TABLE 8
RECOMMENDED AND ADOPTED WATER CONSUMPTION RATES *

Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
1,1,1-Trichloroethane 71556	2.4	
1,1,2,2-Tetrachloroethane 79345	2.4	2.0
1,1,2-Trichloroethane 79005	2.4	
1,1-Dichloroethylene 75354	2.4	2.0
1,2,4-Trichlorobenzene 120821	2.4	
1,2-Dichlorobenzene 95501	2.4	
1,2-Dichloroethane 107062	2.4	
1,2-Dichloropropane 78875	2.4	
1,2-Diphenylhydrazine 122667	2.4	
1,3-Dichlorobenzene 541731	2.4	
1,3-Dichloropropene 542756	2.4	
1,4-Dichlorobenzene 106467	2.4	
2,3,7,8-TCDD (Dioxin) 1746016	2.0	

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Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
2,4,6-Trichlorophenol 88062	2.4	2.0
2,4-Dichlorophenol 120832	2.4	2.0
2,4-Dimethylphenol 105679	2.4	
2,4-Dinitrophenol 51285	2.4	2.0
2,4-Dinitrotoluene 121142	2.4	2.0
2-Chloronaphthalene 91587	2.4	
2-Chlorophenol 95578	2.4	2.0
2-Methyl-4,6-Dinitrophenol 534521	2.4	
3,3'-Dichlorobenzidine 91941	2.4	
3-Methyl-4-Chlorophenol 59507	2.4	
Acenaphthene 83329	2.4	2.0
Acrolein 107028	2.4	
Acrylonitrile 107131	2.4	
Aldrin 309002	2.4	2.0

Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
alpha-Hexachlorocyclohexane (HCH) 319846	2.4	
alpha-Endosulfan 959988	2.4	
Anthracene 120127	2.4	2.0
Antimony 7440360	2.0	2.0
Arsenic 7440382	2.0	
Asbestos 1332214	2.0	2.0
Benzene 71432	2.4	2.0
Benzidine 92875	2.4	
Benzo(a)anthracene 56553	2.4	
Benzo(a)pyrene 50328	2.4	
Benzo(b)fluoranthene 205992	2.4	
Benzo(k)fluoranthene 207089	2.4	
beta-Hexachlorocyclohexane (HCH) 319857	2.4	2.0
beta-Endosulfan 33213659	2.4	

Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
Bis(2-Chloro-1-methylethyl) Ether 108601	2.4	
Bis(2-Chloroethyl) Ether 111444	2.4	
Bis(2-Ethylhexyl) Phthalate 117817	2.4	
Bromoform 75252	2.0	2.0
Butylbenzyl Phthalate 85687	2.4	
Carbon Tetrachloride 56235	2.4	2.0
Chlordane 57749	2.4	2.0
Chlorobenzene 108907	2.4	
Chlorodibromomethane 124481	2.4	2.0
Chloroform 67663	2.4	2.0
Chrysene 218019	2.4	
Copper 7440508	2.0	
Cyanide 57125	2.4	
Dibenzo(a,h)anthracene 53703	2.4	

Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
Dichlorobromomethane 75274	2.4	2.0
Dieldrin 60571	2.4	2.0
Diethyl Phthalate 84742	2.4	
Dimethyl Phthalate 131113	2.4	
Di-n-Butyl Phthalate 84742	2.4	
Endosulfan Sulfate 1031078	2.4	
Endrin 72208	2.4	
Endrin Aldehyde 7421934	2.4	
Ethylbenzene 100414	2.4	
Fluoranthene 206440	2.4	2.0
Fluorene 86737	2.4	2.0
gamma-Hexachlorocyclohexane (HCH) [Lindane] 58899	2.4	
Heptachlor 76448	2.4	2.0
Heptahlor Epoxide 1024573	2.4	

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Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
Hexachloroenzene 118741	2.4	
Hexachlorobutadiene 87683	2.4	2.0
Hexachlorocyclopentadiene 77474	2.4	
Hexachloroethane 67721	2.4	
Indeno(1,2,3-cd)pyrene 193395	2.4	
Isophorone 78591	2.4	
Methylmercury 22967926		
Methyl Bromide 74839	2.4	
Methylene Chloride 75092	2.4	2.0
Nickel 744000	2.0	
Nitrobenzene 98953	2.4	
N-Nitrosodimethylamine 62759	2.0	
N-Nitrosodi-n-Propylamine 621647	2.0	
N-Nitrosodiphenylamine 86306	2.0	

Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
Pentachlorophenol 87865	2.4	2.0
Phenol 108952	2.4	
p,p'-Dichlorodiphenyldichloroethane (DDD) 72548	2.4	
p,p -Dichlorodiphenyldichloroethylene (DDE) 72559	2.4	
p,p'-Dichlorodiphenyltrichloroethane (DDT) 50293	2.4	2.0
Polychlorinated Biphenyls (PCBs) 1336363	2.0	2.0
Pyrene 129000	2.4	2.0
Selenium 7782492	2.0	
Tetrachloroethylene 127184	2.4	2.0
Thallium 7440280	2.0	2.0
Toluene 108883	2.4	
Toxaphene 8001352	2.4	
trans-1,2-Dichloroethylene 156605	2.4	

Chemical	EPA Recommended Water Consumption Rate (L/day)	FDEP Adopted Water Consumption Rate (L/day)
Trichloroethylene 79016	2.4	2.0
Vinyl Chloride 75014	2.4	
Zinc 7440666	2.0	

*** Summary:**

Table 8 identifies the water consumption rates used to calculate EPA's national recommended water quality criteria for 98 toxic pollutants to protect human health and the water consumption rates used to calculate FDEP's adopted water quality criteria for 32 toxic pollutants to protect human health. The former are based on individual water quality criteria documents for toxic pollutants hyperlinked in *National Recommended Water Quality Criteria - Human Health Criteria Table*, https://www.epa.gov/wqc/national-recommended-water-quality-criteria-human-health-criteria-table (accessed Dec. 31, 2021). The latter are based on electronic mail from Kaitlyn Sutton, Environmental Administrator, Water Quality Standards Development Section, Division of Environmental Assessment and Restoration, FDEP, to David A. Ludder, Law Office of David A. Ludder, PLLC (dated Aug. 30, 2021) and Fla. Admin. Code r. 62-302.530, Table: Surface Water Quality Criteria (indicating that no criteria have been adopted for 3,3'-Dichlorobenzidine, Acrylonitrile, and gamma-Hexachlorocyclohexane (HCH) [Lindane], among others).

EPA has used a water consumption rate of 2.4 liters per day to calculate national recommended water quality criteria for 84 of 98 toxic pollutants. EPA has used a water consumption rate of 2.0 liters per day to calculate national recommended water quality criteria for 14 toxic pollutants. No FDEP-adopted water quality criteria for 32 toxic pollutants to protect human health are based on the EPA's national default water consumption rate of 2.4 liters per day. FDEP has not adopted water quality criteria to protect human health for 66 toxic pollutants. The FDEP-adopted water quality criteria likely underestimate human exposure to water contaminated with toxic pollutants.

Comments:

Human exposure to toxic pollutants in water is primarily through consumption of contaminated water and contaminated aquatic organisms (fish and shellfish). The magnitude of human exposure to toxic pollutants in water is a function of the amount of human consumption of contaminated water.

In November 1980, EPA recommended a national default water consumption rate of 2.0 liters per day based on *Drinking Water and Health*, National Academy of Sciences, National Research Council (1977). *Notice of Water Quality Criteria Documents*, 45 Fed. Reg. 79318, 79324 (Nov. 28, 1980). This consumption rate was reaffirmed in 2000. *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health* (EPA-822-B-00-004, Oct. 2000), at 4-22 to 4-23.

In September, 2011, EPA updated the national default drinking water consumption rate to 2.4 liters per day based on the National Health and Nutrition Examination Survey (NHANES) data from 2003 to 2006. *Exposure Factors Handbook: 2011 Edition* (EPA-600-R-09-052F, Sep 2011), at Table 3-9.

In *Water Quality Standards Handbook* (EPA 823-B-17-001 2017), Chap. 3, at § 3.3.2, EPA describes the derivation of the water consumption rate as follows:

> Based on NHANES 2003-2006 data, the EPA's 2015 updated recommended exposure assumption for drinking water intake is 2.4 liters/day (L/d), rounded from 2.414 L/d for per capita estimate of combined direct and indirect "community water" ingestion at the 90th percentile for adults 21 years of age and older. For this estimate, direct water is defined as water ingested directly as a beverage (from community water sources); indirect water is defined as water added in the preparation of food or beverages but not water intrinsic to purchased foods. Community water includes direct and indirect use of tap water and excludes bottled water and other sources such as water from wells and springs. This recommended value is found in Chapter 3 (Table 3-23) of the 2011 Exposure Factors Handbook.

See Human Health Ambient Water Quality Criteria: 2015 Update (EPA 820-F-15-001 June 2015).