

3745-1-32 Ohio river standards.

[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) The Ohio river is designated warmwater habitat, public water supply, agricultural water supply, industrial water supply and bathing waters, and will meet the most stringent criteria set forth in, or derived in accordance with, this rule, rules 3745-1-01 to 3745-1-07 and 3745-1-33 to 3745-1-40 of the Administrative Code.

Table 32-1. Water quality criteria for the Ohio river.

Chemical	Form ¹	Units ²	IMZM ³	OMZM ³	OMZA ³
Bacteria (E. coli) ^a	T	cfu/100 mL	126	126	126
Bacteria (E. coli) ^b	T	cfu/100 mL	410	410	410
Bacteria (fecal coliform) ^c	T	cfu/ 100 mL	2,000	2,000	2,000
Cyanide	free	µg/l	44	22	5.2
Dissolved oxygen ^d	T	mg/l	--	4.0d	5.0
Radionuclides	T		--	e	e
Temperature	--	°F	--	Table 32-3	Table 32-3

¹T = total.

²mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); °F = degrees Fahrenheit; cfu/100 mL = colony forming units per one hundred milliliters.

³IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum; OMZA = outside mixing zone average.

⁴For dissolved oxygen, OMZM means outside mixing zone minimum at any time and OMZA means outside mixing zone minimum daily average.

^aCriterion applies for contact recreation during the months of May through October and is expressed as a ninety-day geometric mean.

^bCriterion applies for contact recreation during the months of May through October and is not to be exceeded in more than ten per cent of samples taken during any ninety-day period.

^cCriterion applies at all times and is expressed as a monthly geometric mean based on not less than five samples per month. For the months of May through October, measurements of E. coli bacteria may be substituted for fecal coliform.

^dA minimum of 5.0 mg/l at any time shall be maintained during the April fifteen to June fifteen spawning

season.

°Gross total alpha particle activity (including radium-226, but excluding radon and uranium) shall not exceed fifteen picocuries per liter (pci/l) and combined radium-226 and radium-228 shall not exceed four pci/l. The concentration of total gross beta particle activity shall not exceed fifty pci/l. The concentration of total strontium-90 shall not exceed eight pci/l.

Table 32-2. Ohio river water quality criteria for the protection of human health.

Chemical	Form ¹	Units ²	OMZA ³	
			Intakes	Elsewhere
Acenaphthene	T	µg/l	70	70
Acrolein	T	µg/l	3.0	3.0
Acrylonitrile ⁵	T	µg/l	0.51	0.51
Alachlor	T	µg/l	2.0 ^a	--
Aldrin ⁵	T	µg/l	7.7*10 ⁻⁶	7.7*10 ⁻⁶
Anthracene	T	µg/l	300	300
Antimony	TR	µg/l	5.6	5.6
Arsenic	TR	µg/l	10 ^a	50
Asbestos	T	Mf/l	7.0 ^a	--
Atrazine	T	µg/l	3.0 ^a	--
Barium	TR	µg/l	1,000	1,000
Benzene ⁵	T	µg/l	5.0 ^a	12
Benzidine ⁵	T	µg/l	0.00086	0.00086
Benzo(a)anthracene ⁵	T	µg/l	0.012	0.012
Benzo(a)pyrene ⁵	T	µg/l	0.0012	0.0012
Benzo(b)fluoranthene ⁵	T	µg/l	0.012	0.012
Benzo(k)fluoranthene ⁵	T	µg/l	0.038	0.038
Beryllium	TR	µg/l	4.0 ^a	16
Bromate	T	µg/l	10 ^a	--
Bromoform (Tribromomethane) ⁵	T	µg/l	43	43
Butylbenzyl phthalate ⁵	T	µg/l	1.0	1.0
Cadmium	TR	µg/l	5.0 ^a	--
Carbofuran	T	µg/l	40 ^a	--
Carbon tetrachloride ⁵	T	µg/l	2.3	2.3
Chloramine	T	µg/l	4,000 ^a	--
Chlordane ⁵	T	µg/l	0.0031	0.0031
Chlorides	T	mg/l	250 ^a	250

Chlorine	T	µg/l	4,000 ^a	--
Chlorine dioxide	T	µg/l	800 ^a	--
Chlorite	T	µg/l	1,000 ^a	--
Chloroacetic acid ⁶	T	µg/l	60 ^a	--
Chlorobenzene	T	µg/l	100 ^a	100
Chlorodibromomethane ⁵	T	µg/l	4.0	4.0
Bis(2-Chloro-1-methylethyl) ether	T	µg/l	200	200
Bis(2-Chloroethyl) ether ⁵	T	µg/l	0.30	0.30
Chloroform ⁵	T	µg/l	57	57
bis(2-Chloroisopropyl) ether	T	µg/l	1,400	1,400
bis(2-Chloromethyl) ether ⁵	T	µg/l	0.0015	0.0015
2-Chloronaphthalene	T	µg/l	800	800
2-Chlorophenol	T	µg/l	30	30
Chromium	TR	µg/l	100 ^a	--
Chrysene ⁵	T	µg/l	0.038	0.038
Cyanide	free	µg/l	4.0	4.0
2,4-D (2,4-Dichlorophenoxy-acetic acid)	T	µg/l	70 ^a	1,300
Dalapon	T	µg/l	200 ^a	--
4,4'-DDD ⁵	T	µg/l	0.0012	0.0012
4,4'-DDE ⁵	T	µg/l	0.00018	0.00018
4,4'-DDT ⁵	T	µg/l	0.0003	0.0003
Dibenzo (a,h) anthracene ⁵	T	µg/l	0.0012	0.0012
Dibromochloropropane	T	µg/l	0.2 ^a	--
Di-n-butyl phthalate	T	µg/l	20	20
Dichloroacetic acid ⁶	T	µg/l	60 ^a	--
1,2-Dichlorobenzene	T	µg/l	420	420
1,3-Dichlorobenzene	T	µg/l	7.0	7.0
1,4-Dichlorobenzene	T	µg/l	63	63
3,3'-Dichlorobenzidine ⁵	T	µg/l	0.21	0.21
Dichlorobromomethane ⁵	T	µg/l	5.5	5.5
1,2-Dichloroethane ⁵	T	µg/l	3.8	3.8
1,1-Dichloroethylene ⁵	T	µg/l	7.0 ^a	300
cis-1,2-Dichloroethylene	T	µg/l	70 ^a	--
trans-1,2-Dichloroethylene	T	µg/l	100 ^a	100
2,4-Dichlorophenol	T	µg/l	10	10
1,2-Dichloropropane ⁵	T	µg/l	5.0 ^a	5.0
1,3-Dichloropropene ⁵	T	µg/l	2.7	2.7

Dieldrin ⁵	T	µg/l	1.2*10 ⁻⁵	1.2*10 ⁻⁵
Di (2-ethylhexyl) adipate	T	µg/l	400 ^a	--
Diethyl phthalate	T	µg/l	600	600
2,4-Dimethylphenol	T	µg/l	100	100
Dimethyl phthalate	T	µg/l	2,000	2,000
4,6-Dinitro-o-cresol (4,6- Dinitro-2-methylphenol)	T	µg/l	2.0	2.0
Dinitrophenols ⁴	T	µg/l	10	10
2,4-Dinitrotoluene ⁵	T	µg/l	0.49	0.49
2,4-Dinitrophenol	T	µg/l	10	10
Dinoseb	T	µg/l	7.0 ^a	--
1,2-Diphenylhydrazine	T	µg/l	0.30	0.30
Diquat	T	µg/l	20 ^a	--
Dissolved solids	T	mg/l	750/500 ^{a,b}	--
alpha-Endosulfan ⁷	T	µg/l	20	20
beta-Endosulfan ⁷	T	µg/l	20	20
Endosulfan sulfate ⁷	T	µg/l	20	20
Endothall	T	µg/l	100 ^a	--
Endrin ⁸	T	µg/l	0.03	0.03
Endrin aldehyde ⁸	T	µg/l	0.29	0.29
Ethylbenzene	T	µg/l	68	68
Ethylene dibromide (EDB)	T	µg/l	0.050 ^a	--
bis (2-Ethylhexyl) phthalate ⁵	T	µg/l	3.2	3.2
Fluoranthene	T	µg/l	20	20
Fluorene	T	µg/l	50	50
Fluoride	T	µg/l	1,000	1,000
Glyphosate	T	µg/l	700 ^a	--
Heptachlor ⁵	T	µg/l	5.9*10 ⁻⁵	5.9*10 ⁻⁵
Heptachlor epoxide ⁵	T	µg/l	0.00032	0.00032
Hexachlorobenzene ⁵	T	µg/l	0.00079	0.00079
Hexachlorobutadiene ⁵	T	µg/l	0.1	0.1
alpha-Hexachlorocyclohexane ⁵	T	µg/l	0.0036	0.0036
beta-Hexachlorocyclohexane ⁵	T	µg/l	0.08	0.08
gamma-Hexachlorocyclohexane (Lindane)	T	µg/l	0.20 ^a	0.98
Hexachlorocyclohexane - technical grade ⁵	T	µg/l	0.066	0.066
Hexachlorocyclopentadiene	T	µg/l	4.0	4.0

Hexachloroethane ⁵	T	µg/l	1.0	1.0
Indeno (1,2,3-c,d) pyrene ⁵	T	µg/l	0.012	0.012
Iron	S	µg/l	300 ^a	--
Isophorone ⁵	T	µg/l	340	340
Mercury	TR	µg/l	0.012	0.012
Methoxychlor	T	µg/l	0.02	0.02
Methyl bromide	T	µg/l	47	47
3-Methyl-4-chlorophenol	T	µg/l	500	500
Methylene chloride ⁵	T	µg/l	5.0 ^a	46
Nickel	TR	µg/l	610	610
Nitrate-N + Nitrite-N	T	µg/l	10,000 ^a	10,000
Nitrite-N	T	µg/l	1,000 ^a	1,000
Nitrobenzene	T	µg/l	10	10
Nitrosoamines ⁵	T	µg/l	0.0080	0.0080
N-Nitrosodibutylamine ⁵	T	µg/l	0.063	0.063
N-Nitrosodiethylamine ⁵	T	µg/l	0.0080	0.0080
N-Nitrosodimethylamine ⁵	T	µg/l	0.0069	0.0069
N-Nitrosodi-n-propylamine ⁵	T	µg/l	0.050	0.050
N-Nitrosodiphenylamine ⁵	T	µg/l	33	33
N-Nitrosodipyrrolidine ⁵	T	µg/l	0.16	0.16
Oxamyl (Vydate)	T	µg/l	200 ^a	--
Pentachlorobenzene	T	µg/l	0.1	0.1
Pentachlorophenol ⁵	T	µg/l	0.3	0.3
Phenol	T	µg/l	4,000	4,000
Phenolics	T	µg/l	5.0	--
Picloram	T	µg/l	500 ^a	--
Polychlorinated biphenyls ⁵	T	µg/l	0.00064	0.00064
Pyrene	T	µg/l	20	20
Selenium	TR	µg/l	50 ^a	170
Silver	T	µg/l	50	50
Silvex (2, 4, 5-TP, 2- [2, 4, 5-Trichlorophenoxy] propionic acid	T	µg/l	50 ^a	100
Simazine	T	µg/l	4.0 ^a	--
Styrene	T	µg/l	100 ^a	--
Sulfates	T	mg/l	250 ^a	--
1, 2, 4, 5-Tetrachlorobenzene	T	µg/l	0.03	0.03
2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin ⁵	T	µg/l	5.0*10 ⁻⁸	5.0*10 ⁻⁸

1, 1, 2, 2-Tetrachloroethane ⁵	T	µg/l	1.7	1.7
Tetrachloroethylene ⁵	T	µg/l	5.0 ^a	6.9
Thallium	TR	µg/l	1.7	1.7
Toluene	T	µg/l	57	57
Toxaphene ⁵	T	µg/l	0.0028	0.0028
Trichloroacetic acid ⁶	T	µg/l	60 ^a	--
1, 2, 4-Trichlorobenzene ⁵	T	µg/l	0.71	0.71
1, 1, 1-Trichloroethane	T	µg/l	200 ^a	10,000
1, 1, 2-Trichloroethane ⁵	T	µg/l	5.0 ^a	5.5
Trichloroethylene ⁵	T	µg/l	5.0 ^a	6.0
2, 4, 5-Trichlorophenol	T	µg/l	300	300
2, 4, 6-Trichlorophenol ⁵	T	µg/l	14	14
Vinyl chloride ⁵	T	µg/l	0.22	0.22
Xylenes	T	µg/l	10,000 ^a	--
Zinc	T	µg/l	7,400	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); Mf/l = million fibers per liter.

³ OMZA = outside mixing zone average. Criteria in the "Intakes" column apply within five hundred yards of drinking water intakes. Criteria in the "Elsewhere" column apply at all other locations.

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

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

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

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

⁸The criteria for this chemical apply to the sum of endrin and endrin aldehyde.

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

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

Table 32-3. Ohio river temperature criteria.

	PA state line to Greenup Lock and Dam (RM 341.1)	PA state line to Greenup Lock and Dam (RM 341.1)	Greenup Lock and Dam (RM 341.1) to IN state line	Greenup Lock and Dam (RM 341.1) to IN state line
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Table 32-3. Ohio river temperature criteria.

Month/date	Period Average (°F)	Instantaneous Maximum (°F)	Period Average (°F)	Instantaneous Maximum (°F)
January 1 - 31	45.7	47.0	46.8	47.2
February 1 - 29	43.9	46.3	47.9	52.8
March 1 - 31	51.2	56.4	57.4	62.4
April 1 -30	61.2	66.3	66.9	71.1
May 1 -31	71.2	76.5	76.4	81.4
June 1 - 14	78.8	81.0	83.5	85.7
June 15 - 30	87.0	87.0	87.0	87.0
July 1 -31	89.0	89.0	89.0	89.0
August 1- 31	89.0	89.0	89.0	89.0
September 1 - 15	87.0	87.0	87.0	87.0
September 16 - 30	81.0	83.1	84.7	87.0
October 1 - 31	74.1	78.3	76.7	81.6
November 1 - 30	65.0	69.0	66.2	70.8
December 1 -31	55.8	60.0	55.6	60.4

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