ANNEX A

TITLE 25. ENVIRONMENTAL PROTECTION
PART I. DEPARTMENT OF ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE II. WATER RESOURCES

CHAPTER 93. WATER QUALITY STANDARDS

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§ 93.1. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

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Clean Water Act—The Federal Water Pollution Control Act (33 U.S.C.A. §§ 1251-1376).

***Conventional treatment*—conventional filtration in a treatment process that uses separate, sequential units for coagulation/flocculation, clarification, and granular media filtration to produce finished water for drinking.**

* * * * *

Thirty-day average—The arithmetic average of the samples collected during a consecutive 30-day period.

Toxic substance—A chemical or compound in sufficient quantity or concentration which is, or may become, harmful to human, animal or plant life. The term includes, but is not limited to, priority pollutants and those substances**,** which are identified in **Tables 5 and 6 of this Chapter**. **Additional toxic substances are also described in** Chapter 16 **Appendix A,Table 1** (relating to **site-specific** water quality **criteria for** toxic **substances [** management strategy—statement of policy **]**).

***Water Effect Ratio* (*WER*) — a factor that expresses the difference between the measures of the toxicity of a substance in laboratory water and the toxicity in site water. The WER provides a mechanism to account for that portion of a metal that is toxic under certain physical, chemical or biological conditions.**

Water quality criteria—Numeric concentrations, levels or surface water conditions that need to be maintained or attained to protect existing and designated uses.

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§ 93.3. Protected water uses.

Water uses which shall be protected, and upon which the development of water quality criteria shall be based, are set forth, accompanied by their identifying symbols, in Table 1:

TABLE 1

Symbol	*Protected Use*
Aquatic Life	
	* * * * *
MF	*Migratory Fishes*—Passage, maintenance and propagation of anadromous and catadromous fishes and other fishes which **[ascend] move** to **or from** flowing waters to complete their life cycle **in other waters**.
	* * * * *
Water Supply	
	* * * * *
IRS	*Irrigation*—Used to supplement precipitation for **[growing crops] crop**

production, maintenance of golf courses and athletic fields, and other commercial horticultural activities.

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§ 93.7. Specific water quality criteria.

(a) Table 3 displays specific water quality criteria and associated critical uses. The criteria associated with the Statewide water uses listed in § 93.4, Table 2 apply to all surface waters, unless a specific exception is indicated in §§ 93.9a—93.9z. Other specific water quality criteria apply to surface waters as specified in §§ 93.9a—93.9z. All applicable criteria shall be applied in accordance with this chapter, Chapter 96 (relating to water quality standards implementation) and other applicable State and Federal laws and regulations.

TABLE 3

Parameter	*Symbol*	*Criteria*	*Critical Use**
		* * * * *	
Ammonia Nitrogen	Am	The maximum total ammonia nitrogen concentration **(in mg/L)** at all times shall be the numerical value given by: un-ionized ammonia nitrogen (NH_3-N) x ($\log^{-1}[pK_T\text{-}pH] + 1$), where:	**[1] CWF, WWF, TSF, MF**
		* * * * *	

*Critical **[u]U**se: The most sensitive designated or existing use the criteria are designed to protect. **Other intervening, more sensitive uses may apply at a given location on the waterbody.**

(b) Table 4 contains specific water quality criteria that apply to the water uses to be protected. When the symbols listed in Table 4 appear in the Water Uses Protected column in §**§** 93.9**a – 93.9z**, they have the meaning listed in the second column of Table 4. Exceptions to these standardized groupings will be indicated on a stream-by-stream or segment-by-segment basis by the words ‘‘Add’’ or ‘‘Delete’’ followed by the appropriate symbols described elsewhere in this chapter.

* * * * *

(d) If the Department determines that natural quality of a surface water segment is of lower quality than the applicable aquatic life criteria in Table 3, **5 or Chapter 16, Appendix A Table 1**, the natural quality shall constitute the aquatic life criteria for that segment. All draft natural quality determinations shall be published in the *Pennsylvania Bulletin* and be subject to a minimum 30-day comment period. The Department will maintain a publicly available list of surface waters and parameters where this subsection applies, and shall, from time to time, submit appropriate amendments to §§ 93.9a—93.9z.

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[§ 93.8. Development of site-specific water quality criteria.

(a) The Department will consider a request for site-specific criteria for protection of aquatic life, human health or wildlife when a person demonstrates that there exist site-specific biological or chemical conditions of receiving waters which differ from conditions upon which the water quality criteria were based. Site-specific criteria may be developed for use only in place of current Statewide or regional (such as the Great Lakes systems) criteria. The request for site-specific criteria shall include the results of scientific studies for the purpose of:

(1) Defining the areal boundaries for application of the site-specific criteria which will include the potentially affected wastewater dischargers identified by the Department, through various means, including, but not limited to, the total maximum daily load (TMDL) process described in Chapter 96 (relating to water quality standards implementation) or biological assessments.

(2) Developing site-specific criteria which protect its existing use and designated use.

(b) Scientific studies shall be performed in accordance with the procedures and guidance in the Water Quality Standards Handbook (EPA 1994), as amended and updated, guidance provided by the Department or other scientifically defensible methodologies approved by the Department.

(c) Prior to conducting studies specified in subsections (a) and (b), a proposed plan of study shall be submitted to and approved by the Department.

(d) Signed copies of all reports including toxicity test data shall be submitted to the Department within 30 days of completion of the tests.

(e) If as a result of its review of the report submitted, the Department determines that a site-specific criterion is appropriate, the Department will, for site-specific changes to criteria in § 93.7 (relating to specific water quality criteria), prepare a recommendation to the EQB in the form of proposed rulemaking, incorporating that criterion for the water body segment. The site-specific changes to the criteria will become effective for the water body segment following adoption by the EQB as final rulemaking and publication in the *Pennsylvania Bulletin*.

(f) A person challenging a Department action under this section shall have the burden of proof to demonstrate that the Department's action does not meet the requirements of this section.]

§ 93.8[a]. <u>Water Quality Criteria for</u> Toxic substances.

(a) The waters of this Commonwealth may not contain toxic substances attributable to point or nonpoint source waste discharges in concentrations or amounts that are inimical to the water uses to be protected.

(b) Water quality criteria for toxic substances shall be established **as described** under Chapter 16 (relating to water quality toxics management strategy—statement of policy) **[wherein]. The Department will develop water quality criteria for toxics not listed in Chapter 93, Table 5 in accordance with § 93.8c and Chapter 16. Appendix A, Table 1 in Chapter 16 lists site-specific human health and aquatic life criteria that have been recently developed or adopted by the Department based on approved methodologies and the best scientific information currently available. [t]T**he **[**criteria and**]** approved EPA analytical procedures and detection limits for these substances will also be listed **in Chapter 16 (relating to water quality toxics management strategy—statement of policy).** Chapter 16**,** along with changes made to it**,** is hereby specifically incorporated by reference.

(c) Water quality criteria for toxic substances which exhibit threshold effects will be established by application of margins of safety to the results of toxicity testing to prevent the occurrence of a threshold effect.

* * * * *

(h) **[At intervals not exceeding 1 year, the]The** Department will **periodically, but at least once every 3 years, review, revise as necessary, and** publish **[a]** new or revised water quality criteria for toxic substances, and revised procedures for criteria development in the *Pennsylvania Bulletin*.

* * * * *

(j) The requirements for discharges to and antidegradation requirements for the Great Lakes System are as follows:

* * * * *

(3) Statewide antidegradation requirements in this **[c]C**hapter and Chapter **[95(relating to water quality standards; and wastewater treatment requirements)] 96 (relating to water quality standards implementation)** and in the Federal regulation in 40 CFR 131.32(a) (relating to Pennsylvania) as applicable, apply to all surface waters of the Great Lakes System.

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§ 93.8a. Metals criteria.

Dissolved criteria are footnoted in Table 5, and have been developed by applying the most current EPA conversion factors to the total recoverable criteria. The EPA factors are listed in the following Conversion Factors Table.

Conversion Factors Table

	Chronic	*Acute*	*Source*
Arsenic	1.000 (As3+)	1.000 (As3+)	1,2
Cadmium	1.101672- (ln[H]x0.041838)	1.136672- (ln[H]x0.041838)	2
Chromium VI	0.962	0.982	1,2
Copper	0.960	0.960	1,2
Lead*		1.46203-(ln[H]x0.145712	
Mercury	0.85	0.85	1,2
Nickel	0.997	0.998	1,2
Selenium	0.922	0.922	1
Silver	NA	0.85	2
Zinc	0.986	0.978	1,2

***Conversion factor applies to both acute and chronic criteria.**

Source 1—Final Water Quality Guidance for the Great Lakes System (60 FR 15366, March 23, 1995)

Source 2—Establishment of Numeric Criteria for Priority Pollutants; Revision of Metals Criteria-Interim Final Rule (60 FR 22229, May 4, 1995)

§ 93.8b. Human health and aquatic life criteria for toxic substances.

(a) Table 5 and Chapter 16, Appendix A Table 1 list the aquatic life and human health criteria for toxic substances which the Department uses in development of effluent limitations in NPDES Permits and for other purposes. The human health criteria, which include probable modes of exposure (such as, but not limited to ingestion from drinking water and fish consumption, inhalation, and dermal absorption), are further defined as to the specific effect (that is, cancer or threshold health effects). For those aquatic life criteria which are hardness related and specified as a formula, such as several of the heavy metals, the Department will use the specific hardness of the receiving stream after mixing with the waste discharge in calculating criteria on a case-by-case basis. The priority pollutant numbers (PP NO) used by the EPA to identify priority pollutants are included in Table 5 for reference purposes. The toxics without a PP NO are non-priority pollutants and state derived criteria.

(b) Some of these criteria may be superseded for the Delaware Estuary, Ohio River Basin, Lake Erie Basin, and Genesee River Basin under interstate and international compact agreements with the Delaware River Basin Commission, Ohio River Valley Sanitation Commission and International Joint Commission, respectively. The criteria in Table 5 do not apply to the Great Lakes System. Water quality criteria for the Great Lakes System are contained in § 93.8d and Table 6 (relating to special provisions for the Great Lakes System). Criteria may be developed for the Great Lakes System for substances other than

those listed in § 93.8d under the methodologies in §16.61 ***(relating to water quality criteria for the Great Lakes system).***

TABLE 5

WATER QUALITY CRITERIA FOR TOXIC SUBSTANCES

			Fish and Aquatic Life Criteria			
PP NO	***Chemical Name***	***CAS Number***	***Criteria Continuous Concentrations (ug/L)***	***Criteria Maximum Concentration (ug/L)***	***Human Health Criteria (ug/L)***	
1M	ANTIMONY	07440360	220	1100	5.6	H
2M	ARSENIC	07440382	150 (As3+)	340 (As3+)	10	H
3M	BERYLLIUM	07440417	N/A	N/A	N/A	-
4M	CADMIUM	07440439	*{1.101672-(ln[H]x0.041838)}x Exp(0.7409xln[H]-4.719) (ex: @H=100, CCC=0.25)	*{1.136672-(ln[H]x0.041838)}x Exp(1.0166xln[H]-3.924) (ex: @H=100, CMC=2.0)	N/A	-
5M	CHROMIUM III	16065831)	*0.860xExp(0.819xln[H]+0.6848) (ex: @H=100, CCC=74)	*0.316Exp(0.819xln[H]+3.7256) (ex: @H=100, CMC=570)	N/A	-
5M	CHROMIUM VI	18540299	*10	*16	N/A	-
6M	COPPER	07440508	*0.960xExp(0.8545xln[H]-1.702) (ex: @H=100, CCC=9.0)	*0.960xExp(0.9422xln[H]-1.700) (ex: @H=100, CMC=13)	N/A	-
7M	LEAD	07439921	*{1.46203-(ln[H]x0.145712)}x Exp(1.273xln[H]-4.705) (ex: @H=100, CCC=2.5)	*{1.46203-(ln[H]x0.145712)}x Exp(1.273xln[H]-1.460) (ex: @H=100, CMC=65)	N/A	-
8M	MERCURY	07439976	*0.77 (Hg2+)	*1.4 (Hg2+)	0.05	H
9M	NICKEL	07440020	*0.997xExp(0.846xln[H]+0.0584) (ex: @H=100, CCC=52)	*0.998xExp(0.846xln[H]+2.255) (ex: @H=100, CMC=470)	610	H
10M	SELENIUM	07782492	*4.6	N/A	N/A	-
11M	SILVER	07440224	N/A	*0.850xExp(1.72xln[H]-6.590) (ex: @H=100, CMC=3.2)	N/A	-
12M	THALLIUM	07440280	13	65	.24	H
13M	ZINC	07440666	*0.986xExp(0.8473xln[H]+0.884) (ex: @H=100, CCC=120)	*0.978xExp(0.8473xln[H]+0.884) (ex: @H=100, CMC=120)	N/A	
14M	CYANIDE, FREE	00057125	5.2	22	140	H
1A	2-CHLOROPHENOL	00095578	110	560	81	H
2A	2,4-DICHLORO-PHENOL	00120832	340	1700	77	H
3A	2,4-DIMETHYL-	00105679	130	660	380	H

	PHENOL					
4A	**4,6-DINITRO-o-CRESOL**	**00534521**	**16**	**80**	**13**	**H**
5A	**2,4-DINITRO-PHENOL**	**00051285**	**130**	**660**	**69**	**H**
6A	**2-NITROPHENOL**	**00088755**	**1600**	**8000**	**N/A**	**-**
7A	**4-NITROPHENOL**	**00100027**	**470**	**2300**	**N/A**	**-**
8A	**P-CHLORO-m-CRESOL**	**00059507**	**30**	**160**	**N/A**	**-**
9A	**PENTACHLORO-PHENOL**	**00087865**	**Exp(1.005x[pH]-5.134)**	**Exp(1.005x[pH]-4.869)**	**0.27**	**CRL**
			@pH= 6.5 7.8 9.0	**@pH= 6.5 7.8 9.0**		
			Crit= 4.1 15 50	**Crit= 5.3 19 65**		
10A	**PHENOL**	**00108952**	**N/A**	**N/A**	**21000**	**H**
11A	**2,4,6-TRICHLORO-PHENOL**	**00088062**	**91**	**460**	**1.4**	**CRL**
1V	**ACROLEIN**	**00107028**	**1**	**5**	**190**	**H**
2V	**ACRYLONITRILE**	**00107131**	**130**	**650**	**0.051**	**CRL**
3V	**BENZENE**	**00071432**	**130**	**640**	**1.2**	**CRL**
5V	**BROMOFORM**	**00075252**	**370**	**1800**	**4.3**	**CRL**
6V	**CARBON TETRACHLORIDE**	**00056235**	**560**	**2800**	**0.23**	**CRL**
7V	**CHLORO-BENZENE**	**00108907**	**240**	**1200**	**130**	**H**
8V	**CHLORODIBRO-MO-METHANE**	**00124481**	**N/A**	**N/A**	**0.40**	**CRL**
9V	**CHLOROETHANE**	**00075003**	**N/A**	**N/A**	**N/A**	**-**
10V	**2-CHLOROETHYL VINYL ETHER**	**00110758**	**3500**	**18,000**	**N/A**	**-**
11V	**CHLOROFORM**	**00067663**	**390**	**1900**	**5.7**	**CRL**
12V	**DICHLOROBRO-MO- METHANE**	**00075274**	**N/A**	**N/A**	**0.55**	**CRL**
14V	**1,1-DICHLORO-ETHANE**	**00075343**	**N/A**	**N/A**	**N/A**	**-**
15V	**1,2-DICHLORO-ETHANE**	**00107062**	**3100**	**15,000**	**0.38**	**CRL**
16V	**1,1-DICHLORO-ETHYLENE**	**00075354**	**1500**	**7500**	**33.0**	**H**
17V	**1,2-DICHLORO-PROPANE**	**00078875**	**2200**	**11,000**	**N/A**	**-**
18V	**1,3-DICHLORO-PROPYLENE**	**00542756**	**61**	**310**	**.034**	**CRL**
19V	**ETHYLBENZENE**	**00100414**	**580**	**2900**	**530**	**H**
20V	**METHYL BROMIDE**	**00074839**	**110**	**550**	**47**	**H**

21V	METHYL CHLORIDE	0074873	5500	28,000	N/A	-
22V	METHYLENE CHLORIDE	00075092	2400	12,000	4.6	CRL
23V	1,1,2,2-TETRA-CHLOROETHANE	00079345	210	1000	0.17	CRL
24V	TETRACHLORO-ETHYLENE	00127184	140	700	0.69	CRL
25V	TOLUENE	00108883	330	1700	1300	H
26V	1,2-trans-DICHLORO-ETHYLENE	00156605	1400	6800	140	H
27V	1,1,1-TRICHLORO-ETHANE	00071556	610	3000	N/A	
28V	1,1,2-TRICHLORO-ETHANE	00079005	680	3400	0.59	CRL
29V	TRICHLORO-ETHYLENE	00079016	450	2300	2.5	CRL
31V	VINYL CHLORIDE	00075014	N/A	N/A	.025	CRL
1B	ACENAPHTHENE	00083329	17	83	670	H
2B	ACENAPHTHYLENE	00208968	N/A	N/A	N/A	-
3B	ANTHRACENE	00120127	N/A	N/A	8300	H
4B	BENZIDINE	00092875	59	300	0.000086	CRL
5B	BENZO(a)-ANTHRACENE	00056553	0.1	0.5	0.0038	CRL
6B	BENZO(a)PYRENE	00050328	N/A	N/A	0.0038	CRL
7B	3,4-BENZO-FLUORANTHENE	00205992	N/A	N/A	0.0038	CRL
8B	BENZO(ghi)-PERYLENE	00191242	N/A	N/A	N/A	-
9B	BENZO(k)-FLUORANTHENE	00207089	N/A	N/A	0.0038	CRL
10B	BIS(2-CHLORO-ETHOXY)METHANE	00111911	N/A	N/A	N/A	-
11B	BIS(2-CHLORO-ETHYL)ETHER	00111444	6000	30,000	0.030	CRL
12B	BIS(2-CHLORO-ISOPROPYL)ETHER	[39638329] 108-60-1	N/A	N/A	1400	H
13B	BIS(2-ETHYL-HEXYL)PHTHALATE	00117817	910	4500	1.2	CRL
14B	4-BROMOPHENYL PHENYL ETHER	00101553	54	270	N/A	-
15B	BUTYLBENZYL PHTHALATE	00085687	35	140	150	H
16B	2-CHLORO-NAPHTHALENE	00091587	N/A	N/A	1000	H

17B	4-CHLORO-PHENYL PHENYL ETHER	07005723	N/A	N/A	N/A	-
18B	CHRYSENE	00218019	N/A	N/A	0.0038	CRL
19B	DIBENZO(a,h)-ANTHRACENE	00053703	N/A	N/A	0.0038	CRL
20B	1,2-DICHLORO-BENZENE	00095501	160	820	420 for dichloro-benzene	H
21B	1,3-DICHLORO-BENZENE	00541731	69	350	See 20B	H
22B	1,4-DICHLORO-BENZENE	00106467	150	730	See 20B	H
23B	3,3-DICHLORO-BENZIDINE	00091941	N/A	N/A	.021	CRL
24B	DIETHYL PHTHALATE	00084662	800	4000	17000	H
25B	DIMETHYL PHTHALATE	00131113	500	2500	270000	H
26B	DI-N-BUTYL PHTHALATE	00084742	21	110	2000	H
27B	2,4-DINITRO-TOLUENE	00121142	320	1600	0.05 for dinitro-toluene	CRL
28B	2,6-DINITRO-TOLUENE	00606202	200	990	See 27B	CRL
29B	DI-N-OCTYL PHTHALATE	00117840	N/A	N/A	N/A	-
30B	1,2-DIPHENYL-HYDRAZINE	00122667	3	15	.036	CRL
31B	FLUORANTHENE	00206440	40	200	130	H
32B	FLUORENE	00086737	N/A	N/A	1100	H
33B	HEXACHLORO-BENZENE	00118741	N/A	N/A	0.00028	CRL
34B	HEXACHLORO-BUTADIENE	00087683	2	10	0.44	CRL
35B	HEXACHLORO-CYCLOPENTADIENE	00077474	1	5	40	H
36B	HEXACHLORO-ETHANE	00067721	12	60	1.4	CRL
37B	INDENO(1,2,3-cd)PYRENE	00193395	N/A	N/A	.0038	CRL
38B	ISOPHORONE	00078591	2100	10,000	35	H
39B	NAPHTHALENE	00091203	43	140	N/A	-
40B	NITROBENZENE	00098953	810	4000	17	H
41B	N-NITROSO-	00062759	3400	17,000	0.00069	CRL

	DIMETHYLAMINE					
42B	N-NITROSODI-N-PROPYLAMINE	00621647	N/A	N/A	0.005	CRL
43B	N-NITROSO-DIPHENYLAMINE	00086306	59	300	3.3	CRL
44B	PHENANTHRENE	00085018	1	5	N/A	-
45B	PYRENE	00129000	N/A	N/A	830	H
46B	1,2,4-TRICHLORO-BENZENE	00120821	26	130	35	H
1P	ALDRIN	00309002	0.1	3	0.000049	CRL
2P	alpha-BHC	00319846	N/A	N/A	0.0026	CRL
3P	beta-BHC	00319857	N/A	N/A	.0091	CRL
4P	gamma-BHC (LINDANE)	00058899	N/A	0.95	0.098	H
5P	delta-BHC	00319868	N/A	N/A	N/A	-
6P	CHLORDANE	00057749	0.0043	2.4	0.00080	CRL
7P	4,4-DDT	00050293	0.001	1.1	.00022	CRL
8P	4,4-DDE	00072559	0.001	1.1	.00022	CRL
9P	4,4-DDD	00072548	0.001	1.1	.00031	CRL
10P	DIELDRIN	00060571	0.056	0.24	.000052	CRL
11P	alpha-ENDOSUL-FAN	00959988	0.056	0.22	62 for endosulfan	H
12P	beta-ENDOSULFAN	33213659	0.056	0.22	See 11P	H
13P	ENDOSULFAN SULFATE	01031078	N/A	N/A	N/A	-
14P	ENDRIN	00072208	0.036	0.086	.059	H
15P	ENDRIN ALDEHYDE	07421934	N/A	N/A	0.29	-
16P	HEPTACHLOR	00076448	0.0038	0.52	.000079	CRL
17P	HEPTACHLOR EPOXIDE	01024573	0.0038	0.5	.000039	CRL
18P	PCB		0.014	N/A	0.000064 for PCBs	CRL
25P	TOXAPHENE	08001352	0.0002	0.73	0.00028	CRL
PP	2,3,7,8-TCDD	01746016	N/A	N/A	5.0 E-9	CRL
—	ACETONE	00067641	86,000	450,000	3500	H
—	ALUMINUM	07429905	N/A	750	N/A	-
—	BARIUM	07440393	4100	21,000	2400	H
—	BORON	07440428	1600	8100	3100	H
—	COBALT	07440484	19	95	N/A	-
—	p-CRESOL	00106445	160	800	N/A	-
—	DIAZINON	333415	0.17	0.17	N/A	-
—	FORMALDEHYDE	00050000	440	2200	700	H

—	2-HEXANONE	00591786	4300	21,000	N/A	-
—	LITHIUM	07439932	N/A	N/A	N/A	-
—	METHYLETHYL KETONE	00078933	32,000	230,000	21,000	H
—	METHYLISO-BUTYL KETONE	00108101	5000	26,000	N/A	-
—	METOLACHLOR	51218452	NA	NA	69	H
—	MOLYBDENUM	07439987	NA	NA	210	H
—	I-PROPANOL	00071238	46,000	230,000	N/A	-
—	2-PROPANOL	00067630	89,000	440,000	N/A	-
—	1,2,3-TRICHLORO-PROPANE	00096184	N/A	N/A	210	H
—	VANADIUM	07440622	100	510	N/A	-
—	XYLENE	01330207	210	1100	70,000	H

Acronyms and Footnotes to Table 5

*** Indicates dissolved metal criterion; others are total recoverable metals. Each listed dissolved criterion in Table 5 is equal to the corresponding total recoverable criterion before rounding (from the EPA National Ambient Water Quality Criteria Documents) multiplied by the conversion factor (from the Conversions Factors Table); a criterion that is expressed as a hardness (H)-based equation is shown in Table 5 as the conversion factor (listed) multiplied by the hardness criterion equation; an example criterion at hardness=100mg/L is included.**

CAS—Chemical Abstract Service number

CRL—Cancer risk level at 1 x 10^{-6}

H—Threshold effect human health criterion; incorporates additional uncertainty factor for some Group C carcinogens.

ln[H]—Natural Logarithm of the Hardness of stream as mg/l $CaCO_3$

µg/L –Micrograms per liter

N/A—Criterion not developed

PP NO—Priority Pollutant Number

§ 93.8c. Development of site-specific water quality criteria.

(a) The Department will consider a request for site-specific criteria for protection of aquatic life, human health or wildlife when a person demonstrates that there exist site-specific biological or chemical conditions of receiving waters which differ from conditions

upon which the water quality criteria were based. Site-specific criteria may be developed for use only in place of current Statewide or regional (such as the Great Lakes systems) criteria. The request for site-specific criteria shall include the results of scientific studies for the purpose of:

(1) Defining the areal boundaries for application of the site-specific criteria which will include the potentially affected wastewater dischargers identified by the Department, through various means, including, but not limited to, the total maximum daily load (TMDL) process described in Chapter 96 (relating to water quality standards implementation) or biological assessments.

(2) Developing site-specific criteria which protect its existing use and designated use.

(b) Scientific studies shall be performed in accordance with the procedures and guidance in the Water Quality Standards Handbook (EPA 1994), including "Guidance on the Determination and Use of Water-Effect Ratios for Metals" (February 1994) and with the Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), as amended and updated. Other guidance approved by the Department, which is based on other EPA approved or scientifically defensible methodologies, may be used. The water effect ratio (WER) study may be conducted, based on either total recoverable or dissolved criteria, depending on the form of the criterion.

(c) Prior to conducting studies specified in subsections (a) and (b), a proposed plan of study shall be submitted to the Department for review, consideration and approval.

(d) Signed copies of all reports including toxicity test data shall be submitted to the Department within 60 days of completion of the tests.

(e) If, as a result of its review of the report submitted to satisfy a request, the Department determines that a site-specific criterion for a toxic substance is appropriate, the Department will publish the site-specific criterion in the *Pennsylvania Bulletin*, along with other special conditions under § 92.61(a)(5) (relating to public notice of permit application and public hearing), and in Chapter 16 Appendix A, Table 1. Changes listed in Appendix A, Table 1 will be promulgated through a formal rulemaking process as part of a triennial review or other rulemaking. If, as a result of its review of the report submitted to satisfy a request, the Department determines that a site-specific criterion for a parameter listed in § 93.7 (relating to specific water quality criteria) is appropriate, the Department will prepare a recommendation to the EQB in the form of proposed rulemaking, incorporating that criterion for the water body segment. A change to the criterion for a parameter listed in § 93.7 will become effective following adoption by the EQB as final rulemaking and publication in the *Pennsylvania Bulletin*.

(f) A person challenging a Department action under this section shall have the burden of proof to demonstrate that the Department's action does not meet the requirements of this section.

§ 93.8d. Special criteria for the Great Lakes System.

(a) The following special provisions shall apply for the Great Lakes System, which includes the streams, rivers, lakes and other bodies of surface water within the drainage basin of the Great Lakes in this Commonwealth:

(b) *Water quality criteria for the Great Lakes System.* Human health and aquatic life criteria for the Great Lakes System are contained in Table 6. For any pollutant not listed in the table, criteria to protect existing and designated uses will be developed by the Department, as needed in accordance with this Chapter and Chapter 16.

TABLE 6
GREAT LAKES AQUATIC LIFE AND HUMAN HEALTH CRITERIA

			Fish and Aquatic Life Criteria			
PP NO	*Chemical Name*	*CAS Number*	*Criteria Continuous Concentrations (ug/L)*	*Criteria Maximum Concentration (ug/L)*	*Human Health Criteria (ug/L)*	
2M	Arsenic	07440382	*148 (As3+)	*340[lowbar](As3+)	N/A	
4M	Cadmium	07440439	*{1.101672-(ln[H]x0.041838)}x Exp(0.7852xln[H]-2.715) (ex: @H=100, CCC=2.24)	*{1.136672-(ln[H]x0.041838)}x Exp(1.128xln[H]-3.6867) (ex: @H=100, CMC=4.26)	N/A	
5M	Chromium, III	16065831	*0.860xExp(0.819xln[H]+0.6848) *(ex: @H=100, CCC=74)*	*0.316xExp(0.819xln[H]+3.7256) *(ex: @H=100, CMC=570)*	N/A	
5M	Chromium, VI	18540299	*10.56	*15.73	N/A	-
6M	Copper	07440508	*0.960xExp(0.8545xln[H]-1.702) (ex: @H=100, CCC=8.96)	*(0.960xExp(0.9422xln[H]-1.700) (ex: @H=100, CMC=13.44)	N/A	
8M	Mercury	07439976	*0.77	*1.44	0.0031	H
9M	Nickel	07440020	*0.997xExp(0.846xln[H]+0.0584 (ex: @H=100, CCC=52.01)	*[0.998xExp(0.846xln[H]+2.255) (ex: @H=100, CMC=468.24)	N/A	H
10M	Selenium	07782492	*4.61	N/A	N/A	-
13M	Zinc	07440666	*0.986xExp(0.8473xln[H]+0.884) (ex: @H=100, CCC=118.14)	*0.978xExp(0.8473xln[H]+0.884) (ex: @H=100, CMC=117.18)	N/A	
14M	Cyanide, Free	00057125	5.2	22	600	H
3A	2,4-Dimethyl-phenol	00105679	N/A	N/A	450	H
5A	2,4-Dinitro-phenol	00051285	N/A	N/A	55	H

9A	Pentachlorophenol	00087865	Exp(1.005[pH]-5.134) @pH= 6.5 7.8 9.0 Crit = 4.05 14.95 49.95	Exp (1.005[pH]-4.869) @pH = 6.5 7.8 9.0 Crit = 5.28 19.49 65.10	N/A	
3V	Benzene	00071432	N/A	N/A	1.2	CRL
7V	Chloro-benzene	00108907	N/A	N/A	470	H
22V	Methylene Chloride	00075092	N/A	N/A	4.7	CRL
25V	Toluene	00108883	N/A	N/A	5600	H
29V	Trichloro-ethylene	00079016	N/A	N/A	2.9	CRL
33B	Hexachloro-benzene	00118741	N/A	N/A	0.000045	CRL
36B	Hexachloro-ethane	00067721	N/A	N/A	0.53	CRL
4P	gamma-BHC (Lindane)	00058899	N/A	0.95	0.47	H
6P	Chlordane	00057749	N/A	N/A	0.000025	CRL
7P	4,4-DDT	00050293	N/A	N/A	0.000015	CRL
10P	Dieldrin	00060571	0.056	0.24	0.00000065	CRL
14P	Endrin	00072208	0.036	0.086	N/A	
18P	PCBs		N/A	N/A	0.00000039	CRL
25P	Toxaphene	08001352	N/A	N/A	0.0000068	CRL
PP	2,3,7,8-TCDD	01746016	N/A	N/A	8.6 E-10	CRL
—	Parathion	00056382	0.013	0.065	N/A	

Acronyms and Footnotes to Table 6

*** Indicates dissolved metal criterion; others are total recoverable metals. Each listed dissolved criterion in Table 6 is equal to the corresponding total recoverable criterion before rounding (from the EPA National Ambient Water Quality Criteria Documents) multiplied by the conversion factor (from the Conversions Factors); a criterion that is expressed as a hardness (H)-based equation is shown in Table 6 as the conversion factor (listed) multiplied by the hardness criterion equation; an example criterion at hardness=100mg/L is included.**

CAS—Chemical Abstract Service number

CRL—Cancer risk level at 1 x 10^{-6}

H—Threshold effect human health criterion; incorporates additional uncertainty factor for some Group C carcinogens.

ln[H]—Natural Logarithm of the Hardness of stream as mg/l $CaCO_3$

µg/L –Micrograms per liter

N/A—Criterion not developed.

PPNO—Priority Pollutant Number

(c) *Wildlife criteria*. Wildlife criteria will be developed for the bioaccumulative chemicals of concern (BCCs) in the Great Lakes System using methodologies contained in the Great Lakes guidance in 40 CFR Part 132, Appendix D (relating to Great Lakes Water Quality Initiative methodology for the development of wildlife criteria). The wildlife criteria are contained in the following table:

GREAT LAKES WILDLIFE CRITERIA

TABLE 7

PP	*CHEMICAL*	*CRITERION*
NO.	*NAME*	*(ug/L)*
7-9P	DDT & METABOLITES	0.000011
8M	MERCURY	0.0013
18-24P	PCBs (TOTAL)	0.00012
PP	2,3,7,8-TCDD	3.1 E-9

DESIGNATED WATER USES AND WATER QUALITY CRITERIA

§ 93.9. Designated water uses and water quality criteria.

(a) The tables in § § 93.9a—93.9z display designated water uses and water quality criteria in addition to the water uses and criteria specified in Tables 2 and 3. Designated uses shall be protected in accordance with Chapters 95 and 96 (relating to wastewater treatment requirements; and water quality standards implementation) and any other applicable State and Federal laws and regulations. The tables also indicate specific exceptions to Tables 2 and 3 on a stream-by-stream or segment-by-segment basis by the words ‘‘add’’ or ‘‘delete’’ followed by the appropriate symbols described elsewhere in this chapter. The county column in § § 93.9a—93.9z indicates

the county in which the mouth of the stream **or the downstream limit of the zone described for that entry** is located. Abbreviations used in the Stream and the ''Zone'' columns are as follows:

(b) When appropriate, "Exceptions to Specific Criteria" provide reference to the Delaware River Basin Commission (DRBC) water quality regulations, Orsanco (Ohio River Valley Water Sanitation Commission) pollution control standards and the Great Lakes Water Quality Agreement (GLWQA) which specify the criteria that apply **if a water quality standard is more stringent than those in this title.**

* * * * *

***Editor's note*:** *A basin-wide migratory fishes (MF) designation is being applied to drainage lists A through O and Z, unless there are specific exceptions already noted for certain waterbodies or stream segments within one of these drainage lists. These specific changes to the drainage lists, however, are not reflected in this Annex, but will be added to the code at final rulemaking. Drainage lists A through G are located within the Delaware River Basin. Drainage lists H through O are located within the Susquehanna River Basin. Drainage list Z is located within the Potomac River Basin.*

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§93.9d. Drainage List D

Delaware River Basin in Pennsylvania
Lehigh River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
3—Penn Springs	Basin	Carbon	HQ-CWF	None
3—Black Creek	**[Basin, Source to Beaver Creek**	**Carbon**	**HQ-CWF**	**None]**
4—Hazle Creek	**Basin**	**Carbon**	**HQ-CWF**	**None**
4—Beaver Creek	Basin	Carbon	CWF	None
3—Black Creek	Main Stem, **Confluence of Hazle Creek and** Beaver Creek to Mouth	Carbon	CWF	None
4—Unnamed Tributaries to Black Creek	Basins, **Confluence of Hazle Creek and** Beaver Creek to Mouth	Carbon	HQ-CWF	None
4—Koons Creek	**Basin**	**Carbon**	**HQ-CWF**	**None**
4—Quakake Creek	Basin, Source to Wetzel Creek	Carbon	HQ-CWF	None
5—Wetzel Creek	Basin	Carbon	CWF	None
4—Quakake Creek	Basin, Wetzel Creek to Mouth	Carbon	CWF	None
4—Brushy Hollow Run	**Basin**	**Carbon**	**HQ-CWF**	**None**
3—Maple Hollow	Basin	Carbon	HQ-CWF	None

* * * * *

§93.9f. Drainage List F

Delaware River Basin in Pennsylvania
Schuylkill River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
3—Monocacy Creek	Basin	Berks	WWF	None
3—UNTs to Schuylkill River	Basins, **(all UNT's along Montgomery County shore),** Berks-Chester- Montgomery County Border to Valley Creek **[(except those in Spring City and Phoenixville)]**	**[Chester—]** Montgomery	**[HQ-TSF]** **WWF**	None
3—UNTs to Schuylkill River	**Basins (all UNTs along Chester County shore except those in Spring City and Phoenixville), Berks-Chester-Montgomery County Border to Valley Creek**	**Chester**	**HQ-TSF**	**None**
3—UNTs to Schuylkill River	Basins, in Spring City and Phoenixville	Chester	WWF	None
	* * * * *			
3—Valley Creek	Basin	Montgomery-Chester	EV	None
3—Unnamed Tributaries to Schuylkill River	Basins, Valley Creek to **Head of** Tide	**[Chester-Montgomery]** **Philadelphia**	WWF	None
[3—Mellshamic Creek	**Basin**	**Montgomery**	**WWF**	**None]**
3—Trout Creek	Basin	Montgomery	WWF	None
	* * * * *			

§93.9i. Drainage List I

Susquehanna River Basin in Pennsylvania
Susquehanna River

Stream	Zone	County	Water Uses	Exceptions To Specific

			Protected	Criteria
	* * * * *			
2—Mehoopany Creek	Basin, Source to North **[Fork]** **Branch Mehoopany Creek**	Wyoming	HQ-CWF	None
3—North **[Fork]** **Branch** Mehoopany Creek	Basin	Wyoming	CWF	None
2—Mehoopany Creek	Basin, North **[Fork]** **Branch Mehoopany Creek** to Mouth	Wyoming	CWF	None
2—Taques Creek	Basin	Wyoming	CWF	None
2—Tunkhannock Creek	Main Stem, Source to Susquehanna-Wyoming County Border	Susquehanna-Wyoming	CWF	None
3—Unnamed Tributaries to Tunkhannock Creek	Basins, Source to Susquehanna-Wyoming County Border	Susquehanna	CWF	None
3—Bear Swamp Creek	Basin	Susquehanna	CWF	None
3—Bell Creek	Basin	Susquehanna	CWF	None
3—**Nine Partners** **[Leslie]** Creek	Basin	Susquehanna	CWF	None
3—Partners Creek	Basin	Susquehanna	CWF	None
	* * * * *			

§93.9l. Drainage List L

Susquehanna River Basin in Pennsylvania
West Branch Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
4—Unnamed Tributary 21134	Basin, Source to Rauchtown Creek	Lycoming	CWF	None
5—Rauchtown Creek	**[Basin, Source to Confluence of Rockey Run and Gottshall Run**	**Clinton**	**HQ-CWF**	**None]**
6—Rockey Run	**Basin**	**Clinton**	**HQ-CWF**	**None**
6—Gottshall Run	**Basin**	**Clinton**	**HQ-CWF**	**None**
5—Rauchtown Creek	Basin, Confluence of Rockey Run and Gottshall Run to Mouth	Lycoming	CWF	None
	* * * * *			

§93.9m. Drainage List M

Susquehanna River Basin in Pennsylvania
Susquehanna River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
3—Trout Run	Basin	Northumberland	CWF	None
3 – **[Buddys]** **Bennys** Run	Basin	Northumberland	CWF	None
3—Millers Run	Basin	Northumberland	CWF	None
	* * * * *			

§93.9q. Drainage List Q

Ohio River Basin in Pennsylvania
Allegheny River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
4—Marsh Run	Basin	Crawford	CWF	None
4—Thompson Creek	Basin**, Source to Shirley Run**	Crawford	CWF	None
5—Shirley Run	**Basin**	**Crawford**	**HQ-CWF**	**None**
4—Thompson Creek	**Basin, Shirley Run to Mouth**	**Crawford**	**CWF**	**None**
	* * * * *			
5—Caldwell Creek	Basin, Source to West Branch Caldwell Creek	Warren	HQ-CWF	None
6—West Branch Caldwell Creek	Basin	**[Crawford]** **Warren**	EV	None
5—Caldwell Creek	Basin, West Branch Caldwell Creek to Mouth	Crawford	EV	None
	* * * * *			

§93.9v. Drainage List V

Ohio River Basin in Pennsylvania
Monongahela River

Stream	Zone	County	Water Uses Protected	Exceptions To Specific Criteria
	* * * * *			
3—Bates Run	Basin	Fayette	WWF	None
3—Tenmile Creek	Basin, Source to South Fork Tenmile Creek	Greene**-Washington**	TSF	None

4—South Fork Tenmile Creek	Basin, Source to Browns Creek	Greene	HQ-WWF	None
5—Browns Creek	Basin	Greene	HQ-WWF	None
4—South Fork Tenmile Creek	Basin, Browns Creek to Mouth	Greene	WWF	None
3—Tenmile Creek	Basin, South Fork Tenmile Creek to Mouth	Greene**-Washington-Fayette**	WWF	None

* * * * *

§ 93.9x. Drainage List X.

Lake Erie

Stream	**Zone**	**County**	**Water Uses Protected**	**Exceptions To Specific Criteria**
1—Lake Erie	All sections of lake in PA except Outer Erie Harbor and Presque Isle Bay	Erie	CWF	*Delete* Fe, pH1, DO1 and Bac1 See GLWQA ***Add* E. coli per 40 CFR 131.41 and *See* 28 Pa. Code § 18.28(b)(2) and (3)**
1—Lake Erie (Outer Erie Harbor and Presque Isle Bay)	Portion of lake bordered by Presque Isle on west, longitude 80°10'18" on north, except harbor area and central channel dredged and maintained by United States Army Corps of Engineers.	Erie	WWF	*Delete* pH *Add* pH between 7 and 9 ***Add* E. coli per 40 CFR 131.41 and *See* 28 Pa. Code § 18.28(b)(2) and (3)**
1—Lake Erie (Outer Erie Harbor and Presque Isle Bay)	Harbor area and central channel dredged and maintained by United States Army Corps of Engineers	Erie	WF, *lete* WC	*Delete* pH and Bac1**,** *Add* pH between 7 and 9, Bac2

* * * * *