

3745-1-33

Water quality criteria for water supply use designations.

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules and federal statutory provisions referenced in this rule, see rule 3745-1-03 of the Administrative Code.]

(A) Human health water quality criteria [public water supply].

- (1) The chemical specific criteria listed in table 33-1 of this rule, or site-specific modifications thereof, apply as "Outside Mixing Zone Averages" and shall apply to all water bodies located within five hundred yards of drinking water intakes. For the purpose of setting water quality based effluent limits, these criteria shall be met after the effluent and the receiving water are reasonably well mixed as provided in rules 3745-1-06 and 3745-2-05 of the Administrative Code.
- (2) Water bodies located within the Ohio river drainage basin. Any methodologies and procedures acceptable under 40 C.F.R. 131 may be used when developing or revising human health water quality criteria or implementing narrative criteria contained in rule 3745-1-04 of the Administrative Code. For any pollutant for which it is demonstrated that a methodology or procedure cited in this rule is not scientifically defensible, the director may apply an alternative methodology or procedure acceptable under 40 C.F.R. 131 when developing water quality criteria.
- (3) Water bodies located within the lake Erie drainage basin. The methodologies contained in rules 3745-1-41 and 3745-1-42 of the Administrative Code shall be used when adopting or revising numeric human health criteria and when implementing the narrative water quality criteria contained in rule 3745-1-04 of the Administrative Code. For pollutants listed in table 33-2 of this rule, any methodologies and procedures acceptable under 40 C.F.R. 131 may be used when developing water quality criteria or implementing narrative criteria. For any pollutant other than those in table 33-2 of this rule, for which it is demonstrated that a methodology or procedure cited in this rule is not scientifically defensible, the director may apply an alternative methodology or procedure acceptable under 40 C.F.R. 131 when developing water quality criteria.

Table 33-1. Water quality criteria for the protection of human health [public water supply].

			<u>OMZA³</u>	
<u>Chemical</u>	<u>Form¹</u>	<u>Units²</u>	<u>Drinking</u>	
			<u>Ohio river</u>	<u>Lake Erie</u>

<u>Acenaphthene</u>	<u>T</u>	<u>µg/l</u>	<u>1,200</u>	
<u>Acrolein</u>	<u>T</u>	<u>µg/l</u>	<u>320</u>	
<u>Acrylonitrile</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.59</u>	
<u>Alachlor</u>	<u>T</u>	<u>µg/l</u>	<u>2.0^a</u>	
<u>Aldicarb</u> ⁶	<u>T</u>	<u>µg/l</u>	<u>7.0^a</u>	
<u>Aldicarb sulfone</u> ⁶	<u>T</u>	<u>µg/l</u>	<u>7.0^a</u>	
<u>Aldicarb sulfoxide</u> ⁶	<u>T</u>	<u>µg/l</u>	<u>7.0^a</u>	
<u>Aldrin</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.0013</u>	
<u>Anthracene</u>	<u>T</u>	<u>µg/l</u>	<u>9,600</u>	
<u>Antimony</u>	<u>TR</u>	<u>µg/l</u>	<u>6.0^a</u>	
<u>Arsenic</u>	<u>TR</u>	<u>µg/l</u>	<u>10^a</u>	<u>10</u>
<u>Asbestos</u>	<u>T</u>	<u>Mf/l</u>	<u>7.0^a</u>	
<u>Atrazine</u>	<u>T</u>	<u>µg/l</u>	<u>3.0^a</u>	
<u>Barium</u>	<u>TR</u>	<u>µg/l</u>	<u>2,000^a</u>	
<u>Benzene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>5.0^a</u>	<u>12</u>
<u>Benzidine</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.0012</u>	
<u>Benzo(a)anthracene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.044</u>	
<u>Benzo(a)pyrene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.044</u>	
<u>Benzo(b)fluoranthene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.044</u>	
<u>Benzo(k)fluoranthene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.044</u>	
<u>Beryllium</u>	<u>TR</u>	<u>µg/l</u>	<u>4.0^a</u>	
<u>Bromate</u>	<u>T</u>	<u>µg/l</u>	<u>10^a</u>	
<u>Bromoform</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>43</u>	
<u>Butylbenzyl phthalate</u>	<u>T</u>	<u>µg/l</u>	<u>3,000</u>	
<u>Cadmium</u>	<u>TR</u>	<u>µg/l</u>	<u>5.0^a</u>	

<u>Carbofuran</u>	T	<u>µg/l</u>	<u>40^a</u>	
<u>Carbon tetrachloride⁵</u>	T	<u>µg/l</u>	<u>2.5</u>	
<u>Chloramine</u>	T	<u>µg/l</u>	<u>4,000^a</u>	
<u>Chlordane⁵</u>	T	<u>µg/l</u>	<u>0.021</u>	<u>0.00025</u>
<u>Chlorides</u>	T	<u>mg/l</u>	<u>250^a</u>	<u>250</u>
<u>Chlorine</u>	T	<u>µg/l</u>	<u>4,000^a</u>	
<u>Chlorine dioxide</u>	T	<u>µg/l</u>	<u>800^a</u>	
<u>Chlorite</u>	T	<u>µg/l</u>	<u>1,000^a</u>	
<u>Chloroacetic acid⁷</u>	T	<u>µg/l</u>	<u>60^a</u>	
<u>Chlorobenzene</u>	T	<u>µg/l</u>	<u>100^a</u>	<u>470</u>
<u>Chlorodibromomethane⁵</u>	T	<u>µg/l</u>	<u>4.1</u>	
<u>Bis(2-Chloroethyl)ether⁵</u>	T	<u>µg/l</u>	<u>0.31</u>	
<u>Chloroform⁵</u>	T	<u>µg/l</u>	<u>57</u>	
<u>bis(2-Chloroisopropyl)ether</u>	T	<u>µg/l</u>	<u>1,400</u>	
<u>bis(2-Chloromethyl)ether⁵</u>	T	<u>µg/l</u>	<u>0.0013</u>	
<u>2-Chloronaphthalene</u>	T	<u>µg/l</u>	<u>1,700</u>	
<u>2-Chlorophenol</u>	T	<u>µg/l</u>	<u>120</u>	
<u>Chromium</u>	TR	<u>µg/l</u>	<u>100^a</u>	
<u>Chrysene⁵</u>	T	<u>µg/l</u>	<u>0.044</u>	
<u>Cyanide</u>	free	<u>µg/l</u>	<u>200^a</u>	<u>600</u>
<u>2,4-D (2,4-Dichlorophenoxy-acetic acid)</u>	T	<u>µg/l</u>	<u>70^a</u>	
<u>Dalapon</u>	T	<u>µg/l</u>	<u>200^a</u>	
<u>4,4'-DDD⁵</u>	T	<u>µg/l</u>	<u>0.0083</u>	
<u>4,4'-DDE⁵</u>	T	<u>µg/l</u>	<u>0.0059</u>	
<u>4,4'-DDT⁵</u>	T	<u>µg/l</u>	<u>0.0059</u>	<u>0.00015</u>

<u>Dibenzo(a,h)anthracene</u> ⁵	T	<u>µg/l</u>	<u>0.044</u>	
<u>Dibromochloropropane</u>	T	<u>µg/l</u>	<u>0.2^a</u>	
<u>Di-n-butyl phthalate</u>	T	<u>µg/l</u>	<u>2.700</u>	
<u>Dichloroacetic acid</u> ⁷	T	<u>µg/l</u>	<u>60^a</u>	
<u>1,2-Dichlorobenzene</u>	T	<u>µg/l</u>	<u>600^a</u>	
<u>1,3-Dichlorobenzene</u>	T	<u>µg/l</u>	<u>400</u>	
<u>1,4-Dichlorobenzene</u>	T	<u>µg/l</u>	<u>75^a</u>	
<u>3,3'-Dichlorobenzidine</u> ⁵	T	<u>µg/l</u>	<u>0.40</u>	
<u>Dichlorobromomethane</u> ⁵	T	<u>µg/l</u>	<u>5.6</u>	
<u>1,2-Dichloroethane</u> ⁵	T	<u>µg/l</u>	<u>3.8</u>	
<u>1,1-Dichloroethylene</u> ⁵	T	<u>µg/l</u>	<u>0.57</u>	
<u>cis-1,2-Dichloroethylene</u>	T	<u>µg/l</u>	<u>70^a</u>	
<u>trans-1,2-Dichloroethylene</u>	T	<u>µg/l</u>	<u>100^a</u>	
<u>2,4-Dichlorophenol</u>	T	<u>µg/l</u>	<u>93</u>	
<u>1,2-Dichloropropane</u> ⁵	T	<u>µg/l</u>	<u>5.0^a</u>	
<u>1,3-Dichloropropene</u>	T	<u>µg/l</u>	<u>10</u>	
<u>Dieldrin</u> ⁵	T	<u>µg/l</u>	<u>0.0014</u>	<u>0.0000065</u>
<u>Di(2-ethylhexyl)adipate</u>	T	<u>µg/l</u>	<u>400^a</u>	
<u>Diethyl phthalate</u>	T	<u>µg/l</u>	<u>23.000</u>	
<u>2,4-Dimethylphenol</u>	T	<u>µg/l</u>	<u>540</u>	<u>450</u>
<u>Dimethyl phthalate</u>	T	<u>µg/l</u>	<u>310.000</u>	
<u>4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)</u>	T	<u>µg/l</u>	<u>13</u>	
<u>Dinitrophenols</u> ⁴	T	<u>µg/l</u>	<u>70</u>	
<u>2,4-Dinitrophenol</u>	T	<u>µg/l</u>	<u>--</u>	<u>55</u>
<u>2,4-Dinitrotoluene</u> ⁵	T	<u>µg/l</u>	<u>1.1</u>	

<u>Dinoseb</u>	T	<u>µg/l</u>	<u>7.0^a</u>	
<u>1,2-Diphenylhydrazine⁵</u>	T	<u>µg/l</u>	<u>0.40</u>	
<u>Diquat</u>	T	<u>µg/l</u>	<u>20^a</u>	
<u>Dissolved solids</u>	T	<u>mg/l</u>	<u>750/500^{a,t}</u>	<u>750/500^b</u>
<u>alpha-Endosulfan⁸</u>	T	<u>µg/l</u>	<u>110</u>	
<u>beta-Endosulfan⁸</u>	T	<u>µg/l</u>	<u>110</u>	
<u>Endosulfan sulfate⁸</u>	T	<u>µg/l</u>	<u>110</u>	
<u>Endothall</u>	T	<u>µg/l</u>	<u>100^a</u>	
<u>Endrin⁹</u>	T	<u>µg/l</u>	<u>0.76</u>	
<u>Endrin aldehyde⁹</u>	T	<u>µg/l</u>	<u>0.76</u>	
<u>Ethylbenzene</u>	T	<u>µg/l</u>	<u>700^a</u>	
<u>Ethylene dibromide (EDB)</u>	T	<u>µg/l</u>	<u>0.050^a</u>	
<u>bis(2-Ethylhexyl)phthalate⁵</u>	T	<u>µg/l</u>	<u>6.0^a</u>	
<u>Fluoranthene</u>	T	<u>µg/l</u>	<u>300</u>	
<u>Fluorene</u>	T	<u>µg/l</u>	<u>1,300</u>	
<u>Fluoride</u>	T	<u>µg/l</u>	<u>4,000^a</u>	
<u>Glyphosate</u>	T	<u>µg/l</u>	<u>700^a</u>	
<u>Heptachlor⁵</u>	T	<u>µg/l</u>	<u>0.0021</u>	
<u>Heptachlor epoxide⁵</u>	T	<u>µg/l</u>	<u>0.0010</u>	
<u>Hexachlorobenzene⁵</u>	T	<u>µg/l</u>	<u>0.0075</u>	<u>0.00045</u>
<u>Hexachlorobutadiene⁵</u>	T	<u>µg/l</u>	<u>4.4</u>	
<u>alpha-Hexachlorocyclohexane⁵</u>	T	<u>µg/l</u>	<u>0.039</u>	
<u>beta-Hexachlorocyclohexane⁵</u>	T	<u>µg/l</u>	<u>0.14</u>	
<u>gamma-Hexachlorocyclohexane (Lindane)⁵</u>	T	<u>µg/l</u>	<u>0.19</u>	<u>0.47</u>
<u>Hexachlorocyclohexane - technical grade⁵</u>	T	<u>µg/l</u>	<u>0.12</u>	

<u>Hexachlorocyclopentadiene</u>	<u>T</u>	<u>µg/l</u>	<u>50^a</u>	
<u>Hexachloroethane⁵</u>	<u>T</u>	<u>µg/l</u>	<u>19</u>	<u>5.3</u>
<u>Indeno(1,2,3-c,d)pyrene⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.044</u>	
<u>Iron</u>	<u>S</u>	<u>µg/l</u>	<u>300^a</u>	<u>300</u>
<u>Isophorone⁵</u>	<u>T</u>	<u>µg/l</u>	<u>360</u>	
<u>Mercury</u>	<u>TR</u>	<u>µg/l</u>	<u>0.012</u>	<u>0.0031</u>
<u>Methoxychlor</u>	<u>T</u>	<u>µg/l</u>	<u>40^a</u>	
<u>Methyl bromide</u>	<u>T</u>	<u>µg/l</u>	<u>48</u>	
<u>Methylene chloride⁵</u>	<u>T</u>	<u>µg/l</u>	<u>5.0^a</u>	<u>47</u>
<u>Nickel</u>	<u>TR</u>	<u>µg/l</u>	<u>610</u>	
<u>Nitrate-N + Nitrite-N</u>	<u>T</u>	<u>µg/l</u>	<u>10.000^a</u>	<u>10.000</u>
<u>Nitrite-N</u>	<u>T</u>	<u>µg/l</u>	<u>1.000^a</u>	
<u>Nitrobenzene</u>	<u>T</u>	<u>µg/l</u>	<u>17</u>	
<u>Nitrosoamines⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.0080</u>	
<u>N-Nitrosodibutylamine⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.064</u>	
<u>N-Nitrosodiethylamine⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.0080</u>	
<u>N-Nitrosodimethylamine⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.0069</u>	
<u>N-Nitrosodi-n-propylamine⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.050</u>	
<u>N-Nitrosodiphenylamine⁵</u>	<u>T</u>	<u>µg/l</u>	<u>50</u>	
<u>N-Nitrosodipyrrolidine⁵</u>	<u>T</u>	<u>µg/l</u>	<u>0.16</u>	
<u>Oxamyl (Vydate)</u>	<u>T</u>	<u>µg/l</u>	<u>200^a</u>	
<u>Pentachlorobenzene</u>	<u>T</u>	<u>µg/l</u>	<u>3.5</u>	
<u>Pentachlorophenol⁵</u>	<u>T</u>	<u>mg/l</u>	<u>1.0^a</u>	
<u>Phenol</u>	<u>T</u>	<u>µg/l</u>	<u>21,000</u>	
<u>Picloram</u>	<u>T</u>	<u>µg/l</u>	<u>500^a</u>	

<u>Polychlorinated biphenyls</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.0017</u>	<u>0.000026</u>
<u>Pyrene</u>	<u>T</u>	<u>µg/l</u>	<u>960</u>	
<u>Selenium</u>	<u>TR</u>	<u>µg/l</u>	<u>50^a</u>	
<u>Silvex (2,4,5-TP, 2-[2,4,5-Trichlorophenoxy]propionic acid</u>	<u>T</u>	<u>µg/l</u>	<u>10</u>	
<u>Simazine</u>	<u>T</u>	<u>µg/l</u>	<u>4.0^a</u>	
<u>Styrene</u>	<u>T</u>	<u>µg/l</u>	<u>100^a</u>	
<u>Sulfates</u>	<u>T</u>	<u>mg/l</u>	<u>250^a</u>	<u>250</u>
<u>1,2,4,5-Tetrachlorobenzene</u>	<u>T</u>	<u>µg/l</u>	<u>2.3</u>	
<u>2,3,7,8-Tetrachlorodibenzo-p-dioxin</u> ⁵	<u>T</u>	<u>pg/l</u>	<u>0.13</u>	<u>0.0086</u>
<u>1,1,2,2-Tetrachloroethane</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>1.7</u>	
<u>Tetrachloroethylene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>5.0^a</u>	
<u>Thallium</u>	<u>TR</u>	<u>µg/l</u>	<u>1.7</u>	
<u>Toluene</u>	<u>T</u>	<u>µg/l</u>	<u>1,000^a</u>	<u>5,600</u>
<u>Toxaphene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>0.0073</u>	<u>0.000068</u>
<u>Trichloroacetic acid</u> ⁷	<u>T</u>	<u>µg/l</u>	<u>60^a</u>	
<u>1,2,4-Trichlorobenzene</u>	<u>T</u>	<u>µg/l</u>	<u>70^a</u>	
<u>1,1,1-Trichloroethane</u>	<u>T</u>	<u>µg/l</u>	<u>200^a</u>	
<u>1,1,2-Trichloroethane</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>5.0^a</u>	
<u>Trichloroethylene</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>5.0^a</u>	<u>29</u>
<u>2,4,5-Trichlorophenol</u>	<u>T</u>	<u>µg/l</u>	<u>2,600</u>	
<u>2,4,6-Trichlorophenol</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>21</u>	
<u>Vinyl chloride</u> ⁵	<u>T</u>	<u>µg/l</u>	<u>2.0^a</u>	
<u>Xylenes</u>	<u>T</u>	<u>µg/l</u>	<u>10,000^a</u>	
<u>Zinc</u>	<u>T</u>	<u>µg/l</u>	<u>9,100</u>	

¹ S = soluble; T = total; TR = total recoverable.

² mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); ng/l = nanograms per liter (parts per trillion); pg/l = picograms per liter (parts per quadrillion); Mf/l = million fibers per liter.

³ OMZA = outside mixing zone average.

⁴ The criteria for this chemical apply to the sum of all dinitrophenols.

⁵ Criteria for this chemical are based on a carcinogenic endpoint.

⁶ The criterion for this chemical applies to the sum of aldicarb, aldicarb sulfone and aldicarb sulfoxide.

⁷ The criterion for this chemical applies to the sum of chloroacetic acid, dichloroacetic acid and trichloroacetic acid.

⁸ The criteria for this chemical apply to the sum of alpha-endosulfan, beta-endosulfan and endosulfan sulfate.

⁹ The criteria for this chemical apply to the sum of endrin and endrin aldehyde.

^a This criterion is the maximum contaminant level (MCL) developed under the "Safe Drinking Water Act".

^b Equivalent 25°C specific conductance values are 1200 micromhos/cm as a maximum and 800 micromhos/cm as a thirty day average.

Table 33-2. Pollutants subject to any methodologies and procedures acceptable under 40 C.F.R. 131 for water bodies located in the lake Erie drainage basin.

<u>Alkalinity</u>
<u>Ammonia</u>
<u>Bacteria</u>
<u>Biochemical oxygen demand (BOD)</u>
<u>Chlorine</u>
<u>Color</u>
<u>Dissolved oxygen</u>
<u>Dissolved solids</u>

<u>pH</u>
<u>Phosphorus</u>
<u>Salinity</u>
<u>Temperature</u>
<u>Total and suspended solids</u>
<u>Turbidity</u>

(B) Agricultural water supply criteria.

- (1) The chemical-specific criteria listed in table 33-3 of this rule apply as "Outside Mixing Zone Averages." For the purpose of setting water quality based effluent limits, the criteria shall be met after the effluent and the receiving water are reasonably well mixed as provided in rules 3745-1-06 and 3745-2-05 of the Administrative Code.
- (2) The water quality criteria for the protection of agricultural uses, or site-specific modifications thereof, adopted in, or developed pursuant to, this rule shall apply outside the mixing zone to all water bodies assigned the agricultural water supply use designation.
- (3) For any pollutant in table 33-3 of this rule for which it is demonstrated that a methodology or procedure cited in this chapter is not scientifically defensible, the director may apply an alternative methodology or procedure acceptable under 40 C.F.R. 131 when developing water quality criteria.

Table 33-3. Statewide water quality criteria for the protection of agricultural uses.

<u>Chemical</u>	<u>Form</u> ¹	<u>Units</u> ²	<u>OMZA</u> ³
<u>Arsenic</u>	<u>TR</u>	<u>µg/l</u>	<u>100</u>
<u>Beryllium</u>	<u>TR</u>	<u>µg/l</u>	<u>100</u>
<u>Cadmium</u>	<u>TR</u>	<u>µg/l</u>	<u>50</u>
<u>Total chromium</u>	<u>TR</u>	<u>µg/l</u>	<u>100</u>
<u>Copper</u>	<u>TR</u>	<u>µg/l</u>	<u>500</u>
<u>Fluoride</u>	<u>T</u>	<u>µg/l</u>	<u>2,000</u>
<u>Iron</u>	<u>TR</u>	<u>µg/l</u>	<u>5,000</u>

<u>Lead</u>	<u>TR</u>	<u>µg/l</u>	<u>100</u>
<u>Mercury</u>	<u>TR</u>	<u>µg/l</u>	<u>10</u>
<u>Nickel</u>	<u>TR</u>	<u>µg/l</u>	<u>200</u>
<u>Nitrates+nitrites</u>	<u>T</u>	<u>mg/l</u>	<u>100</u>
<u>Selenium</u>	<u>TR</u>	<u>µg/l</u>	<u>50</u>
<u>Zinc</u>	<u>TR</u>	<u>µg/l</u>	<u>25,000</u>

¹T = total; TR = total recoverable.

²mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion).

³OMZA = outside mixing zone average.

Replaces: Part of: 3745-1-33, 3745-1-34
Effective: 02/06/2017
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Certification

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