative net chloride loading above 117 mg/L ($CNCl_{117}$)[i] to Reach 4B of the Santa Clara River (SCR), calculated annually, from the SCVSD Water Reclamation Plants (WRPs) shall be zero or less.

[i] $CNCl_{117} = Cl_{(Above\ 117)} - Cl_{(Below\ 117)} - Cl_{(Export\ Ews)}$

Where:

$Cl_{(Above\ 117)}$ = [WRP Cl Load[1]/Reach 4B Cl Load[2]] * [Reach 4B Cl Load$_{>117}$[3]]

$Cl_{(Below\ 117)}$ = [WRP Cl Load[1]/Reach 4B Cl Load[2]] * [Reach 4B Cl Load$_{\leq 117}$[4]]

$Cl_{(Export\ EWs)}$ = Cl Load Removed by Extraction Wells

[1] WRP Cl Load is determined as the monthly average chloride (Cl) concentration multiplied by the monthly average flow measured at the Valencia WRP.

[2] Reach 4B Cl Load is determined as the monthly average Cl concentration at SCVSD Receiving Water Station RF multiplied by the monthly average flow measured at USGS Gauging Station 11109000 (Las Brisas Bridge).

[3] Reach 4B Cl Load$_{>117}$ means the calculated Cl load to Reach 4B when monthly average Cl concentration in Reach 4B is above 117 mg/L.

[4] Reach 4B Cl Load$_{\leq 117}$ means the calculated Cl load to Reach 4B when monthly average Cl concentration in Reach 4B is below or equal to 117 mg/L.

   4. The chief engineer of the SCVSD signs under penalty of perjury and submits to the Regional Board a letter documenting the fulfillment of conditions 1, 2, and 3.

b. The averaging period for the critical condition SSO of 130 mg/L may be reconsidered based on results of chloride trend monitoring after the alternative water resources management (AWRM) system is applied.

The conditional site specific objectives for chloride in the surface water between Bouquet Canyon Road bridge and West Pier Highway 99, between West Pier Highway 99 and Blue Cut gaging station, and between Blue Cut gaging station and confluence of Piru Creek shall apply and supersede the existing water quality objectives in Table 3-10 only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation section in Table 7-6.1 of Chapter 7.

Pesticides

Pesticides are used ubiquitously for a variety of purposes; however, their release into the environment presents a hazard to aquatic organisms and plants not targeted for their use. The extent of risk to aquatic life depends on many factors including the physical and chemical properties of the pesticide. Those of greatest concern are those that persist for long periods and accumulate in aquatic life and sediments.

No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations found in bottom sediments or aquatic life.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of pesticides in excess of the limiting concentrations specified in Table 64444-A of Section 64444 (Organic Chemicals) of Title 22 of the California Code of Regulations which is incorporated by reference into this plan. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Table 3-9.)

pH

The hydrogen ion activity of water (pH) is measured on a logarithmic scale, ranging from 0 to 14. While the pH of "pure" water at 25 °C is 7.0, the pH of natural waters is usually slightly basic due to the solubility of carbon dioxide from the atmosphere. Minor changes from natural conditions can harm aquatic life.

The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.5 units from natural conditions as a result of waste discharge.

The pH of bays or estuaries shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.2 units from natural conditions as a result of waste discharge.

Polychlorinated Biphenyls (PCBs)

Polychlorinated biphenyls (PCBs) are a highly toxic and persistent group of organic chemicals that have been historically released into the environment. Many historic discharges still exist as sources in the environment.

The purposeful discharge of PCBs (the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260) to waters of the Region, or at locations where the waste can subsequently reach waters of the Region, is prohibited.

Pass-through or uncontrollable discharges to waters of the Region, or at locations where the waste can subsequently reach water of the Region, are limited to 70 pg/L (30 day average) for protection of human health and 14 ng/L and 30 ng/L (daily average) to protect aquatic life in inland fresh waters and estuarine waters respectively.

Priority Pollutants

The California Toxics Rule (CTR), located at 40 CFR 131.38, contains federally promulgated water quality criteria applicable to California waters for 126 priority pollutants for the protection of aquatic life and human health.

Implementation Provisions
The water quality criteria for metals contained in the CTR are expressed as a function of a water-effect ratio (WER). [11] *In the CTR, the US EPA has provided for the adjustment of these water quality criteria through the application by States of the WER procedure. The WER has a default value of 1.0 unless a site-specific WER is approved by the Regional Board. To use a WER other than the default of 1.0, a study must be conducted, establishing the ratio that represents the difference between toxicity in laboratory test water and toxicity in a specific water body based on ambient conditions. The study must be consistent with US EPA procedures on deriving WERs.*

Notwithstanding the provisions below, regulatory actions to achieve applicable criteria, as modified by site-specific WERs, must ensure that downstream standards will also be achieved.

Additional receiving water monitoring shall be required of dischargers subject to site-specific WER(s) to evaluate whether criteria, as modified by the WER(s), are as protective of beneficial uses as the CTR criteria are intended to be. If additional monitoring indicates a change in the chemical characteristics of the water body or toxicity, the Regional Board may reconsider the site-specific WER(s).

Copper
For the following water bodies, the copper water quality criteria contained in the CTR shall be modified using the site-specific WERs set forth below.

Table 3-11 Site-specific Water-Effect Ratios for Copper

Waterbody Name	Reach Name	Description of Reach/Area	Water-Effect Ratio
Mugu Lagoon	Reach 1	Lagoon fed by Calleguas Creek	1.51
Lower Calleguas Creek	Reach 2	Downstream (south) of Potrero Road to the lagoon	3.69

Radioactive Substances

Radioactive substances are generally present in natural waters in extremely low concentrations. Mining or industrial activities increase the amount of radioactive substances in waters to levels that are harmful to aquatic life, wildlife or humans.

Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

Waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the limits specified in Table 64442 of Section 64442 (Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium) and Table 64443 of Section 64443 (Beta Particle and Photon Radioactivity) of Title 22 of the California Code of Regulations which are incorporated by reference into this plan. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Table 3-12a and 3-12b.)

[11] *There are two exceptions where the criteria are not a function of a WER. The freshwater criteria for selenium are not a function of a WER. The freshwater and saltwater criteria for mercury are not a function of a WER.*

Table: 3-12a. The Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs): Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium (for MUN beneficial use) specified in Table 64442 of Section 64442 of Title 22 of the California Code of Regulations as of February 2013

Radionuclide	MCL (pCi/L)	DLR (pCi/L)
Radium-226 Radium-228	5 (combined radium-226 & -228)	1 1
Gross Alpha particle activity (excluding radon and uranium)	15	3
Uranium	20	1

Table: 3-12b. The Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs): Beta particles and Photon Radioactivity (for MUN beneficial use) specified in Table 64443 of Section 64443 of Title 22 of the California Code of Regulations as of February 2013

Radionuclide	MCL	DLR (pCi/L)
Beta/photon emitters	4 millirem/year annual dose equivalent to the total body or any internal organ	Gross Beta particle activity: 4pCi/L
Strontium - 90	8 pCi/L (= 4 millirem/yr dose to bone marrow)	2 pCi/L
Tritium	20,000 pCi/L (= 4 millirem/yr dose to total body)	1,000 pCi/L

Solid, Suspended, or Settleable Materials

Surface waters carry various amounts of suspended and settleable materials from both natural and human sources. Suspended sediments limit the passage of sunlight into waters, which in turn inhibits the growth of aquatic plants. Excessive deposition of sediments can destroy spawning habitat, blanket benthic (bottom dwelling) organisms, and abrade the gills of larval fish.

Waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.

See additional regulatory guidelines described under the Los Angeles River Trash Total Maximum Daily Load (Chapter 7).

See additional regulatory guidelines described under the Ballona Creek Trash Total Maximum Daily Load (Chapter 7).

Taste and Odor

Undesirable tastes and odors in water are an aesthetic nuisance, can impact recreational and other uses, and can indicate the presence of other pollutants.

Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible aquatic resources, cause nuisance, or adversely affect beneficial uses.

Temperature

Discharges of wastewaters can cause unnatural and/or rapid changes in the temperature of receiving waters which can adversely affect aquatic life.

The natural receiving water temperature of all regional waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial *uses. Alterations that are allowed must meet the requirements below.*

For waters designated WARM, water temperature shall not be altered by more than 5 °F above the natural temperature. At no time shall these WARM-designated waters be raised above 80 °F as a result of waste discharges.

For waters designated COLD, water temperature shall not be altered by more than 5 °F above the natural temperature.

Temperature objectives for enclosed bays and estuaries are specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California" (Thermal Plan), including any revisions thereto. See Chapter 5 for a description of the Thermal Plan.

Toxicity

Toxicity is the adverse response of organisms to chemical or physical agents. When the adverse response is mortality, the result is termed acute toxicity. When the adverse response is not mortality but instead reduced growth in larval organisms or reduced reproduction in adult organisms (or other appropriate measurements), a critical life stage effect (chronic toxicity) has occurred. The use of aquatic bioassays (toxicity tests) is widely accepted as a valid approach to evaluating toxicity of waste and receiving waters.

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration or other appropriate methods as specified by the State or Regional Board.

The survival of aquatic life in surface waters, subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same waterbody in areas unaffected by the waste discharge or, when necessary, other control water.

There shall be no acute toxicity in ambient waters, including mixing zones. The acute toxicity objective for discharges dictates that the average survival in undiluted effluent for any three consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test having less than 70% survival when using an established USEPA, State Board, or other protocol authorized by the Regional Board.

There shall be no chronic toxicity in ambient waters outside mixing zones. To determine compliance with this objective, critical life stage tests for at least three species with approved testing protocols shall be used to screen for the most sensitive species. The test species used for screening shall include a vertebrate, an invertebrate, and an aquatic plant. The most sensitive species shall then be used for routine monitoring. Typical endpoints for chronic toxicity tests include hatchability, gross morphological abnormalities, survival, growth, and reproduction.

Effluent limits for specific toxicants can be established by the Regional Board to control toxicity identified under Toxicity Identification Evaluations (TIEs).

Turbidity

Turbidity is an expression of the optical property that causes light to be scattered in water due to particulate matter such as clay, silt, organic matter, and microscopic organisms. Turbidity can result in a variety of water quality impairments. The secondary drinking water standard for turbidity is 5 NTU (nephelometric turbidity units).

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in natural turbidity attributable to controllable water quality factors shall not exceed the following limits:

Where natural turbidity is between 0 and 50 NTU, increases shall not exceed 20%.

Where natural turbidity is greater than 50 NTU, increases shall not exceed 10%.

Allowable zones of dilution within which higher concentrations may be tolerated may be defined for each discharge in specific Waste Discharge Requirements.

Regional Narrative Objectives for Wetlands

In addition to the regional objectives for inland surface waters (including wetlands), the following narrative objectives apply for the protection of wetlands in the Region.

Hydrology

Natural hydrologic conditions necessary to support the physical, chemical, and biological characteristics present in wetlands shall be protected to prevent significant adverse effects on:

- *natural temperature, pH, dissolved oxygen, and other natural physical/chemical conditions,*
- *movement of aquatic fauna,*
- *survival and reproduction of aquatic flora and fauna, and*
- *water levels.*

Habitat

Existing habitats and associated populations of wetlands fauna and flora shall be maintained by:

- *maintaining substrate characteristics necessary to support flora and fauna which would be present naturally,*
- *protecting food supplies for fish and wildlife,*
- *protecting reproductive and nursery areas, and*
- *protecting wildlife corridors.*

Regional Objectives for Ground Waters

The following objectives apply to all ground waters of the Region:

Bacteria

Total and fecal coliform bacteria are used to indicate the likelihood of pathogenic bacteria in waters.

In ground waters used for domestic or municipal supply (MUN) the concentration of coliform organisms over any seven day period shall be less than 1.1/100 ml.

Chemical Constituents and Radioactivity

Chemical constituents in excessive amounts in drinking water are harmful to human health. Maximum levels of chemical constituents in drinking waters are listed in the California Code of Regulations and the relevant limits are described below.

Ground waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents and radionuclides in excess of the limits specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into this plan: Table 64431-A of Section

64431 (Inorganic chemicals), Table 64444-A of Section 64444 (Organic Chemicals), Table 64442 of Section 64442 (Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium), and Table 64443 of Section 64443 (Beta Particle and Photon Radioactivity). This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Tables 3-8, 3-9, 3-12a, and 3-12b.)

Ground waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use.

Mineral Quality

Inorganic constituents in ground waters are largely influenced by thermodynamic reactions that occur as ground water comes into contact with various rock and soil types. For example, ground water that flows through beds of gypsum ($CaSO_4 \cdot 2H_2O$) typically has relatively high levels of calcium cations and sulfate anions. Ground water flowing through limestone ($CaCO_3$) also has relatively high levels of calcium cations, but coupled with bicarbonate anions instead of sulfate. Ground waters with these ions at levels greater than 120 mg/L (expressed as $CaCO_3$) are considered hard waters (Hem, 1989).

Human activities and land use practices can influence inorganic constituents in ground waters. Surface waters carrying abnormally high levels of salts (e.g., irrigation return flows) can degrade the ground waters that they recharge. Abnormally high levels of inorganic constituents can impair and preclude beneficial uses. For example, high levels of boron preclude agricultural use (especially for citrus crops) of ground waters. Hard waters present nuisance problems and may require softening prior to industrial use.

Numerical mineral quality objectives for individual groundwater basins are contained in Table 3-13.

Coastal Aquifer Variance Provision for Mineral Quality Objectives

In coastal aquifers where elevated concentrations of minerals are caused by natural sources due to an aquifer's proximity to the ocean, the Regional Board may grant a variance from implementing the mineral quality objectives specified in Table 3-13 when issuing waste discharge requirements (WDRs) or enforcement orders. Any variance granted pursuant to this variance provision shall be for no more than five years, and may be extended not more than once for an additional period of up to five years. Any further relief should be in the form of a Basin Plan amendment. A decision to issue or to extend a variance will be based upon the Regional Board's evaluation of the evidence submitted concerning the granting of the variance.

A discharger must submit to the Executive Officer a written request for a variance from compliance with the mineral quality objectives for groundwater. The request must include recent data and analysis that provide clear and convincing evidence that elevated mineral concentrations are natural in origin and result from the aquifer's proximity to the ocean. The discharger's request must include clear and convincing evidence and analysis that:

1. The aquifer's proximity to the ocean leads to one or more of the following:
    a) seawater intrusion;
    b) the presence of marine sediments high in mineral content;
    c) tidal fluctuations that regularly influence the chemistry of the aquifer.
2. The source of the elevated mineral concentrations is natural and not induced by current or past discharge of pollutants.
3. A discharge of minerals in excess of the mineral quality objectives in the coastal aquifer will not degrade adjacent, inland aquifers.
4. The discharger has not caused or significantly contributed to the elevated Mineral concentrations from which it seeks relief.

The Regional Board may only grant a variance after a duly noticed public meeting. The Regional Board's decision to grant or to deny a variance shall be based on the record, including the discharger's request, the circumstances leading to the elevated mineral concentrations at the site, and the comments of staff and interested persons. The Regional Board may only grant a variance upon the Regional Board's determination that the request satisfies the conditions specified above and that the variance is in the public interest. In granting a variance, the Regional Board must include appropriate requirements in the WDRs or enforcement order consistent with the State Water Resources Control Board's anti-degradation resolution (SWRCB Res. No. 68-16) and other applicable water quality standards as stipulated in regional and statewide water quality control plans.

Nitrogen (Nitrate, Nitrite)

High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). The primary drinking water standard for nitrate (as NO_3) is 45 mg/L (DHS, 1992).

Human activities and land use practices can also influence nitrogen concentration in ground waters. For example, effluents from wastewater treatment plants, septic tanks and confined animal facilities can add high levels of nitrogen compounds to the ground water that they recharge. Irrigation water containing fertilizers can add high levels of nitrogen to ground water.

Ground waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO_3-N + NO_2-N), 45 mg/L as nitrate (NO_3), 10 mg/L as nitrate-nitrogen (NO_3-N), or 1 mg/L as nitrite-nitrogen (NO_2-N).

Taste and Odor

Undesirable tastes and odors in water are an aesthetic nuisance and can indicate the presence of other pollutants.

Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

Table 3-13. Water Quality Objectives for Selected Constituents in Regional Ground Waters[a].

BASINS				Objectives (mg/l)[m]			
Basin	**Basin No[b]**	**1994 Basin Name**	**1994 Basin No**	**TDS**	**Sulfate**	**Chloride**	**Boron**
Pitas Point Area[c]		**Pitas Point Area**		**None specified**			
Upper Ojai Valley	**4-1**	**Ojai Valley**	**4-1**				
Upper Ojai Valley	4-1	Upper Ojai Valley	4-1				
Upper Ojai Valley	4-1	West of Sulfur Mountain Road	4-1	1000	300	200	1.0
Upper Ojai Valley	4-1	Central Area	4-1	700	50	100	1.0
Upper Ojai Valley	4-1	Sisar Area	4-1	700	250	100	0.5
Ojai Valley	**4-2**	**Lower Ojai Valley**	**4-2**				**0.5**
Ojai Valley	4-2	West of San Antonio-Senior Canyon	4-2	1000	300	200	0.5
Ojai Valley	4-2	East of San Antonio-Senior Canyon	4-2	700	200	50	
Ventura River Valley	**4-3**	**Ventura River Valley**	**4-3**				
Upper Ventura River	4-3.01	Upper Ventura	4-3	800	300	100	0.5
Upper Ventura River	4-3.01	San Antonio Creek Area	4-3	1000	300	100	1.0
Lower Ventura River	4-3.02	Lower Ventura	4-3	1500	500	30	1.5
Santa Clara River Valley[d]	**4-4**	**Ventura Central**	**4-4**				
Piru	4-4.06	Santa Clara-Piru Creek Area	4-4				
Piru	4-4.06	Upper Area (above Lake Piru)	4-4	1100	400	200	2.0
Piru	4-4.06	Lower Area East of Piru Creek	4-4	2500	1200	200	1.5
Piru	4-4.06	Lower Area West of Piru Creek	4-4	1200	600	100	1.5
Fillmore	4-4.05	Santa Clara-Sespe Creek Area	4-4				
Fillmore	4-4.05	Topa Topa (upper Sespe) Area	4-4	900	350	30	2.0
Fillmore	4-4.05	Fillmore Area	4-4				
Fillmore	4-4.05	Pole Creek Fan Area	4-4	2000	800	100	1.0
Fillmore	4-4.05	South Side of Santa Clara River	4-4	1500	800	100	1.1
Fillmore	4-4.05	Remaining Fillmore Area	4-4	1000	400	50	0.7
Santa Paula	4-4.04	Santa Clara-Santa Paula Area	4-4				
Santa Paula	4-4.04	East of Peck Road	4-4	1200	600	100	1.0
Santa Paula	4-4.04	West of Peck Road	4-4	2000	800	110	1.0

BASINS				Objectives (mg/l)[m]			
Basin	**Basin No[b]**	**1994 Basin Name**	**1994 Basin No**	**TDS**	**Sulfate**	**Chloride**	**Boron**
Oxnard	4-4.02	Oxnard Plain	4-4				
Mound	4-4.03	Oxnard Plain	4-4				
Oxnard	4-4.02	Oxnard Forebay	4-4	1200	600	150	1.0
Oxnard	4-4.02	Confined Aquifers	4-4	1200	600	150	1.0
Oxnard	4-4.02	Unconfined & Perched Aquifers	4-4	3000	1000	500	
Pleasant Valley[e]	**4-6**	**Pleasant Valley**	**4-6**				
Pleasant Valley	4-6	Confined Aquifers	4-6	700	300	150	1.0
Pleasant Valley	4-6	Unconfined & Perched Aquifers	4-6				
Arroyo Santa Rosa Valley[e]	**4-7**	**Arroyo Santa Rosa**	**4-7**	900	300	150	1.0
Las Posas Valley[e]	**4-8**	**Las Posas Valley**	**4-8**				
Las Posas Valley	4-8	South Las Posas Area	4-8				
Las Posas Valley	4-8	NW of Grimes Cyn Rd. & LA Ave. & Somis Rd.	4-8	700	300	100	0.5
Las Posas Valley	4-8	E of Grimes Cyn Rd & Hitch Blvd.	4-8	2500	1200	400	3.0
Las Posas Valley	4-8	S of LA Ave Between Somis Rd & Hitch Blvd.	4-8	1500	700	250	1.0
Las Posas Valley	4-8	Grimes Canyon Rd. & Broadway Area	4-8	250	30	30	0.2
Las Posas Valley	4-8	North Las Posas Area	4-8	500	250	150	1.0
Acton Valley[f]	**4-5**	**Upper Santa Clara**	**4-5**				
Acton Valley	4-5	Acton Valley	4-5	550	150	100	1.0
Acton Valley	4-5	Sierra Pelona Valley (Agua Dulce)	4-5	600	100	100	0.5
Acton Valley	4-5	Upper Mint Canyon	4-5	700	150	100	0.5
Acton Valley	4-5	Upper Bouquet Canyon	4-5	400	50	30	0.5
Acton Valley	4-5	Green Valley	4-5	400	50	25	
Acton Valley	4-5	Lake Elizabeth-Lake Hughes Area	4-5	500	100	50	0.5
Santa Clara River Valley East	**4-4.07**	**Eastern Santa Clara**	**4-4.07**				

BASINS			Objectives (mg/l)[m]				
Basin	**Basin No[b]**	**1994 Basin Name**	**1994 Basin No**	**TDS**	**Sulfate**	**Chloride**	**Boron**
Santa Clara River Valley East	4-4.07	Santa Clara-Mint Canyon	4-4.07	800	150	150	1.0
Santa Clara River Valley East	4-4.07	South Fork	4-4.07	700	200	100	0.5
Santa Clara River Valley East	4-4.07	Placentia Canyon	4-4.07	700	150	100	0.5
Santa Clara River Valley East	4-4.07	Santa Clara-Bouquet & San Fransisquito Canyons	4-4.07	700	250	100	1.0
Santa Clara River Valley East	4-4.07	Castaic Valley	4-4.07	1000	350	150	1.0
Santa Clara River Valley East	4-4.07	Saugus Aquifer	4-4.07				
Simi Valley	**4-9**	**Simi Valley**	**4-9**				
Simi Valley	4-9	Simi Valley Basin	4-9				
Simi Valley	4-10	Confined Aquifers	4-9	1200	600	150	1.0
Simi Valley	4-11	Unconfined & Perched Aquifers	4-9				
Simi Valley	4-12	Gillibrand Basin	4-9	900	350	50	1.0
Conejo Valley	**4-10**	**Conejo Valley**	**4-10**	**800**	**250**	**150**	**1.0**
Coastal Plain of Los Angeles	**4-11**	**Los Angeles Coastal Plain**	**4-11**				
Central	4-11.04	Central Basin	4-11	700	250	150	1.0
West Coast	4-11.03	West Coast Basin	4-11	800	250	250	1.5
Hollywood	4-11.02	Hollywood Basin	4-11	750	100	100	1.0
Santa Monica	4-11.01	Santa Monica Basin	4-11	1000	250	200	0.5
San Fernando Valley	**4-12**	**San Fernando Valley**	**4-12**				
San Fernando Valley	4-12	Sylmar Basin	4-12	600	150	100	0.5
San Fernando Valley	4-12	Verdugo Basin	4-12	600	150	100	0.5
San Fernando Valley	4-12	San Fernando Basin	4-12				
San Fernando Valley	4-12	West of Highway 405	4-12	800	300	100	1.5
San Fernando Valley	4-12	East of Highway 405 (overall)	4-12	700	300	100	1.5
San Fernando Valley	4-12	Sunland-Tujunga Area	4-12	400	50	50	0.5
San Fernando Valley	4-12	Foothill Area	4-12	400	100	50	1.0

BASINS			Objectives (mg/l)[m]				
Basin	**Basin No[b]**	**1994 Basin Name**	**1994 Basin No**	**TDS**	**Sulfate**	**Chloride**	**Boron**
San Fernando Valley	4-12	Area Encompassing RT- Tujunga -Erwin-N. Hollywood-Whithall-LA/Verdugo-Crystal Springs-Headworks-Glendale/Burbank Well Fields	4-12	600	250	100	1.5
San Fernando Valley	4-12	Narrows Area (below confluence of Verdugo Wash with the LA River	4-12	900	300	150	1.5
San Fernando Valley	4-12	Eagle Rock Basin	4-12	800	150	100	0.5
San Gabriel Valley[g]/Raymond[h]	**4-13**	**San Gabriel Valley**	**4-13**				
Raymond	4-23	Raymond Basin	4-13				
Raymond	4-23	Monk Hill Sub-Basin	4-13	450	100	100	0.5
Raymond	4-23	Santa Anita Area	4-13	450	100	100	0.5
Raymond	4-23	Pasadena Area	4-13	450	100	100	0.5
San Gabriel Valley	4-13	Main San Gabriel Basin	4-13				
San Gabriel Valley	4-13	Western Area[g]	4-13	450	100	100	0.5
San Gabriel Valley	4-13	Eastern Area[g]	4-13	600	100	100	0.5
San Gabriel Valley	4-13	Puente Basin	4-13	1000	300	150	1.0
Upper Santa Ana Valley/San Gabriel Valley	**8-2.01[i]**	**Upper Santa Ana Valley**	**4-14**				
San Gabriel Valley	4-13	Live Oak Area	8-2	450	150	100	0.5
San Gabriel Valley	4-13	Claremont Heights Area	8-2	450	100	50	
San Gabriel Valley	4-13	Pomona Area	8-2	300	100	50	0.5
Upper Santa Ana Valley/ San Gabriel Valley	8-2.01/4-13	Chino Area	8-2	450	20	15	
San Gabriel Valley	4-13	Spadra Area	8-2	550	200	120	1.0
Tierra Rejada	**4-15**	**Tierra Rejada**	**4-15**	**700**	**250**	**100**	**0.5**
Hidden Valley	**4-16**	**Hidden Valley**	**4-16**	**1000**	**250**	**250**	**1.0**
Lockwood Valley	**4-17**	**Lockwood Valley**	**4-17**	**1000**	**300**	**20**	**2.0**
Hungry Valley	**4-18**	**Hungry Valley & Peace Valley**	**4-18**	**500**	**150**	**50**	**1.0**

BASINS				Objectives (mg/l)[m]			
Basin	**Basin No[b]**	**1994 Basin Name**	**1994 Basin No**	**TDS**	**Sulfate**	**Chloride**	**Boron**
Conejo Valley	**4-10**	**Thousand Oaks Area**	**4-19**	**1400**	**700**	**150**	**1.0**
Russell Valley	**4-20**	**Russell Valley**	**4-20**				
Russell Valley	4-20	Russell Valley	4-20	1500	500	250	1.0
Thousand Oaks Area	4-19	Triunfo Canyon Area	4-20	2000	500	500	2.0
Thousand Oaks Area	4-20	Lindero Canyon Area	4-20	2000	500	500	2.0
Thousand Oaks Area	4-21	Las Virgenes Canyon Area	4-20	2000	500	500	2.0
Conejo-Tierra Rejada Volcanic Area[j]	No DWR#	**Conejo-Tierra Rejada Volcanic Area**	**4-21**				
Malibu Valley	**4-22**	**Santa Monica Mountains-Southern Slopes[k]**	**4-22**				
Malibu Valley	No DWR#	Camarillo Area		1000	250	250	1.0
Malibu Valley	No DWR#	Point Dume Area		1000	250	250	1.0
Malibu Valley	4-22	Malibu Valley	4-22	2000	500	500	2.0
Malibu Valley	No DWR#	Topanga Canyon Area		2000	500	500	2.0
San Pedro Channel Islands[l]	No DWR#	**San Pedro Channel Islands**					
Anacapa Island	No DWR#	Anacapa Island	No DWR#				
San Nicholas Island	No DWR#	San Nicholas Island	No DWR#	1100	150	350	
Santa Catalina Island	No DWR#	Santa Catalina Island	No DWR#	1000	100	250	1.0
San Clemente Island	No DWR#	San Clemente Island	No DWR#				
Santa Barbara	No DWR#	Santa Barbara Island	No DWR#				

a. Objectives for ground waters outside of the major basins listed on this table and outlined in Figure 1-9 have not been specifically listed. However, ground waters outside of the major basins are, in many cases, significant sources of water. Furthermore, ground waters outside of the major basins are either potential or existing sources of water for downgradient basins and, as such, objectives in the downgradient basins shall apply to these areas.

b. Basins are numbered according to Bulletin 118-Update 2003 (Department of Water Resources, 2003).

c. Ground waters in the Pitas Point area (between the lower Ventura River and Rincon Point) are not considered to comprise a major basin, and accordingly have not been designated a basin number by the California Department of Water Resources (DWR) or outlined on Figure 1-9.

d. The Santa Clara River Valley (4-4) was formerly Ventura Central Basin

e. Pleasant Valley (4-6), Arroyo Santa Rosa Valley (4-7) and Las Posas Valley (4-8) Ground Water Basins were former sub-basins of the Ventura Central Basin (DWR, 1980).

f. Acton Valley Basin was formerly Upper Santa Clara Basin (DWR, 1980)

g. San Gabriel Valley is a combination of what were formerly the Western and Eastern areas of the Main San Gabriel Basin, and the Puente Basin. All of the groundwater in the former Main San Gabriel Basin is covered by the objectives listed under Main San Gabriel Basin – Eastern Area and Western Area. Walnut Creek, Big Dalton Wash, and Little Dalton Wash separate the Eastern Area from the Western Area (see the dashed line on Figure A2-17 in Appendix II). Any ground water upgradient of these areas is subject to downgradient beneficial uses and objectives, as explained in Footnote a.

h. Raymond Basin was formerly a sub-basin of the San Gabriel Valley and is now a separate basin.

i. The border between Regions 4 and 8 crosses the Upper Santa Ana Valley and San Gabriel Valley Ground Water Basins.

j. Ground water in the Conejo-Tierra Rejada Volcanic Area occurs primarily in fractured volcanic rocks in the western Santa Monica Mountains and Conejo Mountain areas. These areas have not been delineated on Figure 1-9.

k. With the exception of ground water in Malibu Valley (DWR Basin No. 4-22), ground waters along the southern slopes of the Santa Monica Mountains are not considered to comprise a major basin and accordingly have not been designated a basin number by the California Department of Water Resources (DWR) or outlined on Figure 1-9.

l. DWR has not designated basins for ground waters on the San Pedro Channel Islands

m. The Regional Board may grant, at its sole discretion, individual dischargers a variance from the numeric mineral quality objectives for groundwater specified in Table 3-13 under the conditions and procedures specified in “Coastal Aquifer Variance Provision for Mineral Quality Objectives” set forth in the Regional Objectives for Ground Waters.

Table 3-13a. Conditional Site Specific Objectives for Selected Constituents in Regional Groundwaters

DWR Basin No.	BASIN	Chloride (mg/L)
4-4	**Santa Clara River Valley**	
	Lower area east of Piru Creek[1]	150 (rolling 12-month average)
4-4.07	**Santa Clara River Valley East**	
	Santa Clara—Bouquet & San Francisquito Canyons	150 (rolling 12-month average)
	Castaic Valley	150 (rolling 12-month average)

1. This objective only applies to the San Pedro formation. Existing objective of 200 mg/L applies to shallow alluvium layer above San Pedro formation.

The conditional site specific objectives for chloride in the groundwater in Santa Clara--Bouquet & San Francisquito Canyons, Castaic Valley, and the lower area east of Piru Creek (San Pedro Formation) shall apply and supersede the existing regional groundwater quality objectives only when chloride load reductions and/or chloride export projects are in operation by the SCVSD according to the implementation section in Table 7-6.1 of Chapter 7.

Statewide Objectives for Ocean Waters

The State Board's *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan), *Water Quality Control Plan for Enclosed Bays and Estuaries of California*, and the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) and any revision thereto, shall also apply to all ocean waters of the Region. These plans are described in Chapter 5, Plans and Policies. Copies of these plans can be obtained at the Office of Legislative and Public Affairs (OLPA) in Sacramento or at the Regional Board office.

Site Specific Objectives

While many pollutants are regulated under federal, state or regionally applied water quality standards, the Regional Board supports the idea of developing site-specific objectives (SSOs) in appropriate circumstances. Site-specific, or reach-specific, objectives are already in place for some parameters (i.e., mineral quality). These were established to protect a specific beneficial use or were based on antidegradation policies. The development of site-specific objectives requires complex and resource intensive studies; resources will limit the number of studies that will be performed in any given year. In addition, a Use Attainability Analysis (UAA) study will be necessary if the attainment of designated aquatic life or recreational beneficial uses is in question. UAAs include waterbody surveys and assessments which define existing uses, determine appropriateness of the existing and designated uses, and project potential uses by examining the waterbody's physical, chemical, and biological characteristics. Under certain conditions, a designated use may be changed if attaining that use would result in substantial and widespread economic and social impacts. Uses that have been attained cannot be removed under a UAA analysis. If a UAA study is necessary, that study must be completed before a SSO can be determined. Early planning and coordination with Regional Board staff will be critical to the development of a successful plan for developing SSOs.

Site-specific objectives must be based on sound scientific data in order to assure protection of beneficial uses. There may be several acceptable methods for developing site-specific objectives. A detailed workplan will be developed with Regional Board staff and other agencies (if appropriate) based on the specific pollutant and site involved. State Board staff and the USEPA will participate in the development of the studies so that there is agreement on the process from the beginning of the study.

Although each study will be unique, there are several elements that should be addressed in order to justify the need for a site-specific objective. These may include, but are not limited to:

- Demonstration that the site in question has different beneficial uses (e.g., more or less sensitive species) as demonstrated in a UAA or that the site has physical or chemical characteristics that may alter the biological availability or toxicity of the chemical.

- Provide a thorough review of current technology and technology-based limits which can be achieved at the facility(ies) on the study reach.

- Provide a thorough review of historical limits and compliance with these limits at all facilities in the study reach.

- Conduct a detailed economic analysis of compliance with existing, proposed objectives.

- Conduct an analysis of compliance and consistency with all federal, state, and regional plans and policies.

Once it is agreed that a site-specific objective is needed, the studies are performed, and an objective is developed, the following criteria must be addressed in the proposal for the new objective.

- Assurance that aquatic life and terrestrial predators are not currently threatened or impaired from bioaccumulation of the specific pollutant and that the biota will not be threatened or impaired by the proposed site-specific level of this pollutant. Safe tissue concentrations will be determined from the literature and from consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

  For terrestrial predators, the presence, absence, or threat of harmful bioaccumulated pollutants will be determined through consultation with the California Department of Fish and Game and the U.S. Fish and Wildlife Service.

- Assurance that human consumers of fish and shellfish are currently protected from bioaccumulation of the study pollutant, and will not be affected from bioaccumulation of this pollutant under the proposed site-specific objective.

- Assurance that aquatic life is currently, and will be protected from chronic toxicity from the proposed site-specific objective.

- Assurance that the integrity of the aquatic ecosystem will be protected under the proposed site-specific objective.

- Assurance that no other beneficial uses will be threatened or impaired by the proposed site-specific objective.

Compliance with Water Quality Objectives

On January 30, 2003, the Regional Board adopted Resolution No. 2003-001 amending this Basin Plan to incorporate language authorizing compliance schedules in NPDES permits. Resolution No. 2003-001 was subsequently approved by the State Water Resources Control Board, Office of Administrative Law, and the U.S. Environmental Protection Agency. On April 15, 2008, the State Water Resources Control Board adopted Resolution No. 2008-0025, which established a state-wide *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*. State Water Resources Control Board Resolution No. 2008-0025 superseded all existing provisions authorizing compliance schedules in Basin Plans, including Regional Board Resolution No. 2003-001, except for existing compliance schedule provisions in TMDL implementation plans that are in effect as of the effective date of Resolution No. 2008-0025. Further information on State Water Resources Control Board Resolution No. 2008-0025 is discussed in Chapter 5, Plans and Policies.