# RULES AND REGULATIONS

## Title 25—ENVIRONMENTAL PROTECTION

### DELAWARE RIVER BASIN COMMISSION

### [ 25 PA. CODE CH. 901 ]

### Amendments to the Water Quality Regulations, Water Code and Comprehensive Plan to Update Water Quality Criteria for Toxic Pollutants in the Delaware Estuary and Extend These Criteria to Delaware Bay

*Summary:*

By Resolution No. 2010-13 on December 8, 2010, the Delaware River Basin Commission (DRBC or "Commission") approved amendments to its Water Quality Regulations, Water Code and Comprehensive Plan to update the Commission's human health and aquatic life stream quality objectives (also called "water quality criteria") for toxic pollutants in the Delaware Estuary (DRBC Water Quality Zones 2 through 5) and extended application of the criteria to Delaware Bay (DRBC Water Quality Zone 6).

*Effective Date:*

Upon publication in the *Pennsylvania Bulletin*. The rule was incorporated by reference into the *Code of Federal Regulations* effective March 23, 2011.

*Supplemental Information:*

The Delaware River Basin Commission is a federal-state regional agency charged with managing the water resources of the Delaware River Basin without regard to political boundaries. Its members are the governors of the four basin states—Delaware, New Jersey, New York, and Pennsylvania—and the North Atlantic Division Commander of the U.S. Army Corps of Engineers, representing the federal government.

Notice of the proposed amendments appeared in the *Pennsylvania Bulletin* (40 Pa.B. 4278) on July 31, 2010, as well as in the *Federal Register* (75 FR 41106) on July 15, 2010, the *Delaware Register of Regulations* (14 DE Reg. 70-83 (08/01/2010)) on August 1, 2010, the *New Jersey Register* (42 N.J.R. 1702(a)) on August 4, 2010, and the *New York State Register* (p. 6) on July 21, 2010. A public hearing was held on September 23, 2010 and written comments were accepted through October 1, 2010. The commission received two written submissions and no oral testimony on the proposed changes. The Commission made minor revisions to the proposed amendments in response to the comments received. A comment and response document setting forth the Commission's responses and revisions in detail was approved by the Commission simultaneously with adoption of the final rule.

Resolution No. 2010-13, the text of the final rule, a copy of the comment and response document, and a basis and background document published simultaneously with the proposed rule are available on the Commission's web site, at http://www.state.nj.us/drbc/toxics_info.htm.

*Rule Text:*

DRBC Resolution No. 2010-13 amends Article 3 of the *Water Code* and Article 3 of the *Administrative Manual—Part III Water Quality Regulations* as set forth below. Additions are printed in **BOLD FACE** and deletions are printed in **[ BOLD FACE ENCLOSED IN BRACKETS ]**. **BOLD FACE UNDERSCORE** indicates changes made in response to comments received during the public comment period. Asterisks indicate ellipsis of rule text retained without changes. [Editor's instructions appear in normal text in brackets.]

**Section 3.10.3 Stream Quality Objectives**

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C. *Aquatic Life Objectives for Toxic Pollutants.* It is the policy of the Commission to designate numerical stream quality objectives for the protection of aquatic life for the Delaware River Estuary **and Bay (Zones 2 through 6 [ 5 ])** which correspond to the designated uses of each zone. Aquatic life objectives for the protection from both acute and chronic effects are herein established on a pollutant-specific basis for:

* * * * *

D. *Human Health Objectives for Toxic Pollutants.* It is the policy of the Commission to designate numerical stream quality objectives for the protection of human health for the Delaware River Estuary **and Bay (Zones 2 through 6 [ 5 ])** which correspond to the designated uses of each zone. Stream quality objectives for protection from both carcinogenic and systemic effects are herein established on a pollutant-specific basis for:

* * * * *

*3.10.3.D.6.* A rate of ingestion of water of 2.0 liters per day is assumed in calculating objectives for river zones where the designated uses include public water supplies after reasonable treatment. A rate of ingestion of fish of **[ 6.5 ] 17.5** grams per day (equivalent to consuming a 1/2 pound portion every **[ 35 ] 13** days) is assumed in calculating freshwater and marine stream quality objectives for the protection of human health. **[ A rate of ingestion of fish of 37 grams per day (equivalent to consuming a 1/2 pound portion every 6 days) is assumed in calculating marine stream quality objectives for human health. ]**

*3.10.3.D.8.* Numerical criteria for toxic pollutants to protect the taste and odor of ingested water and fish shall be applied as stream quality objectives in **[ the Estuary ] Zones 2—6** if these criteria are more stringent than the calculated human health objectives for carcinogens or systemic toxicants.

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**Section 3.30 Interstate Streams—Tidal.**

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*3.30.2 Zone 2.*

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[Amend Tables 3, 5, 6 and 7 following subsection 3.30.2 as indicated to update current criteria: remove and add compounds.]

**TABLE 3: MAXIMUM CONTAMINANT LEVELS TO BE APPLIED AS HUMAN HEALTH STREAM QUALITY OBJECTIVES IN ZONES 2 AND 3 OF THE DELAWARE RIVER ESTUARY.**

| Parameter | Maximum Contaminant Level (µg/l) |
|---|---|
| **Metals** | |
| **[ Antimony ]** | **[ 6 ]** |
| Arsenic | **[ 50 ] 10** |
| Barium | **[ 2.0 mg/l ] 2000** |
| **Beryllium** | 4 |
| **[ Cadmium ]** | **[ 5 ]** |
| Chromium **(trivalent) [ (total) ]** | 100 |
| **Copper** | **1300** |
| **[ Nickel ]** | **[ 100 ]** |
| **Lead** | **15** |
| Selenium | 50 |
| **Pesticides/PCBs** | |
| **alpha-BHC** | **0.2** |
| **beta-BHC** | **0.2** |
| gamma - BHC (Lindane) | **[ 0.2 ] 2** |
| **2,4-Dichloro-phenoxyacetic acid (2,4-D)** | **70** |
| **Methoxychlor** | **40** |
| **Toxaphene** | **3** |
| **Dioxin (2,3,7,8-TCDD)** | **0.00003** |
| **2,4,5 Trichloro-phenoxypropionic acid (2,4,5-TP-Silvex)** | **50** |
| **Volatile Organic Compounds (VOCs)** | |
| **Benzene** | **5** |
| **Carbon Tetrachloride** | **5** |
| **1,2-Dichloroethane** | **5** |
| **1,1-Dichloroethylene** | **7** |
| **[ 1,2-trans-Dichloroethene ] 1,2-trans-Dichloroethylene** | 100 |
| **Dichloromethane (methylene chloride)** | **5** |
| **[ 1,2-Dichloropropane ]** | **[ 5 ]** |
| **[ Ethylbenzene ]** | **[ 700 ]** |
| **Tetrachloroethylene (PCE)** | **5** |
| **Toluene** | **1000** |
| Total Trihalomethanes | **[ 100 ] 80** |
| **[ 1,2,4-Trichlorobenzene ]** | **[ 70 ]** |
| **1,1,1-Trichloroethane** | **200** |
| **1,1,2-Trichloroethane** | **5** |
| **Trichloroethylene** | **5** |
| **Vinyl Chloride** | **2** |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | |
| **Benzo(a)Pyrene** | **0.2** |
| **Other Compounds** | |
| **Asbestos** | **7 million fibers/L** |
| **Bis(2-Ethylhexyl) Phthalate** | **6** |
| **Fluoride** | **4,000** |

| Parameter | Maximum Contaminant Level (µg/l) |
|---|---|
| **Nitrate** | **10,000** |
| **Pentachlorophenol** | **1** |
| **Dioxin (2,3,7,8-TCDD)** | **0.00003** |

* * * * *

TABLE 5: STREAM QUALITY OBJECTIVES FOR TOXIC POLLUTANTS FOR THE PROTECTION OF AQUATIC LIFE IN THE DELAWARE RIVER ESTUARY **AND BAY**.

| Parameter | Freshwater Objectives (µg/l) | | Marine Objectives (µg/l) | |
|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic |
| Metals **[ (Values indicated are total recoverable; See Section 3.10.3.C.2. for form of metal) ]** | | | | |
| Aluminum[a,b] | 750 | 87 | **[ - ] NA** | **[ - ] NA** |
| Arsenic (trivalent)[c] | **[ 360 ] 340** | **[ 190 ] 150** | 69 | 36 |
| Cadmium[c] | **[ $e^{(1.128*LN(Hardness)-3.828)}$ ] 0.651*EXP(1.0166* LN(hardness)-3.924)** | **[ $e^{(0.7852*LN(Hardness)-3.49)}$ ] 0.651*EXP(0.7409* LN(hardness)-4.719)** | **[ 43 ] 40** | **[ 9.3 ] 8.8** |
| Chromium (trivalent)[c] | **[ $e^{(0.8190*LN(Hardness)+3.688)}$ ] 0.277*EXP(0.819* LN(hardness)+3.7256)** | **[ $e^{(0.8190*LN(Hardness)+1.561)}$ ] 0.277*EXP(0.819* LN(hardness)+0.6848)** | **[ - ] NA** | **[ - ] NA** |
| Chromium (hexavalent)[c] | 16 | 11 | 1,100 | 50 |
| Copper[c] | **[ $e^{(0.9422*LN(Hardness)-1.464)}$ ] 0.908*EXP(0.9422* LN(hardness)-1.7)** | **[ $e^{(0.8545*LN(Hardness)-1.465)}$ ] 0.908*EXP(0.8545* LN(hardness)-1.702)** | **[ 5.3 ] 4.8** | **[ 3.4 ] 3.1** |
| Lead[c] | **[ 48 ] 38** | **[ 16 ] 5.4** | **[ 220 ] 210** | **[ 8.5 ] 8.1** |
| Mercury[c] | **[ 2.4 ] 1.4** | **[ 0.012 ] 0.77** | **[ 2.1 ] 1.8** | **[ 0.025 ] 0.94** |
| Nickel[c] | **[ $e^{(0.846*LN(Hardness)+3.3612)}$ ] 0.846*EXP(0.846* LN(hardness)+2.255)** | **[ $e^{(0.846*LN(Hardness)+1.1645)}$ ] 0.846*EXP(0.846* LN(hardness)+0.0584)** | **[ 75 ] 64** | **[ 8.3 ] 22** |
| Selenium[a] | 20 | 5.0 | **[ 300 ] 290** | **71** |
| Silver[c] | **[ $e^{(1.72*LN(Hardness)-6.52)}$ ] 0.85*EXP(1.72* LN(hardness)-6.59)** | **[ - ] NA** | **[ 2.3 ] 1.9** | **[ - ] NA** |
| Zinc[c] | **[ $e^{(0.8473*LN(Hardness)+0.8604)}$ ] 0.95*EXP(0.8473* LN(hardness)+0.884)** | **[ $e^{(0.8473*LN(Hardness)+0.7614)}$ ] 0.95*EXP(0.8473* LN(hardness)+0.884)** | **[ 95 ] 90** | **[ 86 ] 81** |
| Pesticides/PCBs | | | | |
| Aldrin | **[ 1.5 ] 3** | **[ - ] NA** | **[ 0.65 ] 1.3** | **[ - ] NA** |
| gamma - BHC (Lindane) | **[ 1.0 ] 0.95** | **[ 0.08 ] NA** | **[ 0.08 ] 0.16** | **[ - ] NA** |
| Chlordane | **[ 1.2 ] 2.4** | 0.0043 | **[ 0.045 ] 0.09** | 0.004 |
| Chlorpyrifos (Dursban) | 0.083 | 0.041 | 0.011 | 0.0056 |
| DDT and metabolites (DDE & DDD)[d] | **[ 0.55 ] 1.1** | 0.001 | **[ 0.065 ] 0.13** | 0.001 |
| Dieldrin | **[ 1.25 ] 0.24** | **[ 0.0019 ] 0.056** | **[ 0.355 ] 0.71** | 0.0019 |

| Parameter | Freshwater Objectives (µg/l) | | Marine Objectives (µg/l) | |
|---|---|---|---|---|
| | Acute | Chronic | Acute | Chronic |
| Endosulfan[e] | **[ 0.11 ] 0.22** | 0.056 | **[ 0.017 ] 0.034** | 0.0087 |
| Endrin | **[ 0.09 ] 0.086** | **[ 0.0023 ] 0.036** | **[ 0.019 ] 0.037** | **0.0023** |
| Heptachlor | **[ 0.26 ] 0.52** | 0.0038 | **[ 0.027 ] 0.053** | 0.0036 |
| **Heptachlor Epoxide** | **0.52** | **0.0038** | **0.053** | **0.0036** |
| Parathion | 0.065 | 0.013 | **[ - ] NA** | **[ - ] NA** |
| PCBs (Total) | 1.0 | 0.014 | 5.0 | 0.03 |
| Toxaphene | 0.73 | 0.0002 | 0.21 | 0.0002 |
| **Other Compounds** | | | | |
| Cyanide **(free) [ (total) ]** | 22 | 5.2 | **[ 1.0 ] [ 2.7 ] 1** | **[ - ] 1** |
| Pentachlorophenol | $e^{(1.005*pH-4.83)}$ | $e^{(1.005*pH-5.29)}$ | 13 | 7.9 |
| Indicator Parameters | | | | |
| Whole Effluent Toxicity | 0.3 Toxic $Units_{acute}$ | 1.0 Toxic $Units_{chronic}$ | 0.3 $TU_a$ | 1.0 $TU_c$ |

**Footnotes to Table 5:**

**[a] Total recoverable criteria**

**[b] Aluminum criteria listed are restricted to waters with pH between 6.5 and 9.0.**

**[c] Dissolved criteria**

**[d] Criteria apply to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).**

**[e] Values were derived from data for endosulfan and are most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.**

**Criteria for cadmium, chromium (trivalent), copper, nickel, silver and zinc are hardness-dependent and are expressed as the dissolved form (see Section 3.10.3.C.2. on form of metal).**

TABLE 6: STREAM QUALITY OBJECTIVES FOR CARCINOGENS
FOR THE DELAWARE RIVER ESTUARY **AND BAY**.

| PARAMETER | **[ EPA class ]** | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| **Metals** | | | | |
| **Arsenic** | | *** [ 0.017 ]** | **NA** | **NA** |
| **[ Beryllium ]** | | **[ 0.00767 ]** | **[ 0.132 ]** | **[ 0.0232 ]** |
| **Pesticides/PCBs** | | | | |
| Aldrin | **[ B2 ]** | **[ 0.00189 ] 0.000049** | **[ 0.0226 ] 0.000050** | **[ 0.00397 ] 0.000050** |
| Alpha—BHC | **[ B2 ]** | **[ 0.00391 ] 0.0026** | **[ 0.0132 ] 0.0049** | **[ 0.00231 ] 0.0049** |
| **beta—BHC** | **[ C ]** | **0.0091** | **0.017** | **0.017** |
| Chlordane | **[ B2 ]** | **[ 0.000575 ] 0.00080** | **[ 0.000588 ] 0.00081** | **[ 0.000104 ] 0.00081** |
| DDD | **[ B2 ]** | **[ 0.00423 ] 0.00031** | **[ 0.00436 ] 0.00031** | **[ 0.000765 ] 0.00031** |
| DDE | **[ B2 ]** | **[ 0.00554 ] 0.00022** | **[ 0.00585 ] 0.00022** | **[ 0.00103 ] 0.00022** |

| PARAMETER | [ EPA class ] | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| DDT | [ B2 ] | [ 0.000588 ] 0.00022 | [ 0.000591 ] 0.00022 | [ 0.000104 ] 0.00022 |
| Dieldrin | [ B2 ] | [ 0.000135 ] 0.000052 | [ 0.000144 ] 0.000054 | [ 0.0000253 ] 0.000054 |
| Heptachlor | [ B2 ] | [ 0.000208 ] 0.000079 | [ 0.000214 ] 0.000079 | [ 0.0000375 ] 0.000079 |
| Heptachlor Epoxide | [ B2 ] | [ 0.000198 ] 0.000039 | [ 0.000208 ] 0.000039 | [ 0.0000366 ] 0.000039 |
| PCBs (Total) | [ B2 ] | 0.0000444 | 0.0000448 | 0.0000079 |
| Toxaphene | [ B2 ] | [ 0.000730 ] 0.00028 | [ 0.000747 ] 0.00028 | [ 0.000131 ] 0.00028 |
| **Volatile Organic Compounds (VOCs)** | | | | |
| Acrylonitrile | [ B1 ] | [ 0.0591 ] 0.051 | [ 0.665 ] 0.25 | [ 0.117 ] 0.25 |
| Benzene | [ A ] | [ 1.19 ] 0.61 | [ 71.3 ] 14 | [ 12.5 ] 14 |
| Benzidine | [ A ] | [ 0.000118 ] 0.000086 | [ 0.000535 ] 0.00020 | [ 0.000094 ] 0.00020 |
| Bromoform | [ B2 ] | [ 4.31 ] 4.3 | [ 164.0 ] 140 | [ 28.9 ] 140 |
| Bromodichloromethane | [ B2 ] | [ 0.559 ] 0.55 | [ 55.7 ] 17 | [ 9.78 ] 17 |
| Carbon Tetrachloride | [ B2 ] | [ 0.254 ] 0.23 | [ 4.42 ] 1.6 | [ 0.776 ] 1.6 |
| Chlorodibromomethane | [ C ] | [ 0.411 ] 0.40 | [ 27.8 ] 13 | [ 4.88 ] 13 |
| Chloroform | [ B2 ] | [ 5.67 ] 5.7 | [ 471.0 ] 470 | [ 82.7 ] 470 |
| 3,3-Dichlorobenzidine | [ B2 ] | [ 0.0386 ] 0.021 | [ 0.0767 ] 0.028 | [ 0.0135 ] 0.028 |
| 1,2-Dichloroethane | [ B2 ] | [ 0.383 ] 0.38 | [ 98.6 ] 37 | [ 17.3 ] 37 |
| [ 1,1-Dichloroethene ] | [ C ] | [ 0.0573 ] | [ 3.20 ] | [ 0.562 ] |
| 1,2-Dichloropropane | [ B2 ] | 0.50 | 15 | 15 |
| 1,3-Dichloropropene | [ B2 ] | [ 87.0 ] 0.34 | [ 14.1 ] 21 | [ 2.48 ] 21 |
| Dichloromethane (Methylene chloride) | [ B2 ] | [ 4.65 ] * | [ 1,580 ] 590 | [ 277 ] 590 |
| [ Tetrachloroethene ] Tetrachloroethylene | [ B2 ] | [ 0.80 ] 0.69 | [ 8.85 ] 3.3 | [ 1.55 ] 3.3 |
| [ 1,1,1,2-Tetrachloroethane ] | [ C ] | [ 1.29 ] | [ 29.3 ] | [ 5.15 ] |
| 1,1,2,2-Tetrachloroethane | [ C ] | [ 0.172 ] 0.17 | [ 10.8 ] 4.0 | [ 1.89 ] 4.0 |
| 1,1,2-Trichloroethane | [ C ] | [ 0.605 ] 0.59 | [ 41.6 ] 16 | [ 7.31 ] 16 |
| [ Trichloroethene ] Trichloroethylene | [ B2 ] | [ 2.70 ] 2.5 | [ 80.7 ] 30 | [ 14.2 ] 30 |
| Vinyl Chloride | [ A ] | [ 2.00 ] 0.025 | [ 525.0 ] 2.4 | [ 92.9 ] 2.4 |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | |
| Benz[a]anthracene | [ B2 ] | [ 0.00171 ] 0.0038 | [ 0.00177 ] 0.18 | [ 0.00031 ] 0.18 |
| Benzo[b]fluoranthene | [ B2 ] | [ 0.000455 ] 0.038 | [ 0.000460 ] 0.18 | [ 0.000081 ] 0.18 |
| Benzo[k]fluoranthene | [ B2 ] | [ 0.000280 ] 0.38 | [ 0.000282 ] 1.8 | [ 0.000049 ] 1.8 |

| PARAMETER | [ EPA class ] | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| Benzo[a]pyrene | [ B2 ] | [ 0.0000644 ] 0.0038 | [ 0.0000653 ] 0.018 | [ 0.0000115 ] 0.018 |
| Chrysene | [ B2 ] | [ 0.0214 ] 3.8 | [ 0.0224 ] 18 | [ 0.00394 ] 18 |
| Dibenz[a,h]anthracene | [ B2 ] | [ 0.0000552 ] 0.0038 | [ 0.0000559 ] 0.018 | [ 0.0000098 ] 0.018 |
| Indeno[1,2,3-cd]pyrene | [ B2 ] | [ 0.0000576 ] 0.038 | [ 0.0000576 ] 0.18 | [ 0.0000101 ] 0.18 |
| **Other Compounds** | | | | |
| Bis (2-chloroethyl) ether | [ B2 ] | [ 0.0311 ] 0.03 | [ 1.42 ] 0.53 | [ 0.249 ] 0.53 |
| Bis (2-ethylhexyl) phthalate | [ B2 ] | [ 1.76 ] 1.2 | [ 5.92 ] 2.2 | [ 1.04 ] 2.2 |
| [ Dinitrotoluene mixture (2,4 & 2,6) ] 2,4-Dinitrotoluene | [ B2 ] | [ 17.3 ] 0.11 | [ 1420 ] 3.4 | [ 249 ] 3.4 |
| 1,2-Diphenylhydrazine | [ B2 ] | [ 0.0405 ] 0.036 | [ 0.541 ] 0.2 | [ 0.095 ] 0.2 |
| Hexachlorobenzene | [ B2 ] | [ 0.000748 ] 0.00028 | [ 0.000775 ] 0.00029 | [ 0.000136 ] 0.00029 |
| **Hexachlorobutadiene** | [ C ] | [ 0.445 ] 0.44 | [ 49.7 ] 18 | [ 8.72 ] 18 |
| Hexachloroethane | [ C ] | [ 1.95 ] 1.4 | [ 8.85 ] 3.3 | [ 1.56 ] 3.3 |
| Isophorone | [ B2 ] | [ 36.3 ] 35 | [ 2590 ] 960 | [ 455 ] 960 |
| **N-Nitrosodi-N-butylamine** | [ B2 ] | 0.0063 | 14 | 14 |
| N-Nitrosodi-N-methylamine | [ B2 ] | [ 0.000686 ] 0.00069 | [ 8.12 ] 3.0 | [ 1.43 ] 3.0 |
| **N-Nitrosodiethylamine** | [ B2 ] | 0.0008 | 1.24 | 1.24 |
| N-Nitrosodi-N-phenylamine | [ B2 ] | [ 4.95 ] 3.3 | [ 16.2 ] 6 | [ 2.84 ] 6 |
| N-Nitrosodi-N-propylamine | [ B2 ] | [ 0.00498 ] 0.0050 | [ 1.51 ] 0.51 | [ 0.265 ] 0.51 |
| **N-Nitrosopyrrolidine** | [ B2 ] | 0.016 | 34 | 34 |
| Pentachlorophenol | [ B2 ] | [ 0.282 ] 0.27 | [ 8.16 ] 3.0 | [ 1.43 ] 3.0 |
| Dioxin (2,3,7,8-TCDD) | [ NA ] | [ $1.3 \times 10^{-8}$ ] 0.000000005 | [ $1.4 \times 10^{-8}$ ] 0.0000000051 | [ $2.4 \times 10^{-9}$ ] 0.0000000051 |
| 2,4,6-Trichlorophenol | [ B2 ] | [ 2.14 ] 1.4 | [ 6.53 ] 2.4 | [ 1.15 ] 2.4 |

*** The MCL for this compound applies in Zones 2 and 3 and is listed in Table 3.**

TABLE 7: STREAM QUALITY OBJECTIVES FOR SYSTEMIC TOXICANTS FOR THE DELAWARE RIVER ESTUARY **AND BAY**

| PARAMETER | [ EPA Class ] | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| **Metals** | | | | |
| Antimony | | [ 14.0 ] 5.6 | [ 4,310 ] 640 | [ 757 ] 640 |
| Arsenic | [ A ] | [ 9.19 ] * | [ 73.4 ] NA | [ 12.9 ] NA |

| PARAMETER | [ EPA Class ] | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| Beryllium | [ B2 ] | [ 165 ] * | [ 2,830 ] [ 42 ] 420 | [ 498 ] [ 42 ] 420 |
| Cadmium | | [ 14.5 ] 3.4 | [ 84.1 ] 16 | [ 14.8 ] 16 |
| Chromium (trivalent) | | [ 33,000 ] * | [ 673,000 ] 380,000 | [ 118,000 ] 380,000 |
| [ Hexavalent ] Chromium (hexavalent) | [ A ] | [ 166 ] 92 | [ 3,370 ] NA | [ 591 ] NA |
| **Chromium (Total)** | | NA | 750 | 750 |
| Mercury | | [ 0.144 ] 0.050 | [ 0.144 ] 0.051 | [ 0.144 ] 0.051 |
| **Methylmercury** | | 0.3 mg/kg fish tissue | 0.3 mg/kg fish tissue | 0.3 mg/kg fish tissue |
| Nickel | | [ 607 ] 500 | [ 4,580 ] 1,700 | [ 805 ] 1,700 |
| Selenium | | [ 100 ] 170 | [ 2,020 ] 4,200 | [ 355 ] 4,200 |
| Silver | | [ 175 ] 170 | [ 108,000 ] 40,000 | [ 18,900 ] 40,000 |
| Thallium | | [ 1.70 ] 0.24 | [ 6.20 ] 0.47 | [ 1.10 ] 0.47 |
| Zinc | | [ 9110 ] 7,400 | [ 68700 ] 26,000 | [ 12100 ] 26,000 |
| **Pesticides/PCBs** | | | | |
| Aldrin | [ B2 ] | [ 0.96 ] 0.025 | [ 11.5 ] 0.025 | [ 2.03 ] 0.025 |
| gamma - BHC (Lindane) | | [ 7.38 ] 0.98 | [ 24.9 ] 1.8 | [ 4.37 ] 1.8 |
| Chlordane | [ B2 ] | [ 0.0448 ] 0.14 | [ 0.0458 ] 0.14 | [ 0.00805 ] 0.14 |
| DDT **and Metabolites (DDD and DDE)** | [ B2 ] | [ 0.100 ] 0.037 | [ 0.100 ] 0.037 | [ 0.0176 ] 0.037 |
| Dieldrin | [ B2 ] | [ 0.108 ] 0.041 | [ 0.115 ] 0.043 | [ 0.020 ] 0.043 |
| **[ Endosulfan ]** | | [ 111 ] | [ 239 ] | [ 42.0 ] |
| **alpha -Endosulfan** | | 62 | 89 | 89 |
| **beta- Endosulfan** | | 62 | 89 | 89 |
| **Endosulfan Sulfate** | | 62 | 89 | 89 |
| Endrin | [ D ] | [ 0.755 ] 0.059 | [ 0.814 ] 0.060 | [ 0.143 ] 0.060 |
| **Endrin Aldehyde** | | 0.29 | 0.30 | 0.30 |
| Heptachlor | [ B2 ] | [ 0.337 ] 0.18 | [ 0.344 ] 0.18 | [ 0.060 ] 0.18 |
| Heptachlor Epoxide | [ B2 ] | [ 0.0234 ] 0.0046 | [ 0.0246 ] 0.0046 | [ 0.00433 ] 0.0046 |
| Total PCBs | [ B2 ] | 0.00839 | 0.00849 | 0.00149 |
| **Volatile Organic Compounds (VOCs)** | | | | |
| Acrolein | | [ 320 ] 6.1 | [ 780 ] 9.3 | [ 137 ] 9.3 |
| **Benzene** | | * | 3,100 | 3,100 |
| Bromoform | [ B2 ] | [ 682 ] 650 | [ 25,900 ] 9,600 | [ 4,560 ]9,600 |
| Bromodichloromethane | [ B2 ] | [ 693 ] 680 | [ 69,000 ] NA | [ 12,100 ] NA |
| Dibromochloromethane | [ C ] | [ 690 ] 680 | [ 46,600 ] 21,000 | [ 8,190 ] 21,000 |
| Carbon Tetrachloride | [ B2 ] | [ 23.1 ] * | [ 402 ] 150 | [ 70.6 ] 150 |
| Chloroform | [ B2 ] | [ 346 ] 68 | [ 28,700 ] 2,100 | [ 5,050 ] 2,100 |

| PARAMETER | [ EPA Class ] | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| Chlorobenzene | [ D ] | [ 677 ] 130 | [ 20,900 ] 1,600 | [ 3,670 ] 1,600 |
| [ 1,1-Dichloroethene ] 1,1-Dichloroethylene | [ C ] | [ 309 ] * | [ 17,300 ] 7,100 | [ 3,040 ] 7,100 |
| [ 1,2]-trans-Dichloroethene ] 1,2-trans-Dichloroethylene | | [ 696 ] 140 | [ 136,000 ] 10,000 | [ 23,900 ] 10,000 |
| 1,3-Dichloropropene | [ B2 ] | [ 10.4 ] 1,000 | [ 1,690 ] 63,000 | [ 297 ] 63,000 |
| Ethylbenzene | | [ 3,120 ] 530 | [ 28,700 ] 2,100 | [ 5,050 ] 2,100 |
| Methyl Bromide | | [ 49.0 ] 47 | [ N/A ] 1,500 | [ N/A ] 1,500 |
| Methylene Chloride | [ B2 ] | [ 2,090 ] * | [ 710,000 ] 260,000 | [ 125,000 ] 260,000 |
| 1,1,2-Trichloroethane | [ C ] | [ 138 ] * | [ 9,490 ] 3,600 | [ 1,670 ] 3,600 |
| [ Tetrachloroethene ] Tetrachloroethylene | | [ 318 ] * | [ 3,520 ] 1,300 | [ 618 ] 1,300 |
| [ 1,1,1,2-Tetrachloroethane ] | [ C ] | [ 1,000 ] | [ 22,400 ] | [ 3,940 ] |
| Toluene | | [ 6,760 ] 1,300 | [ 201,000 ] 15,000 | [ 35,400 ] 15,000 |
| **Polycyclic Aromatic Hydrocarbons (PAHs)** | | | | |
| Anthracene | [ D ] | [ 4,110 ] 8,300 | [ 6,760 ] 40,000 | [ 1,190 ] 40,000 |
| Fluoranthene | | [ 296 ] 130 | [ 375 ] 140 | [ 65.8 ] 140 |
| Fluorene | [ D ] | [ 730 ] 1,100 | [ 1,530 ] 5,300 | [ 268 ] 5,300 |
| Pyrene | [ D ] | [ 228 ] 830 | [ 291 ] 4,000 | [ 51.1 ] 4,000 |
| **Other Compounds** | | | | |
| Acenaphthene | | [ 1,180 ] 670 | [ 2,670 ] 990 | [ 469 ] 990 |
| Benzidine | [ A ] | [ 81.8 ] 59 | [ 369 ] 140 | [ 64.9 ] 140 |
| Bis (2-chloroisopropyl) ether | | [ 1,390 ] 1,400 | [ 174,000 ] 65,000 | [ 30,600 ] 65,000 |
| Bis (2-ethylhexyl) phthalate | [ B2 ] | [ 492 ] * | [ 1,660 ] 620 | [ 291 ] 620 |
| Butylbenzyl phthalate | [ C ] | [ 298 ] 1,500 | [ 520 ] 1,900 | [ 91.4 ] 1,900 |
| **2-Chloronaphthalene** | | 1,000 | 1,600 | 1,600 |
| 2-Chlorophenol | | [ 122 ] 81 | [ 402 ] 150 | [ 70.6 ] 150 |
| **Cyanide** | | 140 | 140 | 140 |
| Dibutyl Phthalate | [ D ] | [ 2,710 ] 2,000 | [ 12,100 ] 4,500 | [ 2,130 ] 4,500 |
| 1,2-Dichlorobenzene | [ D ] | [ 2,670 ] 420 | [ 17,400 ] 1,300 | [ 3,060 ] 1,300 |
| 1,3-Dichlorobenzene | [ D ] | [ 414 ] 420 | [ 3,510 ] 1,300 | [ 617 ] 1,300 |
| 1,4-Dichlorobenzene | | [ 419 ] 63 | [ 3,870 ] 190 | [ 677 ] 190 |
| 2,4-Dichlorophenol | | [ 92.7 ] 77 | [ 794 ] 290 | [ 139 ] 290 |
| Diethyl Phthalate | [ D ] | [ 22,600 ] 17,000 | [ 118,000 ] 44,000 | [ 20,700 ] 44,000 |
| Dimethyl Phthalate | [ D ] | [ 313,000 ] 270,000 | [ 2,990,000 ] 1,100,000 | [ 526,000 ] 1,100,000 |
| 2,4-Dimethylphenol | | [ 536 ] 380 | [ 2,300 ] 850 | [ 403 ] 850 |
| 2,4-Dinitrophenol | | [ 70 ] 69 | [ 14,300 ] 5,300 | [ 2,500 ] 5,300 |
| 2,4-Dinitrotoluene | | [ 69.2 ] 68 | [ 5670 ] 2,100 | [ 996 ] 2,100 |

| PARAMETER | [ EPA Class ] | FRESHWATER OBJECTIVES (µg/l) | | MARINE OBJECTIVES (µg/l) |
|---|---|---|---|---|
| | | FISH & WATER INGESTION | FISH INGESTION ONLY | FISH INGESTION ONLY |
| Hexachlorobenzene | **[ B2 ]** | **[ 0.958 ] 0.35** | **[ 0.991 ] 0.36** | **[ 0.174 ] 0.36** |
| **[ Hexachlorobutadiene ]** | **[ C ]** | **[ 69.4 ]** | **[ 7,750 ]** | **[ 1,360 ]** |
| Hexachlorocyclopentadiene | | **[ 242 ] 40** | **[ 17,400 ] 1,100** | **[ 3,050 ] 1,100** |
| Hexachloroethane | **[ C ]** | **[ 27.3 ] 20** | **[ 124 ] 46** | **[ 21.7 ] 46** |
| Isophorone | **[ C ]** | **[ 6,900 ] 6,700** | **[ 492,000 ] 180,000** | **[ 86,400 ] 180,000** |
| **2-Methyl-4,6-dinitrophenol** | | **13** | **280** | **280** |
| Nitrobenzene | **[ D ]** | **[ 17.3 ] 17** | **[ 1,860 ] 690** | **[ 327 ] 690** |
| **Pentachlorobenzene** | | **1.4** | **1.5** | **1.5** |
| Pentachlorophenol | | **[ 1,010 ] *** | **[ 29,400 ] 11,000** | **[ 5,160 ] 11,000** |
| Phenol | | **[ 20,900 ] 10,000** | **[ 4,620,000 ] 860,000** | **[ 811,000 ] 860,000** |
| **1,2,4,5-Tetrachlorobenzene** | | **0.97** | **1.1** | **1.1** |
| 1,2,4-Trichlorobenzene | **[ D ]** | **[ 255 ] 35** | **[ 945 ] 70** | **[ 166 ] 70** |
| **2,4,5-Trichlorophenol** | | **1,800** | **3,600** | **3,600** |
| **Vinyl Chloride** | | * | **10,000** | **10,000** |

*** The MCL for this compound applies in Zones 2 and 3 and is listed in Table 3.**

* * * * *

*3.30.6 Zone 6.*

* * * * *

[Add the following text immediately following sub-section 3.30.6 C.10. and preceding sub-section 3.30.6 D.]

**11. *Toxic Pollutants.***

**a. Applicable criteria to protect the taste and odor of ingested water and fish are presented in Table 4.**

**b. Applicable marine stream quality objectives for the protection of aquatic life are presented in Table 5.**

**c. Applicable marine stream quality objectives for the protection of human health are presented in Tables 6 and 7.**

PAMELA M. BUSH,
*Secretary*

**Fiscal Note:** Fiscal Note 68-55 remains valid for the final adoption of the subject regulation.

**Annex A**

**TITLE 25. ENVIRONMENTAL PROTECTION**

**PART V. DELAWARE RIVER BASIN COMMISSION**

**CHAPTER 901. GENERAL PROVISIONS**

**§ 901.2. Comprehensive Plan and water quality.**

The Comprehensive Plan regulations as set forth in 18 CFR Part 401, Subpart A (2011) and the Water Code and Water Quality Standards as set forth in 18 CFR Part 410 (2011) are hereby incorporated by reference and made a part of this title.

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