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].

			OMZA[3]
Chemical	Form[1]	Units[2]	Drinking

			Ohio river	Lake Erie
Acenaphthene	T	µg/l	~~1,200~~70	
Acrolein	T	µg/l	~~320~~3.0	
Acrylonitrile[5]	T	µg/l	~~0.59~~0.51	
Alachlor	T	µg/l	2.0[a]	2.0[a]
~~Aldicarb6~~	~~T~~	~~µg/l~~	~~7.0a~~	
~~Aldicarb sulfone6~~	~~T~~	~~µg/l~~	~~7.0a~~	
~~Aldicarb sulfoxide6~~	~~T~~	~~µg/l~~	~~7.0a~~	
Aldrin[5]	T	µg/l	~~0.0013~~7.7*10^{-6}	
Anthracene	T	µg/l	~~9,600~~300	
Antimony[5]	TR	µg/l	~~6.0a~~5.6	6.0[a]
Arsenic	TR	µg/l	10[a]	10[a]
Asbestos	T	Mf/l	7.0[a]	7.0[a]
Atrazine	T	µg/l	3.0[a]	3.0[a]
Barium[5]	TR	µg/l	~~2,000a~~1,000	2,000[a]
Benzene[5]	T	µg/l	5.0[a]	~~12~~5.0[a]
Benzidine[5]	T	µg/l	~~0.0012~~0.00086	
Benzo(a)anthracene[5]	T	µg/l	~~0.044~~0.012	0.2[a]
Benzo(a)pyrene[5]	T	µg/l	~~0.044~~0.0012	
Benzo(b)fluoranthene[5]	T	µg/l	~~0.044~~0.012	
Benzo(k)fluoranthene[5]	T	µg/l	~~0.044~~0.038	

Beryllium	TR	µg/l	4.0[a]	4.0[a]
Bromate	T	µg/l	10[a]	10[a]
Bromoform (Tribromomethane)[5]	T	µg/l	43	
Butylbenzyl phthalate	T	µg/l	~~3,000~~0.10	
Cadmium	TR	µg/l	5.0[a]	5.0[a]
Carbofuran	T	µg/l	40[a]	40[a]
Carbon tetrachloride[5]	T	µg/l	~~2.5~~2.3	5.0[a]
Chloramine	T	µg/l	4,000[a]	4,000[a]
Chlordane[5]	T	µg/l	~~0.021~~0.0031	0.00025
Chlorides	T	mg/l	250[a]	250[a]
Chlorine	T	µg/l	4,000[a]	4,000[a]
Chlorine dioxide	T	µg/l	800[a]	800[a]
Chlorite	T	µg/l	1,000[a]	1,000[a]
Chloroacetic acid~~[7]~~[6]	T	µg/l	60[a]	60[a]
Chlorobenzene	T	µg/l	100[a]	~~470~~100[a]
Chlorodibromomethane[5]	T	µg/l	~~4.1~~4.0	
Bis(2-Chloro-1-methylethyl) ether	T	µg/l	200	
Bis(2-Chloroethyl)ether[5]	T	µg/l	~~0.31~~0.30	
Chloroform[5]	T	µg/l	57	
bis(2-Chloroisopropyl)ether	T	µg/l	1,400	
bis(2-Chloromethyl)ether[5]	T	µg/l	~~0.0013~~0.0015	
2-Chloronaphthalene	T	µg/l	~~1,700~~800	

2-Chlorophenol	T	µg/l	~~120~~30	
Chromium	TR	µg/l	100[a]	100[a]
Chrysene[5]	T	µg/l	~~0.044~~0.038	
Cyanide	free	µg/l	~~200a~~4.0	~~600~~4.0
2,4-D (2,4-Dichlorophenoxy-acetic acid)	T	µg/l	70[a]	70[a]
Dalapon	T	µg/l	200[a]	200[a]
4,4'-DDD[5]	T	µg/l	~~0.0083~~0.0012	
4,4'-DDE[5]	T	µg/l	~~0.0059~~0.00018	
4,4'-DDT[5]	T	µg/l	~~0.0059~~0.0003~~0~~0.00015	
Dibenzo(a,h)anthracene[5]	T	µg/l	~~0.044~~0.0012	
Dibromochloropropane	T	µg/l	0.2[a]	0.2[a]
Di-n-butyl phthalate	T	µg/l	~~2,700~~20	
Dichloroacetic acid~~[76]~~	T	µg/l	60[a]	60[a]
1,2-Dichlorobenzene	T	µg/l	~~600a~~420	600[a]
1,3-Dichlorobenzene	T	µg/l	~~400~~7.0	
1,4-Dichlorobenzene	T	µg/l	~~75a~~63	75[a]
3,3'-Dichlorobenzidine[5]	T	µg/l	~~0.40~~0.21	
Dichlorobromomethane[5]	T	µg/l	~~5.6~~5.5	
1,2-Dichloroethane[5]	T	µg/l	3.8	5.0[a]
1,1-Dichloroethylene[5]	T	µg/l	0.57	7.0[a]
cis-1,2-Dichloroethylene	T	µg/l	70[a]	70[a]
trans-1,2-Dichloroethylene	T	µg/l	100[a]	100[a]

2,4-Dichlorophenol	T	µg/l	~~93~~10	
1,2-Dichloropropane[5]	T	µg/l	5.0[a]	5.0[a]
1,3-Dichloropropene	T	µg/l	~~10~~2.7	
Dieldrin[5]	T	µg/l	~~0.0014~~1.2*10~~-9~~	0.00000065
Di(2-ethylhexyl)adipate	T	µg/l	400[a]	400[a]
Diethyl phthalate	T	µg/l	~~23,000~~600	
2,4-Dimethylphenol	T	µg/l	~~540~~100	~~450~~100
Dimethyl phthalate	T	µg/l	~~310,000~~2,000	
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	T	µg/l	~~13~~2.0	
Dinitrophenols[4]	T	µg/l	~~70~~10	
2,4-Dinitrophenol	T	µg/l	~~--~~10	~~55~~10
2,4-Dinitrotoluene[5]	T	µg/l	~~1.1~~0.49	
Dinoseb	T	µg/l	7.0[a]	7.0[a]
1,2-Diphenylhydrazine[5]	T	µg/l	~~0.40~~0.30	
Diquat	T	µg/l	20[a]	20[a]
Dissolved solids	T	mg/l	750/500[a,b]	750/500[a,b]
alpha-Endosulfan[~~8~~7]	T	µg/l	~~110~~20	
beta-Endosulfan[~~8~~7]	T	µg/l	~~110~~20	
Endosulfan sulfate[~~8~~7]	T	µg/l	~~110~~20	
Endothall	T	µg/l	100[a]	100[a]
Endrin[~~9~~8]	T	µg/l	~~0.76~~0.03	2.0[a]
Endrin aldehyde[~~9~~8]	T	µg/l	~~0.76~~0.29	

Ethylbenzene	T	µg/l	~~700a~~68	700[a]
Ethylene dibromide (EDB)	T	µg/l	0.050[a]	0.050[a]
bis(2-Ethylhexyl)phthalate[5]	T	µg/l	~~6.0a~~3.2	6.0[a]
Fluoranthene	T	µg/l	~~300~~20	
Fluorene	T	µg/l	~~1,300~~50	
Fluoride	T	µg/l	~~4,000a~~1,000	2,000[a]
Glyphosate	T	µg/l	700[a]	700[a]
Heptachlor[5]	T	µg/l	~~0.0021~~5.9*10[-5]	~~0.4~~[5]
Heptachlor epoxide[5]	T	µg/l	~~0.0010~~0.00032	~~0.2~~
Hexachlorobenzene[5]	T	µg/l	~~0.0075~~0.00079	~~0.79~~0.045
Hexachlorobutadiene[5]	T	µg/l	~~4.4~~0.10	
alpha-Hexachlorocyclohexane[5]	T	µg/l	~~0.039~~0.0036	
beta-Hexachlorocyclohexane[5]	T	µg/l	~~0.14~~0.08	
gamma-Hexachlorocyclohexane (Lindane)[5]	T	µg/l	~~0.19~~0.20	~~0.47~~0.20[a]
Hexachlorocyclohexane - technical grade[5]	T	µg/l	~~0.12~~0.066	
Hexachlorocyclopentadiene	T	µg/l	~~50a~~4.0	50[a]
Hexachloroethane[5]	T	µg/l	~~19~~1.0	~~5.3~~1.0
Indeno(1,2,3-c,d)pyrene[5]	T	µg/l	~~0.044~~0.012	
Iron	S	µg/l	300[a]	300[a]
Isophorone[5]	T	µg/l	~~360~~340	
Mercury	TR	µg/l	0.012	0.0031
Methoxychlor	T	µg/l	~~40a~~0.02	40[a]

Methyl bromide	T	µg/l	~~48~~47	
3-Methyl-4-chlorophenol	T	µg/l	500	
Methylene chloride[5]	T	µg/l	5.0[a]	~~47~~5.0[a]
Nickel	TR	µg/l	610	
Nitrate-N + Nitrite-N	T	µg/l	10,000[a]	10,000[a]
Nitrite-N	T	µg/l	1,000[a]	1,000[a]
Nitrobenzene	T	µg/l	~~17~~10	
Nitrosoamines[5]	T	µg/l	0.0080	
N-Nitrosodibutylamine[5]	T	µg/l	~~0.064~~0.063	
N-Nitrosodiethylamine[5]	T	µg/l	0.0080	
N-Nitrosodimethylamine[5]	T	µg/l	0.0069	
N-Nitrosodi-n-propylamine[5]	T	µg/l	0.050	
N-Nitrosodiphenylamine[5]	T	µg/l	~~50~~33	
N-Nitrosodipyrrolidine[5]	T	µg/l	0.16	
Oxamyl (Vydate)	T	µg/l	200[a]	200[a]
Pentachlorobenzene	T	µg/l	~~3.5~~0.1	
Pentachlorophenol[5]	T	mg/l	~~1.0a~~0.3	0.001[a]
Phenol	T	µg/l	~~21,000~~4,000	
Picloram	T	µg/l	500[a]	500[a]
Polychlorinated biphenyls[5]	T	µg/l	~~0.0017~~0.00064	~~0.064~~0.00026
Pyrene	T	µg/l	~~960~~20	
Selenium	TR	µg/l	50[a]	50[a]

Silvex (2,4,5-TP, 2-[2,4,5-Trichlorophenoxy]propionic acid	T	µg/l	10	50[a]
Simazine	T	µg/l	4.0[a]	4.0[a]
Styrene	T	µg/l	100[a]	100[a]
Sulfates	T	mg/l	250[a]	250[a]
1,2,4,5-Tetrachlorobenzene	T	µg/l	~~2.3~~0.03	
2,3,7,8-Tetrachlorodibenzo-p-dioxin[5]	T	~~pg/l~~µg/l	~~0.13~~5.0*10^{-8}	~~9.0086~~5.0*10^{-8}
1,1,2,2-Tetrachloroethane[5]	T	µg/l	1.7	
Tetrachloroethylene[5]	T	µg/l	5.0[a]	5.0[a]
Thallium	TR	µg/l	1.7	
Toluene	T	µg/l	~~1,000a~~57	~~5,600~~57
Toxaphene[5]	T	µg/l	~~0.0073~~0.0028	0.000068
Trichloroacetic acid~~[76]~~	T	µg/l	60[a]	60[a]
1,2,4-Trichlorobenzene[5]	T	µg/l	~~70a~~0.71	70[a]
1,1,1-Trichloroethane	T	µg/l	200[a]	200[a]
1,1,2-Trichloroethane[5]	T	µg/l	5.0[a]	5.0[a]
Trichloroethylene[5]	T	µg/l	5.0[a]	~~29~~5.0[a]
2,4,5-Trichlorophenol	T	µg/l	~~2,600~~300	
2,4,6-Trichlorophenol[5]	T	µg/l	~~21~~14	
Vinyl chloride[5]	T	µg/l	~~2.0a~~0.22	2.0[a]
Xylenes	T	µg/l	10,000[a]	10,000[a]
Zinc	T	µg/l	~~9,100~~7,400	

[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]~~[6] The criterion for this chemical applies to the sum of chloroacetic acid, dichloroacetic acid and trichloroacetic acid.

~~[8]~~[7] The criteria for this chemical apply to the sum of alpha-endosulfan, beta-endosulfan and endosulfan sulfate.

~~[9]~~[8] 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 25ºC 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.

Alkalinity
Ammonia
Bacteria
Biochemical oxygen demand (BOD)
Chlorine
Color

Dissolved oxygen
Dissolved solids
pH
Phosphorus
Salinity
Temperature
Total and suspended solids
Turbidity

(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.

Chemical	Form[1]	Units[2]	OMZA[3]
Arsenic	TR	µg/l	100
Beryllium	TR	µg/l	100
Cadmium	TR	µg/l	50

Total chromium	TR	µg/l	100
Copper	TR	µg/l	500
Fluoride	T	µg/l	2,000
Iron	TR	µg/l	5,000
Lead	TR	µg/l	100
Mercury	TR	µg/l	10
Nickel	TR	µg/l	200
Nitrates+nitrites	T	mg/l	100
Selenium	TR	µg/l	50
Zinc	TR	µg/l	25,000

[1]T = total; TR = total recoverable.

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

[3]OMZA = outside mixing zone average.

Effective:

Five Year Review (FYR) Dates: 10/30/2019

_____

Certification

_____

Date

Promulgated Under:	119.03
Statutory Authority:	6111.041
Rule Amplifies:	6111.041
Prior Effective Dates:	02/14/1978, 04/04/1985, 08/19/1985, 04/30/1987, 05/01/1990, 04/26/1997, 10/31/1997, 07/31/1998, 07/31/1999, 02/22/2002, 12/30/2002, 10/01/2014, 08/10/2016, 02/06/2017