

**R317-2-13. Classification of Waters of the State (see R317-2-6).**

13.5 Utah Lake-Jordan River Basin

b. Provo River Drainage

Provo River and tributaries,  
from Utah Lake to Murdock diversion            2B 3A            4

Provo River and tributaries, from  
Murdock Diversion to headwaters,  
except as listed below                            1C 2B 3A            4

Upper Falls drainage above Provo  
City diversion                            1C 2B 3A

Bridal Veil Falls drainage above  
Provo City diversion                            1C 2B 3A

Lost Creek and tributaries above  
Provo City diversion                            1C 2B 3A

**R317-2-6. Use Designations.**

The Board as required by Section 19-5-110, shall group the waters of the state into classes so as to protect against controllable pollution the beneficial uses designated within each class as set forth below. Surface waters of the state are hereby classified as shown in R317-2-13.

6.1 Class 1 -- Protected for use as a raw water source for domestic water systems.

- a. Class 1A -- Reserved.
- b. Class 1B -- Reserved.
- c. Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water

6.2 Class 2 -- Protected for recreational use and aesthetics.

a. Class 2A -- Protected for primary contact recreation such as swimming.

b. Class 2B -- Protected for secondary contact recreation such as boating, wading, or similar uses.

6.3 Class 3 -- Protected for use by aquatic wildlife.

a. Class 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.

b. Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.

c. Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.

d. Class 3D -- Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.

e. Class 3E -- Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.

6.4 Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

6.5 Class 5 -- The Great Salt Lake. Protected for primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary aquatic organisms in their food chain, and mineral extraction.

R317-2-14. Numeric Criteria.

TABLE 2.14.1  
 NUMERIC CRITERIA FOR DOMESTIC,  
 RECREATION, AND AGRICULTURAL USES

Parameter	Domestic	Recreation and		Agri-
	Source	Aesthetics		culture
	1C	2A	2B	4
BACTERIOLOGICAL				
(30-DAY GEOMETRIC MEAN) (NO.)/100 ML (7)				
E. coli	206	126	206	
MAXIMUM				
(NO.)/100 ML (7)				
E. coli	940	576	940	
PHYSICAL				
pH (RANGE)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)		10	10	
METALS (DISSOLVED, MAXIMUM MG/L) (2)				
Arsenic	0.01			0.1
Barium	1.0			
Beryllium	<0.004			
Cadmium	0.01			0.01
Chromium	0.05			0.10
Copper				0.2
Lead	0.015			0.1
Mercury	0.002			
Selenium	0.05			0.05
Silver	0.05			
INORGANICS				
(MAXIMUM MG/L)				
Bromate	0.01			0.75
Boron				
Chlorite	<1.0			
Fluoride (3)	1.4-2.4			
Nitrates as N	10			
Total Dissolved Solids (4)		Irrigation		1200
		Stock Watering		2000
RADIOLOGICAL				
(MAXIMUM pCi/L)				
Gross Alpha	15			15

Gross Beta	4 mrem/yr
Radium 226, 228 (Combined)	5
Strontium 90	8
Tritium	20000
Uranium	30

ORGANICS  
(MAXIMUM UG/L)

Chlorophenoxy Herbicides	
2,4-D	70
2,4,5-TP	10
Methoxychlor	40

POLLUTION  
INDICATORS (5)

BOD (MG/L)	4	4	5	5	5	Nitrate as N
(MG/L)						
Total Phosphorus as P (MG/L) (6)			0.05	0.05		

FOOTNOTES:

- (1) Reserved
- (2) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by atomic absorption or inductively coupled plasma (ICP) spectrophotometry.
- (3) Maximum concentration varies according to the daily maximum mean air temperature.

TEMP (C)	MG/L
12.0	2.4
12.1-14.6	2.2
14.7-17.6	2.0
17.7-21.4	1.8
21.5-26.2	1.6
26.3-32.5	1.4

(4) Total dissolved solids (TDS) limits may be adjusted if such adjustment does not impair the designated beneficial use of the receiving water. The total dissolved solids (TDS) standards shall be at background where it can be shown that natural or un-alterable conditions prevent its attainment. In such cases rulemaking will be undertaken to modify the standard accordingly.

Site Specific Standards for Total Dissolved Solids (TDS)

Castle Creek from confluence with the Colorado River to Seventh Day Adventist Diversion: 1,800 mg/l;

Cottonwood Creek from the confluence with Huntington Creek to I-57:  
3,500 mg/l;

Ferron Creek from the confluence with San Rafael River to Highway  
10: 3,500 mg/l;

Gordon Creek from the confluence with Price River to headwaters:  
3,800 mg/l;

Huntington Creek and tributaries from the confluence with Cottonwood  
Creek to U-10: 4,800 mg/l;

Ivie Creek and its tributaries from the confluence with Muddy Creek  
to U-10: 2,600 mg/l;

Lost Creek from the confluence with Sevier River to U.S. Forest  
Service Boundary: 4,600 mg/l;

Muddy Creek and tributaries from the confluence with Quitchupah  
Creek to U-10: 2,600 mg/l;

Muddy Creek from confluence with Fremont River to confluence with  
Quitchupah Creek: 5,800 mg/l;

North Creek from the confluence with Virgin River to headwaters:  
2,035 mg/l;

Onion Creek from the confluence with Colorado River to road crossing  
above Stinking Springs: 3000 mg/l;

Brine Creek-Petersen Creek, from the confluence with the Sevier  
River to U-119 Crossing: 9,700 mg/l;

Pinnacle Creek from the confluence with Price River to headwaters:  
3,800 mg/l;

Price River and tributaries from the confluence with Coal Creek to  
Carbon Canal Diversion: 1,700 mg/l;

Price River and tributaries from the confluence with Green River to  
confluence with Soldier Creek: 3,000 mg/l;

Quitchupah Creek from the confluence with Ivie Creek to U-10:  
2,600 mg/l;

Rock Canyon Creek from the confluence with Cottonwood Creek to  
headwaters: 3,500 mg/l;

San Pitch River from below Gunnison Reservoir to the Sevier River:  
2,400 mg/l;

San Rafael River from the confluence with the Green River to  
Buckhorn Crossing: 4,100 mg/l;

San Rafael River from the Buckhorn Crossing to the confluence with

Huntington Creek and Cottonwood Creek: 3,500 mg/l;

Sevier River between Gunnison Bend Reservoir and DMAD Reservoir:  
1,725 mg/l;

Sevier River from Gunnison Bend Reservoir to Clear Lake: 3,370 mg/l;

Virgin River from the Utah/Arizona border to Pah Tempe Springs:  
2,360 mg/l

(5) Investigations should be conducted to develop more information where these pollution indicator levels are exceeded.

(6) Total Phosphorus as P (mg/l) indicator for lakes and reservoirs shall be 0.025.

(7) Where the criteria are exceeded and there is a reasonable basis for concluding that the indicator bacteria are primarily from natural sources (wildlife), e.g., in National Wildlife Refuges and State Waterfowl Management Areas, the criteria may be considered attained. Exceedences of bacteriological numeric criteria from nonhuman nonpoint sources will generally be addressed through appropriate Federal, State, and local nonpoint source programs.

TABLE 2.14.2  
NUMERIC CRITERIA FOR AQUATIC WILDLIFE

Parameter	Aquatic Wildlife			
	3A	3B	3C	3D
PHYSICAL				
Total Dissolved Gases	(1)	(1)		
Minimum Dissolved Oxygen (MG/L) (2)				
30 Day Average	6.5	5.5	5.0	5.0
7 Day Average	9.5/5.0	6.0/4.0		
1 Day Average	8.0/4.0	5.0/3.0	3.0	3.0
Max. Temperature (C) (3)	20	27	27	
Max. Temperature Change (C) (3)	2	4	4	
pH (Range)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)	10	10	15	15
METALS (4)				
(DISSOLVED, UG/L) (5)				
Aluminum				
4 Day Average (6)	87	87	87	87
1 Hour Average	750	750	750	750
Arsenic (Trivalent)				
4 Day Average	150	150	150	150
1 Hour Average	340	340	340	340
Cadmium (7)				
4 Day Average	0.25	0.25	0.25	0.25

1 Hour Average Chromium (Hexavalent)	2.0	2.0	2.0	2.0	
4 Day Average	11	11	11	11	
1 Hour Average Chromium (Trivalent) (7)	16	16	16	16	
4 Day Average	74	74	74	74	
1 Hour Average	570	570	570	570	
Copper (7)					
4 Day Average	9	9	9	9	
1 Hour Average	13	13	13	13	
Cyanide (Free)					
4 Day Average	5.2	5.2	5.2		
1 Hour Average	22	22	22	22	
Iron (Maximum)	1000	1000	1000	1000	
Lead (7)					
4 Day Average	2.5	2.5	2.5	2.5	
1 Hour Average	65	65	65	65	
Mercury					
4 Day Average	0.012	0.012	0.012	0.012	
1 Hour Average	2.4	2.4	2.4	2.4	
Nickel (7)					
4 Day Average	52	52	52	52	
1 Hour Average	468	468	468	468	
Selenium					
4 Day Average	4.6	4.6	4.6	4.6	
1 Hour Average	18.4	18.4	18.4	18.4	
Silver					
1 Hour Average (7)	1.6	1.6	1.6	1.6	
Zinc (7)					
4 Day Average	120	120	120	120	
1 Hour Average	120	120	120	120	
INORGANICS (MG/L) (4)					
Total Ammonia as N (9)					
30 Day Average	(9a)	(9a)			
1 Hour Average	(9b)	(9b)	(9b)	(9b)	
Chlorine (Total Residual)					
4 Day Average	0.011	0.011	0.011	0.011	
1 Hour Average	0.019	0.019	0.019	0.019	
Hydrogen Sulfide (13) (Undissociated, Max. UG/L)	2.0	2.0	2.0	2.0	
Phenol (Maximum)		0.01	0.01	0.01	0.01
RADIOLOGICAL (MAXIMUM pCi/L)					
Gross Alpha (10)	15	15	15	15	
ORGANICS (UG/L) (4)					
Aldrin					
1 Hour Average	1.5	1.5	1.5	1.5	
Chlordane					
4 Day Average	0.0043	0.0043	0.0043	0.0043	

1 Hour Average	1.2	1.2	1.2	1.2
4,4' -DDT				
4 Day Average	0.0010	0.0010	0.0010	0.0010
1 Hour Average	0.55	0.55	0.55	0.55
Dieldrin				
4 Day Average	0.056	0.056	0.056	0.056
1 Hour Average	0.24	0.24	0.24	0.24
Alpha-Endosulfan				
4 Day Average	0.056	0.056	0.056	0.056
1 Hour Average	0.11	0.11	0.11	0.11
beta-Endosulfan				
4 Day Average	0.056	0.056	0.056	0.056
1 Day Average	0.11	0.11	0.11	0.11
Endrin				
4 Day Average	0.036	0.036	0.036	0.036
1 Hour Average	0.086	0.086	0.086	0.086
Heptachlor				
4 Day Average	0.0038	0.0038	0.0038	0.0038
1 Hour Average	0.26	0.26	0.26	0.26
Heptachlor epoxide				
4 Day Average	0.0038	0.0038	0.0038	0.0038
1 Hour Average	0.26	0.26	0.26	0.26
Hexachlorocyclohexane (Lindane)				
4 Day Average	0.08	0.08	0.08	0.08
1 Hour Average	1.0	1.0	1.0	1.0
Methoxychlor (Maximum)	0.03	0.03	0.03	0.03
Mirex (Maximum)	0.001	0.001	0.001	0.001
Parathion				
4 Day Average	0.013	0.013	0.013	0.013
1 Hour Average	0.066	0.066	0.066	0.066
PCB's				
4 Day Average	0.014	0.014	0.014	0.014
Pentachlorophenol (11)				
4 Day Average	15	15	15	15
1 Hour Average	19	19	19	19
Toxaphene				
4 Day Average	0.0002	0.0002	0.0002	0.0002
1 Hour Average	0.73	0.73	0.73	0.73
POLLUTION INDICATORS (11)				
Gross Beta (pCi/L)	50	50	50	50
BOD (MG/L)	5	5	5	5
Nitrate as N (MG/L)	4	4	4	
Total Phosphorus as P (MG/L) (12)	0.05	0.05		

FOOTNOTES:

(1) Not to exceed 110% of saturation.

(2) These limits are not applicable to lower water levels in deep impoundments. First number in column is for when early life stages are present, second number is for when all other life stages present.

(3) The temperature standard shall be at background where it can be shown that natural or un-alterable conditions prevent its attainment. In such cases rulemaking will be undertaken to modify the standard accordingly.

Site Specific Standards for Temperature

Ken's Lake: From June 1<sup>st</sup> - September 20<sup>th</sup>, 27 degrees C.

(4) Where criteria are listed as 4-day average and 1-hour average concentrations, these concentrations should not be exceeded more often than once every three years on the average.

(5) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by atomic absorption spectrophotometry or inductively coupled plasma (ICP).

(6) The criterion for aluminum will be implemented as follows: Where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO<sub>3</sub> in the receiving water after mixing, the 87 ug/l chronic criterion (expressed as total recoverable) will not apply, and aluminum will be regulated based on compliance with the 750 ug/l acute aluminum criterion (expressed as total recoverable).

(7) Hardness dependent criteria. 100 mg/l used. Conversion factors for ratio of total recoverable metals to dissolved metals must also be applied. In waters with a hardness greater than 400 mg/l as CaCO<sub>3</sub>, calculations will assume a hardness of 400 mg/l as CaCO<sub>3</sub>. See Table 2.14.3 for complete equations for hardness and conversion factors.

(8) Reserved

(9) The following equations are used to calculate Ammonia criteria concentrations:

(9a) The thirty-day average concentration of total ammonia nitrogen (in mg/l as N) does not exceed, more than once every three years on the average, the chronic criterion calculated using the following equations.

Fish Early Life Stages are Present:

$$\text{mg/l as N (Chronic)} = ((0.0577/1+10^{7.688-\text{pH}}) + (2.487/1+10^{\text{pH}-7.688})) \\ * \text{MIN}(2.85, 1.45*10^{0.028*(25-T)})$$

Fish Early Life Stages are Absent:

$$\text{mg/l as N (Chronic)} = ((0.0577/1+10^{7.688-\text{pH}}) + (2.487/1+10^{\text{pH}-7.688})) \\ * 1.45*10^{0.028*(25-\text{MAX}(T,7))}$$

(9b) The one-hour average concentration of total ammonia nitrogen (in mg/l as N) does not exceed, more than once every three years on the average the acute criterion calculated using the following equations.

Class 3A:

$$\text{mg/l as N (Acute)} = (0.275/(1+10^{7.204-\text{pH}})) + (39.0/1+10^{\text{pH}-7.204})$$

Class 3B, 3C, 3D:

$$\text{mg/l as N (Acute)} = 0.411/(1+10^{7.204-\text{pH}}) + (58.4/(1+10^{\text{pH}-7.204}))$$

In addition, the highest four-day average within the 30-day period should not exceed 2.5 times the chronic criterion. The "Fish Early Life Stages are Present" 30-day average total ammonia criterion will be applied by default unless it is determined by the Division, on a site-specific basis, that it

is appropriate to apply the "Fish Early Life Stages are Absent" 30-day average criterion for all or some portion of the year. At a minimum, the "Fish Early Life Stages are Present" criterion will apply from the beginning of spawning through the end of the early life stages. Early life stages include the pre-hatch embryonic stage, the post-hatch free embryo or yolk-sac fry stage, and the larval stage for the species of fish expected to occur at the site. The division will consult with the Division of Wildlife Resources in making such determinations. The Division will maintain information regarding the waterbodies and time periods where application of the "Early Life Stages are Absent" criterion is determined to be appropriate.

(10) Investigation should be conducted to develop more information where these levels are exceeded.

(11) pH dependent criteria. pH 7.8 used in table. See Table 2.14.4 for equation.

(12) Total Phosphorus as P (mg/l) indicator for lakes and reservoirs shall be 0.025.

(13) Formula to convert dissolved sulfide to un-disassociated hydrogen sulfide is:  $H_2S = \text{Dissolved Sulfide} * e^{((-1.92 + pH) + 12.05)}$

TABLE  
1-HOUR AVERAGE (ACUTE) CONCENTRATION OF  
TOTAL AMMONIA AS N (MG/L)

pH	Class 3A	Class 3B, 3C, 3D
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	0.89	1.32

TABLE  
30-DAY AVERAGE (CHRONIC) CONCENTRATION OF  
TOTAL AMMONIA AS N (MG/L)

Fish Early Life Stages Present

Temperature, C

pH	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.90
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.88	0.77
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.97	0.86	0.75	0.66
8.3	1.52	1.52	1.39	1.22	1.07	0.94	0.83	0.73	0.64	0.56
8.4	1.29	1.29	1.17	1.03	0.91	0.80	0.70	0.62	0.54	0.48
8.5	1.09	1.09	0.99	0.87	0.76	0.67	0.59	0.52	0.46	0.40
8.6	0.92	0.92	0.84	0.73	0.65	0.57	0.50	0.44	0.39	0.34
8.7	0.78	0.78	0.71	0.62	0.55	0.48	0.42	0.37	0.33	0.29
8.8	0.66	0.66	0.60	0.53	0.46	0.41	0.36	0.32	0.28	0.24
8.9	0.56	0.56	0.51	0.45	0.40	0.35	0.31	0.27	0.24	0.21
9.0	0.49	0.49	0.44	0.39	0.34	0.30	0.26	0.23	0.20	0.18

TABLE  
30-DAY AVERAGE (CHRONIC) CONCENTRATION OF  
TOTAL AMMONIA AS N (MG/L)

Fish Early Life Stages Absent

Temperature, C

pH	0-7	8	9	10	11	12	13	14	16
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.36	6.89	6.06
6.6	10.7	10.1	9.37	8.92	8.79	8.24	7.72	7.24	6.36
6.7	10.5	9.99	9.20	8.62	8.08	7.58	7.11	6.66	5.86
6.8	10.2	9.81	8.98	8.42	7.90	7.40	6.94	6.51	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.30

7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.601
8.9	0.917	0.860	0.806	0.758	0.709	0.664	0.623	0.584	0.513
9.0	0.790	0.740	.694	0.651	0.610	0.572	0.536	0.503	0.442
pH	18	20	22	24	26	28	30		
6.5	5.33	4.68	4.12	3.62	3.18	2.80	2.46		
6.6	5.25	4.61	4.05	3.56	3.13	2.75	2.42		
6.7	5.15	4.52	3.98	3.50	3.07	2.70	2.37		
6.8	5.03	4.42	3.89	3.42	3.00	2.64	2.32		
6.9	4.89	4.30	3.78	3.32	2.92	2.57	2.25		
7.0	4.72	4.15	3.65	3.21	2.82	2.48	2.18		
7.1	4.53	3.98	3.50	3.08	2.70	2.38	2.09		
7.2	4.41	3.78	3.33	2.92	2.57	2.26	1.99		
7.3	4.06	3.57	3.13	2.76	2.42	2.13	1.87		
7.4	3.78	3.32	2.92	2.57	2.26	1.98	1.74		
7.5	3.49	3.06	2.69	2.37	2.08	1.83	1.61		
7.6	3.18	2.79	2.45	2.16	1.90	1.67	1.47		
7.7	2.86	2.51	2.21	1.94	1.71	1.50	1.32		
7.8	2.54	2.23	1.96	1.73	1.52	1.33	1.17		
7.9	2.24	1.96	1.73	1.52	1.33	1.17	1.03		
8.0	0.94	1.71	1.50	1.32	1.16	1.02	0.897		
8.1	0.68	1.47	1.29	1.14	1.00	0.879	0.733		
8.2	0.43	1.26	1.11	0.073	0.855	0.752	0.661		
8.3	0.22	1.07	0.941	0.827	0.727	0.639	0.562		
8.4	0.03	0.906	0.796	0.700	0.615	0.541	0.475		
8.5	0.870	0.765	0.672	0.591	0.520	0.457	0.401		
8.6	0.735	0.646	0.568	0.499	0.439	0.396	0.339		
8.7	0.622	0.547	0.480	0.422	0.371	0.326	0.287		
8.8	0.528	0.464	0.408	0.359	0.315	0.277	0.244		
8.9	0.451	0.397	0.349	0.306	0.269	0.237	0.208		
9.0	0.389	0.342	0.300	0.264	0.232	0.204	0.179		

TABLE 2.14.3a

EQUATIONS TO CONVERT TOTAL RECOVERABLE METALS STANDARD  
WITH HARDNESS (1) DEPENDENCE TO DISSOLVED METALS STANDARD  
BY APPLICATION OF A CONVERSION FACTOR (CF).

Parameter      4-Day Average (Chronic)  
Concentration (UG/L)

CADMIUM	$CF * e^{(0.7409 (\ln(\text{hardness})) - 4.719)}$ $CF = 1.101672 - (\ln \text{hardness}) (0.041838)$
CHROMIUM III	$CF * e^{(0.8190(\ln(\text{hardness})) + 0.6848)}$ $CF = 0.860$
COPPER	$CF * e^{(0.8545(\ln(\text{hardness})) - 1.702)}$ $CF = 0.960$
LEAD	$CF * e^{(1.273(\ln(\text{hardness})) - 4.705)}$ $CF = 1.46203 - (\ln \text{hardness}) (0.145712)$
NICKEL	$CF * e^{(0.8460(\ln(\text{hardness})) + 0.0584)}$ $CF = 0.997$
SILVER	N/A
ZINC	$Cf * e^{(0.8473(\ln(\text{hardness})) + 0.884)}$ $CF = 0.986$

TABLE 2.14.3b

EQUATIONS TO CONVERT TOTAL RECOVERABLE METALS STANDARD  
WITH HARDNESS (1) DEPENDENCE TO DISSOLVED METALS STANDARD  
BY APPLICATION OF A CONVERSION FACTOR (CF).

Parameter	1-Hour Average (Acute) Concentration (UG/L)
CADMIUM	$CF * e^{(1.0166(\ln(\text{hardness})) - 3.924)}$ $CF = 1.136672 - (\ln \text{hardness}) (0.041838)$
CHROMIUM (III)	$CF * e^{(0.8190(\ln(\text{hardness})) + 3.7256)}$ $CF = 0.316$
COPPER	$CF * e^{(0.9422(\ln(\text{hardness})) - 1.700)}$ $CF = 0.960$
LEAD	$CF * e^{(1.273(\ln(\text{hardness})) - 1.460)}$ $CF = 1.46203 - (\ln \text{hardness}) (0.145712)$
NICKEL	$CF * e^{(0.8460(\ln(\text{hardness})) + 2.255)}$ $CF = 0.998$
SILVER	$CF * e^{(1.72(\ln(\text{hardness})) - 6.59)}$ $CF = 0.85$
ZINC	$CF * e^{(0.8473(\ln(\text{hardness})) + 0.884)}$ $CF = 0.978$

FOOTNOTE:

(1) Hardness as mg/l CaCO<sub>3</sub>.

TABLE 2.14.4

EQUATIONS FOR PENTACHLOROPHENOL  
(pH DEPENDENT)

4-Day Average (Chronic)  
Concentration (UG/L)

$$e^{(1.005(\text{pH}) - 5.134)}$$

1-Hour Average (Acute)  
Concentration (UG/L)

$$e^{(1.005(\text{pH}) - 4.869)}$$

TABLE 2.14.5  
SITE SPECIFIC CRITERIA FOR  
DISSOLVED OXYGEN FOR JORDAN RIVER AND SURPLUS CANAL SEGMENTS  
(SEE SECTION 2.13)

DISSOLVED OXYGEN:

May-July	
7-day average	5.5 mg/l
30-day average	5.5 mg/l
Instantaneous minimum	4.5 mg/l
August-April	
30-day average	5.5 mg/l
Instantaneous minimum	4.0 mg/l

TABLE 2.14.6  
LIST OF HUMAN HEALTH CRITERIA (CONSUMPTION)

Chemical Parameter	Water and Organism
	Organism Only
(ug/L)	(ug/L)
Class 1C	Class 3A, 3B, 3C, 3D
Antimony	640
Arsenic	A
Beryllium	C
Cadmium	C
Chromium III	C
Chromium VI	C
Copper	
Lead	C
Mercury	A
Nickel	4,600
Selenium	4,200
Silver	
Thallium	0.47
Zinc	26,000
Cyanide	140
Asbestos	
	7 million Fibers/L
2,3,7,8-TCDD Dioxin	5.1 E-9 B
Acrolein	290
Acrylonitrile	0.25 B
Alachlor	2.0
Atrazine	3.0

Benzene	2.2 B	51 B
Bromoform	4.3 B	140 B
Carbofuran	40	
Carbon Tetrachloride	0.23 B	1.6 B
Chlorobenzene	100 MCL	1,600
Chlorodibromomethane	0.40 B	13 B
Chloroethane		
2-Chloroethylvinyl Ether		
Chloroform	5.7 B	470 B
Dalapon	200	
Di(2ethylhexyl)adipate	400	
Dibromochloropropane	0.2	
Dichlorobromomethane	0.55 B	17 B
1,1-Dichloroethane		
1,2-Dichloroethane	0.38 B	37 B
1,1-Dichloroethylene	7 MCL	7,100
Dichloroethylene (cis-1,2)	70	
Dinoseb	7.0	
Diquat	20	
1,2-Dichloropropane	0.50 B	15 B
1,3-Dichloropropene	0.34	21
Endothall	100	
Ethylbenzene	530	2,100
Ethylene Dibromide	0.05	
Glyphosate	700	
Haloacetic acids	60 E	
Methyl Bromide	47	1,500
Methyl Chloride	F	F
Methylene Chloride	4.6 B	590 B
Ocamyl (vidate)	200	
Picloram	500	
Simazine	4	
Styrene	100	
1,1,2,2-Tetrachloroethane	0.17 B	4.0 B
Tetrachloroethylene	0.69 B	3.3 B
Toluene	1,000	15,000
1,2 -Trans-Dichloroethylene	100 MCL	10,000
1,1,1-Trichloroethane	200 MCL	F
1,1,2-Trichloroethane	0.59 B	16 B
Trichloroethylene	2.5 B	30 B
Vinyl Chloride	0.025	2.4
Xylenes	10,000	
2-Chlorophenol	81	150
2,4-Dichlorophenol	77	2902,4-Dimethylphenol
380	850	
2-Methyl-4,6-Dinitrophenol	13.0	280
2,4-Dinitrophenol	69	5,300
2-Nitrophenol		
4-Nitrophenol		
3-Methyl-4-Chlorophenol		
Penetachlorophenol	0.27 B	3.0 B
Phenol	21,000	1,700,000
2,4,6-Trichlorophenol	1.4 B	2.4 B
Acenaphthene	670	990

Acenaphthylene			40,000
Anthracene	8,300		
Benzidine	0.000086 B		0.00020 B
BenzoaAnthracene	0.0038 B		0.018 B
BenzoaPyrene	0.0038 B		0.018 B
BenzobFluoranthene	0.0038 B		0.018 B
BenzoghiPerylene			
BenzokFluoranthene	0.0038 B		0.018 B
Bis2-ChloroethoxyMethane			
Bis2-ChloroethylEther	0.030 B		0.53 B
Bis2-ChloroisopropylEther	1,400		65,000
Bis2-EthylhexylPhthalate	1.2 B		2.2 B
4-Bromophenyl Phenyl Ether			
Butylbenzyl Phthalate	1,500		1,900
2-Chloronaphthalene	1,000		1,600
4-Chlorophenyl Phenyl Ether			
Chrysene	0.0038 B		0.018 B
Dibenzoa, hAnthracene	0.0038 B		0.018 B
1,2-Dichlorobenzene	420		1,300
1,3-Dichlorobenzene	320		960
1,4-Dichlorobenzene	63		190
3,3-Dichlorobenzidine	0.021 B		0.028 B
Diethyl Phthalate	17,000		44,000
Dimethyl Phthalate	270,000		1,100,000
Di-n-Butyl Phthalate	2,000		4,500
2,4-Dinitrotoluene	0.11 B		3.4 B
2,6-Dinitrotoluene			
Di-n-Octyl Phthalate			
1,2-Diphenylhydrazine	0.036 B		0.20 B
Fluoranthene	130	140	
Fluorene	1,100		5,300
Hexachlorobenzene	0.00028 B		0.00029 B
Hexachlorobutedine	0.44 B		18 B
Hexachloroethane	1.4 B		3.3 B
Hexachlorocyclopentadiene	40		1,100
Ideno 1,2,3-cdPyrene	0.0038 B		0.018 B
Isophorone	35 B		960 B
Naphthalene			
Nitrobenzene	17		690
N-Nitrosodimethylamine	0.00069 B		3.0 B
N-Nitrosodi-n-Propylamine	0.005 B		0.51 B
N-Nitrosodiphenylamine	3.3 B		6.0 B
Phenanthrene			
Pyrene	830		4,000
1,2,4-Trichlorobenzene	35		70
Aldrin	0.000049 B		0.000050 B
alpha-BHC	0.0026 B		0.0049 B
beta-BHC	0.0091 B		0.017 B
gamma-BHC (Lindane)	0.2 MCL		1.8
delta-BHC			
Chlordane	0.00080 B		0.00081 B
4,4-DDT	0.00022 B		0.00022 B
4,4-DDE	0.00022 B		0.00022 B
4,4-DDD	0.00031 B		0.00031 B

Dieldrin	0.000052 B	0.000054 B
alpha-Endosulfan	62	89
beta-Endosulfan	62	89
Endosulfan Sulfate	62	89
Endrin	0.059	0.060
Endrin Aldehyde	0.29	0.30
Heptachlor	0.000079 B	0.000079 B
Heptachlor Epoxide	0.000039 B	0.000039 B
Polychlorinated Biphenyls	0.000064 B,D	0.000064 B,D
PCB's		
Toxaphene	0.00028 B	0.00028 B

Footnotes:

- A. See Table 2.14.2
- B. Based on carcinogenicity of 10<sup>-6</sup> risk.
- C. EPA has not calculated a human criterion for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using the State's existing narrative criteria for toxics
- D. This standard applies to total PCBs.

KEY: water pollution, water quality standards  
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