

1997 Texas Surface Water Quality Standards

(updated August 6, 2008)

EPA has not completed its review of all new and revised provisions in the 2000 Texas Surface Water Quality Standards (TX WQS). Therefore, portions of the previously-approved 1997 TX WQS are still effective for Clean Water Act purposes. The summary preceding the 2000 TX WQS identifies which new or revised items have been approved or disapproved by EPA.

The following sections from the 1997 TX WQS contain **at least** one provision which is still effective for Clean Water Act purposes. These sections are listed below:

§307.6 - Toxic Materials

All provisions in §307.6 of the 2000 TX WQS have been approved with the following exceptions:

- Fresh water aquatic life criteria in §307.6(c)(1) - Table 1 for cadmium, chromium (trivalent), chromium (hexavalent), copper, lead, nickel and zinc are under EPA review.

Appendix A - Site-specific Uses and Criteria for Classified Segments

All provisions in Appendix A of the 2000 TX WQS have been approved with the following exceptions:

- Segment 0615 – Angelina River/Sam Rayburn Reservoir: this segment was created in the 2000 TX WQS from a portion of segment 0610 – Sam Rayburn Reservoir. The intermediate aquatic life use and dissolved oxygen criterion for segment 0615 were disapproved by EPA. The high aquatic life use and dissolved oxygen criterion of 5.0 mg/l for segment 0610 in the 1997 TX WQS remain as effective CWA standards for segment 0615. The revised boundaries, contact recreation and public water supply, and other numeric criteria for segment 0615 in the 2000 TX WQS are approved.
- Segment 1810 – Comal River: the temperature criterion in the 2000 TX WQS has not been approved; therefore, the temperature criterion from the 1997 TX WQS remains effective for CWA purposes.

**TEXAS NATURAL RESOURCE CONSERVATION
COMMISSION**

Texas Surface Water Quality Standards

§§307.1-307.10

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CHAPTER 307
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(2) Water in the state with designated or existing aquatic life uses shall not be chronically toxic to aquatic life, in accordance with §307.8 of this title (relating to Application of Standards).

(3) Water in the state shall be maintained to preclude adverse toxic effects on human health resulting from contact recreation, consumption of aquatic organisms, consumption of drinking water or any combination of the above. Waters in the state with sustainable fisheries and/or public drinking water supply uses will not exceed applicable human health toxic criteria, in accordance with §307.6(d) of this title (relating to specific human health criteria) and §307.8 of this title (relating to Application of Standards).

(4) Water in the state shall be maintained to preclude adverse toxic effects on aquatic and terrestrial wildlife, livestock, or domestic animals, resulting from contact, consumption of aquatic organisms, consumption of water, or any combination of the above.

(c) Specific numerical aquatic life criteria.

(1) Numerical criteria are established in Table 1 for those specific toxic substances for which adequate toxicity information is available, and which have the potential for exerting adverse impacts on water in the state.

(2) Numerical criteria are based on ambient water quality criteria documents published by EPA. EPA guidance criteria have been appropriately recalculated to eliminate the effects of toxicity data for aquatic organisms which are not native to Texas, in accordance with procedures in the EPA guidance document entitled *Guidelines for Deriving Numerical Site-specific Water Quality Criteria* (EPA 600/3-84-099).

(3) Specific numerical acute aquatic life criteria are applied as 24-hour averages, and specific numerical chronic aquatic life criteria are applied as seven-day averages.

(4) Ammonia and chlorine toxicity will be addressed by total toxicity biomonitoring requirements in subsection (e) of this section.

(5) Specific numerical aquatic life criteria for metals and metalloids in Table 1 apply to dissolved concentrations (unless otherwise stated), which can be estimated by filtration of samples prior to analysis, or by converting from total recoverable measurements in accordance with procedures approved by the commission in the latest revision of the standards implementation procedures. Specific numerical aquatic life criteria for non-metallic substances in Table 1 apply to total recoverable concentrations unless otherwise noted.

TABLE I

Criteria in Water for Specific Toxic Materials -
 AQUATIC LIFE PROTECTION
 (All values are listed or calculated in micrograms per liter)
 (Hardness concentrations are input as milligrams per liter)

Parameter	Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
Aldrin	3.0	---	1.3	---
Aluminum (d)	991	---	---	---
Arsenic (d)	360	190	149	78
Cadmium (d)	$(1.128(\ln(\text{hardness}))-1.6774)$ _e	$(0.7852(\ln(\text{hardness}))-3.490)$ _e	45.62	10.02
Carbaryl	2.0	---	613	---
Chlordane	2.4	0.0043	0.09	0.004
Chlorpyrifos	0.083	0.041	0.011	0.0056
Chromium (Tri) (d)	$(0.8190(\ln(\text{hardness}))+3.688)$ _e	$(0.8190(\ln(\text{hardness}))+1.561)$ _e	---	---
Chromium (Hex) (d)	16	11	1,100	50
Copper (d)*	$(0.9422(\ln(\text{hardness}))-1.3844)$ _e	$(0.8545(\ln(\text{hardness}))-1.386)$ _e	16.27	4.37
Cyanide † (free)	45.78	10.69	5.6	5.6
4,4'- DDT	1.1	0.0010	0.13	0.0010
Demeton	-	0.1	---	0.1
Dicofol	59.3	19.8	---	---
Dieldrin	2.5	0.0019	0.71	0.0019
Diuron	210	70	---	---
Endosulfan I (alpha)	0.22	0.056	0.034	0.0087
Endosulfan II (beta)	0.22	0.056	0.034	0.0087
Endosulfan sulfate	0.22	0.056	0.034	0.0087

TABLE 1 (continued)

Parameter	Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
Endrin	0.18	0.0023	0.037	0.0023
Guthion	---	0.01	---	0.01
Heptachlor	0.52	0.0038	0.053	0.0036
Hexachlorocyclohexane (Lindane)	2.0	0.08	0.16	---
Lead (d)	$e^{(1.273(\ln(\text{hardness}))-1.460)}$	$e^{(1.273(\ln(\text{hardness}))-4.705)}$	140	5.6
Malathion	---	0.01	---	0.01
Mercury	2.4	1.3	2.1	1.1
Methoxychlor	---	0.03	---	0.03
Mirex	---	0.001	---	0.001
Nickel (d)	$e^{(0.8460(\ln(\text{hardness}))+3.3612)}$	$e^{(0.8460(\ln(\text{hardness}))+1.1645)}$	119	13.2
Polychlorinated Biphenyls (PCB's)†	2.0	0.014	10	0.03
Parathion (ethyl)	0.065	0.013	---	---
Phenanthrene	30	30	7.7	4.6
Pentachlorophenol	$e^{(1.005(\text{pH})-4.830)}$	$e^{(1.005(\text{pH})-5.290)}$	15.14	9.56
Selenium	20	5	564	136
Silver, as free ion	0.92	---	2.3	---
Toxaphene	0.78	0.0002	0.21	0.0002
Tributyltin (TBT)	0.13	0.024	0.24	0.043
2,4,5 Trichlorophenol	136	64	259	12
Zinc (d)	$e^{(0.8473(\ln(\text{hardness}))+0.8604)}$	$e^{(0.8473(\ln(\text{hardness}))+0.7614)}$	98	89

* In designated oyster waters an acute marine copper criterion of 4.37 micrograms per liter applies outside of the mixing zone of permitted discharges, and specified mixing zones for copper will not encompass oyster reefs containing live oysters.

† Compliance will be determined using the analytical method for cyanide amenable to chlorination or by weak acid dissociable cyanide.

‡ Calculated as the sum of seven PCB congeners 1242, 1254, 1221, 1232, 1248, 1260 and 1016.

(d) Indicates that the criteria for a specific parameter are for the dissolved portion in water. All other criteria are for total recoverable concentrations, except where noted.

(6) Specific numerical acute criteria for toxic substances are applicable to all waters in the state except for small zones of initial dilution (ZIDs) at discharge points. Acute criteria may be exceeded within a ZID, but there shall be no lethality to aquatic organisms which move through a ZID, and the sizes of ZIDs are limited in accordance with §307.8 of this title. Specific numerical chronic criteria are applicable to all waters in the state with designated or existing aquatic life uses, except inside mixing zones and below critical low-flow conditions, in accordance with §307.8 of this title.

(7) For toxic materials for which specific numerical criteria are not listed in Table 1, the appropriate criteria for aquatic life protection may be derived in accordance with current EPA guidelines for deriving site-specific water quality criteria. When insufficient data are available to use EPA guidelines, the following provisions shall be applied in accordance with this section and §307.8 of this title:

(A) acute criteria will be calculated as 0.3 of the LC_{50} of the most sensitive aquatic organism; $LC_{50} \times (0.3) = \text{acute criteria}$;

(B) concentrations of non-persistent toxic materials shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data or calculated as 0.1 of acute LC_{50} values) to the most sensitive aquatic organisms; $LC_{50} \times (0.1) = \text{chronic criteria}$;

(C) concentrations of persistent toxic materials that do not bioaccumulate shall not exceed concentrations which are chronically toxic (as determined from appropriate chronic toxicity data or calculated as 0.05 of LC_{50} values) to the most sensitive aquatic organisms; and

(D) concentrations of toxic materials that bioaccumulate shall not exceed concentrations that are chronically toxic (as determined from appropriate chronic toxicity data or calculated as 0.01 of LC_{50} values) to the most sensitive aquatic organisms.

(8) For toxic substances where the relationship of toxicity is defined as a function of pH or hardness, numerical criteria are presented as an equation based on this relationship. Appropriate pH or hardness values for such criteria are listed for each basin in Table 2. The indicated pH and hardness values (Table 2) for each basin will be assumed unless sufficient data are available to derive segment specific pH and hardness values.

NECHES RIVER BASIN		USES				CRITERIA						
Segment No.	SEGMENT NAME	Recreation	Aquatic Life	Domestic Water Supply	Other	Cl ⁻¹ (mg/L)	SO ₄ ⁻² (mg/L)	TDS (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Fecal Coliform #/100ml	Temperature (pF)
0601	Neches River Tidal	CR	I						3.0	6.0-8.5	200	95
0602	Neches River Below B. A. Steinhagen Lake	CR	H	PS		50	30	150	5.0	6.0-8.5	200	91
0603	B. A. Steinhagen Lake	CR	H	PS		50	30	150	5.0	6.0-8.5	200	93
0604	Neches River Below Lake Palestine	CR	H	PS		50	30	150	5.0	6.0-8.5	200	91
0605	Lake Palestine	CR	H	PS		50	30	150	5.0	6.0-8.5	200	90
0606	Neches River Above Lake Palestine	CR	I	PS		50	30	150	4.0	6.0-8.5	200	95
0607	Pine Island Bayou	CR	H	PS		150	50	300	5.0	6.0-8.5	200	95
0608	Village Creek	CR	H	PS		150	75	300	5.0	6.0-8.5	200	90
0609	Angelina River Below Sam Rayburn Reservoir	CR	H	PS		70	40	250	5.0	6.0-8.5	200	90
0610	Sam Rayburn Reservoir	CR	H	PS		70	40	250	5.0	6.0-8.5	200	93
0611	Angelina River Above Sam Rayburn Reservoir	CR	H	PS		125	40	250	5.0	6.0-8.5	200	90
0612	Attoyac Bayou	CR	H	PS		75	50	150	5.0	6.0-8.5	200	90
0613	Lake Tyler/Lake Tyler East	CR	H	PS		30	30	150	5.0	6.5-9.0	200	93
0614	Lake Jacksonville	CR	H	PS		50	75	750	5.0	6.5-9.0	200	93

GUADALUPE RIVER BASIN		USES				CRITERIA						
Segment No.	SEGMENT NAME	Recreation	Aquatic Life	Domestic Water Supply	Other	Cl ⁻¹ (mg/L)	SO ₄ ⁻² (mg/L)	TDS (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Fecal Coliform #/100ml	Temperature (bF)
1801	Guadalupe River Tidal	CR	E						5.0	6.5-9.0	200	95
1803	Guadalupe River Below San Marcos River	CR	H	PS		100	50	400	5.0	6.5-9.0	200	93
1804	Guadalupe River Below Comal River	CR	H	PS		80	50	400	5.0	6.5-9.0	200	90
1805	Canyon Lake	CR	E	PS/AP		40	40	400	6.0	6.5-9.0	200	90
1806	Guadalupe River Above Canyon Lake	CR	E	PS		35	30	375	6.0	6.5-9.0	200	90
1807	Coleta Creek	CR	H	PS		250	100	500	5.0	6.5-9.0	200	93
1808	Lower San Marcos River	CR	H	PS		60	50	400	5.0	6.5-9.0	200	90
1809	Lower Blanco River	CR	H	PS		40	50	400	5.0	6.5-9.0	200	92
1810	Plum Creek	CR	H			350	150	1,120	5.0	6.5-9.0	200	90
1811	Comal River	CR	H	PS		25	30	400	5.0	6.5-9.0	200	90
1812	Guadalupe River Below Canyon Dam	CR	E	PS/AP		40	40	400	6.0	6.5-9.0	200	90
1813	Upper Blanco River	CR	E	PS/AP		30	35	400	6.0	6.5-9.0	200	92
1814	Upper San Marcos River *	CR	E			25	25	380	6.0	6.5-9.0	200	80
1815	Cypress Creek	CR	E	PS		20	20	350	6.0	6.5-9.0	200	86
1816	Johnson Creek	CR	E	PS		40	20	350	6.0	6.5-9.0	200	86
1817	North Fork Guadalupe River	CR	E	PS		20	20	350	6.0	6.5-9.0	200	86
1818	South Fork Guadalupe River	CR	E	PS		20	20	350	6.0	6.5-9.0	200	86

* Segment 1814 - Upper San Marcos River is assigned a low-flow criterion of 58 ft³/sec for the application of water quality standards criteria in the same manner as a 7Q2 critical low-flow.