

## ATTACHMENT E

### WATER QUALITY OBJECTIVES LAKE TAHOE HYDROLOGIC UNIT

Bacteria, Coliform - Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes. The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 ml, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 ml. The log mean shall ideally be based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30-day period. However, a log mean concentration exceeding 20/100 ml for any 30-day period shall indicate violation of this objective even if fewer than five samples were collected.

Biostimulatory Substances - Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.

Chemical Constituents - Waters designated as MUN shall not contain concentrations of chemical constituents in excess of the maximum contaminant level (MCL) or secondary maximum contaminant level (SMCL) based upon drinking water standards specified in the following provisions of Title 22 of the California Code of Regulations which are incorporated by reference into the Basin Plan: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 64444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits), and Table 64449-B of Section 64449 (Secondary Maximum Contaminant Levels-Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

Waters designated as AGR shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).

Waters shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses.

Chlorine, Total Residual - For the protection of aquatic life, total chlorine residual shall not exceed either a median value of 0.002 mg/L or a maximum value of 0.003 mg/L. Median values shall be based on daily measurements taken within any six-month period.

Color - Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.

Dissolved Oxygen - The dissolved oxygen concentration, as percent saturation, shall not be depressed by more than 10 percent, nor shall the minimum dissolved oxygen concentration be less than 80 percent of saturation.

For waters with the beneficial uses of COLD, COLD with SPWN, WARM, and WARM with SPWN, the minimum dissolved oxygen concentration shall not be less than that specified in Table 5.1-8.

Floating Materials - Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses.

For natural high quality waters, the concentrations of floating material shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.

Oil and Grease - 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 the water for beneficial uses.

For natural high quality waters, the concentration of oils, greases, or other film or coat generating substances shall not be altered.

Nondegradation of Aquatic Communities and Populations - All wetlands shall be free from substances attributable to wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants; or which lead to the presence of undesirable or nuisance aquatic life.

All wetlands shall be free from activities that would substantially impair the biological community as it naturally occurs due to physical, chemical and hydrologic processes.

Pesticides - For the purposes of this Basin Plan, pesticides are defined to include insecticides, herbicides, rodenticides, fungicides, piscicides and all other economic poisons. An economic poison is any substance intended to prevent, repel, destroy, or mitigate the damage from insects, rodents, predatory animals, bacteria, fungi or weeds capable of infesting or harming vegetation, humans, or animals (CA Agriculture Code § 12753).

Pesticide concentrations, individually or collectively, shall not exceed the lowest detectable levels, using the most recent detection procedures available.

There shall not be an increase in pesticide concentrations found in bottom sediments. There shall be no detectable increase in bioaccumulation of pesticides in aquatic life.

Waters designated as MUN shall not contain concentrations of pesticides or herbicides 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.

pH - In fresh waters with designated beneficial uses of COLD, changes in normal ambient pH levels shall not exceed 0.5 pH units. For all other waters, the pH shall not be depressed below 6.5 nor raised above 8.5.

The Regional Board recognizes that some waters of the Region may have natural pH levels outside of the 6.5 to 8.5 range. Compliance with the pH objective for these waters will be determined on a case-by-case basis.

In Lake Tahoe, the pH shall not be depressed below 7.0 nor raised above 8.4.

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

Waters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) 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.

Sediment - The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.

Settleable Materials - Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentration of settleable materials shall not be raised by more than 0.1 milliliter per liter.

Suspended Materials - Waters shall not contain suspended materials in concentrations that cause nuisance or that adversely affects the water for beneficial uses.

For natural high quality waters, the concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.

Suspended Sediment - Suspended sediment concentrations in streams tributary to Lake

Tahoe shall not exceed a 90<sup>th</sup> percentile value of 60 mg/L. (This objective is equivalent to the Tahoe Regional Planning Agency's regional "environmental threshold carrying capacity" standard for suspended sediment in tributaries.) The Regional Board will consider revision of this objective in the future if it proves not to be protective of beneficial uses or if review of monitoring data indicates that other numbers would be more appropriate for some or all streams tributary to Lake Tahoe.

Taste and Odor- Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. For naturally high quality waters, the taste and odor shall not be altered.

Temperature - The natural receiving water temperature of all waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such an alteration in temperature does not adversely affect the water for beneficial uses.

For waters designated COLD, the temperature shall not be altered.

Temperature objectives for COLD interstate waters and WARM interstate waters are as specified in the "Water Quality Control Plan for Control of Temperature in The Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" including any revisions. This plan is summarized in Basin Plan Chapter 6 (Plans and Policies) and included in Appendix B.

Toxicity - 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 and/or other appropriate methods as specified by the 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 water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, et al. 1998).

Turbidity - Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent.

Algal Growth Potential - For Lake Tahoe, the mean algal growth potential at any point in the Lake shall not be greater than twice the mean annual algal growth potential at the limnetic reference station. The limnetic reference station is located in the north central portion of Lake Tahoe. It is shown on maps in annual reports of the Lake Tahoe

Interagency Monitoring Program. Exact coordinates can be obtained from the U.C. Davis Tahoe Research Group.

Biological Indicators - For Lake Tahoe, algal productivity and the biomass of phytoplankton, zooplankton, and periphyton shall not be increased beyond the levels recorded in 1967-71, based on statistical comparison of seasonal and annual means. The "1967-71 levels" are reported in the annual summary reports of the "CaliforniaNevada-Federal Joint Water Quality Investigation of Lake Tahoe" published by the California Department of Water Resources.

Clarity - For Lake Tahoe, the vertical extinction coefficient shall be less than 0.08 per meter when measured below the first meter. When water is too shallow to determine a reliable extinction coefficient, the turbidity shall not exceed 3 Nephelometric Turbidity Units (NTU). In addition, turbidity shall not exceed 1 NTU in shallow waters not directly influenced by stream discharges. The Regional Board will determine when water is too shallow to determine a reliable vertical extinction coefficient based upon its review of standard limnological methods and on advice from the U.C. Davis Tahoe Research Group.

Conductivity, Electrical - In Lake Tahoe, the mean annual electrical conductivity shall not exceed 95 umhos/cm at 50°C at any location in the Lake.

Plankton Counts - For Lake Tahoe, the mean seasonal concentration of plankton organisms shall not be greater than 100 per ml and the maximum concentration shall not be greater than 500 per ml at any point in the Lake.

**WATER QUALITY OBJECTIVES FOR CERTAIN WATER BODIES  
LAKE TAHOE HYDROLOGIC UNIT**

	Surface Waters	Objective (mg/L except as noted) <sup>1,2</sup>						
		TDS	Cl	SO <sub>4</sub>	B	N	P	Fe
1	Lake Tahoe	<u>60</u> 65	<u>3.0</u> 4.0	<u>1.0</u> 2.0	<u>0.01</u> -	<u>0.15</u> -	<u>0.008</u> -	--
2	Fallen Leaf Lake	<u>50</u> -	<u>0.30</u> 0.50	<u>1.3</u> 1.4	<u>0.01</u> 0.02	See Table 5.1-4 for additional objectives		
3	Griff Creek	<u>80</u> -	<u>0.40</u> -	--	--	<u>0.19</u> -	<u>0.010</u> -	<u>0.03</u> -
4	Carnelian Bay Creek	<u>80</u> -	<u>0.40</u> -	--	--	<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -
5	Watson Creek	<u>80</u> -	<u>0.35</u> -	--	--	<u>0.22</u> -	<u>0.015</u> -	<u>0.04</u> -
6	Dollar Creek	<u>80</u> -	<u>0.30</u> -	--	--	<u>0.16</u> -	<u>0.030</u> -	<u>0.03</u> -
7	Burton Creek	<u>90</u> -	<u>0.30</u> -	--	--	<u>0.16</u> -	<u>0.015</u> -	<u>0.03</u> -
8	Ward Creek	<u>70</u> 85	<u>0.30</u> 0.50	<u>1.4</u> 2.8	--	<u>0.15</u> -	<u>0.015</u> -	<u>0.03</u> -
9	Blackwood Creek	<u>70</u> 90	<u>0.30</u> -	--	--	<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -
10	Madden Creek	<u>60</u> -	<u>0.10</u> 0.20	--	--	<u>0.18</u> -	<u>0.015</u> -	<u>0.015</u> -
11	McKinney Creek	<u>55</u> -	<u>0.40</u> 0.50	--	--	<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -
12	General Creek	<u>50</u> 90	<u>1.0</u> 1.5	<u>0.4</u> 0.5	--	<u>0.15</u> -	<u>0.015</u> -	<u>0.03</u> -
13	Meeks Creek	<u>45</u> -	<u>0.40</u> -	--	--	<u>0.23</u> -	<u>0.010</u> -	<u>0.07</u> -
14	Lonely Gulch Creek	<u>45</u> -	<u>0.30</u> -	--	--	<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -
	continued...							

See Fig. 5.1-1	Surface Waters	Objective (mg/L except as noted) <sup>1,2</sup>						
		TDS	Cl	SO <sub>4</sub>	B	N	P	Fe
15	Eagle Creek	<u>35</u> -	<u>0.30</u> -	--	--	<u>0.20</u> -	<u>0.010</u> -	<u>0.03</u> -
16	Cascade Creek	<u>30</u> -	<u>0.40</u> -	--	--	<u>0.21</u> -	<u>0.005</u> -	<u>0.01</u> -
17	Tallac Creek	<u>60</u> -	<u>0.40</u> -	--	--	<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -
18	Taylor Creek	<u>35</u> -	<u>0.40</u> 0.50	--	--	<u>0.17</u> -	<u>0.010</u> -	<u>0.02</u> -
19	Upper Truckee River	<u>55</u> <u>75</u>	<u>4.0</u> <u>5.5</u>	<u>1.0</u> <u>2.0</u>		<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -
20	Trout Creek	<u>50</u> <u>60</u>	<u>0.15</u> <u>0.20</u>	--	--	<u>0.19</u> -	<u>0.015</u> -	<u>0.03</u> -

<sup>1</sup> Annual average value/90th percentile value.

<sup>2</sup> Objectives are as mg/L and are defined as follows:

B Boron

Cl Chloride

SO<sub>4</sub> Sulfate

Fe Iron, Total

N Nitrogen, Total

P Phosphorus, Total

TDS Total Dissolved Solids (Total Filterable Residues)