



NH Department of Environmental Services Drinking Water Program

Analytical Requirements for Community Public Water Systems

2016

Many of the parameters listed in the table below must be analyzed and reported to DES. **Please pay close attention to the footnotes on page 6 which further explain the sampling requirements.** The water system is responsible for sample collection, reporting, and ensuring that the correct analytical methods are used. Please visit <http://des.nh.gov/organization/commissioner/pip/publications/co/documents/r-co-01-5.pdf> to review the sample collection and preservation guidance document. Please contact DES Drinking Water and Groundwater Bureau at (603) 271-2513 with questions regarding drinking water compliance. Click on: <http://www4.egov.nh.gov/DES/NHELAP/> to verify which labs are accredited by DES to perform analysis on drinking water samples.

The laboratory must:

1. Use EPA approved drinking water methods specified in 40 CFR 141, 142, and 143
2. Have current drinking water accreditation for analyses
3. Comply with Env-Dw 719.02, **“Reporting Data from Laboratories” (which includes electronic reporting)**

Parameter	Env-Dw	Group	SDWIS contaminant ID#	MCL (mg/L)	Trigger (mg/L)	Source	Health Effects---at levels above the MCL
<i>E. coli</i> ^p	702.03	Bio	3014	Absent	Presence	Human & animal fecal waste	May cause gastro-intestinal illness
Total Coliform ^p	702.03	Bio	3100	n.e. ^q	Presence	Naturally present in the environment	None, indicates possible presence of other bacteria
Aluminum ^l	706.01 (b,c) 706.02 (b)	IOC	1002	0.05 ^l – 0.2	0.05		
Antimony	704.02	IOC	1074	0.006	0.003	Geological; flame retardants, ceramics, pesticides	Increase in blood cholesterol; decrease in blood sugar
Arsenic	704.02	IOC	1005	0.010	0.005	Erosion of natural geological deposits; pesticide residue, industrial waste	Skin damage, circulatory system problems, carcinogen
Asbestos ^j (fiber>10 micrometers)	704.02	IOC	1094	7 million fibers per liter (MFL) ^j	3.5 MFL	Decay of asbestos cement in water mains; erosion of natural deposits	Increased risk of developing benign intestinal polyps
Barium	704.02	IOC	1010	2	1	Geological; oil/gas drilling, painting, industrial waste	Muscular weakness, increase in blood pressure
Beryllium	704.02	IOC	1075	0.004	0.002	Geological; used in high thermal conductivity materials	Intestinal lesions
Cadmium	704.02	IOC	1015	0.005	0.0025	Geological; mining, smelting, metal finishing; runoff from waste batteries and paints	Kidney damage
Chloride ^d	706.01 (b)	IOC	1017	250 ^d	250	Wastewater, road salt, water softeners, corrosion	Aesthetic
Chromium	704.02	IOC	1020	0.1	0.05	Discharge from steel and pulp mills; erosion of natural deposits	Allergic dermatitis
Color ^l	706.01 (b) 706.02 (b)	IOC		15 color units ^l			
Copper ^c	704.03	IOC	5000	Trigger exceeded at 90% ^c	1.3	Corrosion of household plumbing; erosion of natural deposits	Gastrointestinal distress; liver or kidney damage
Copper ^d	706.01 (b)	IOC	1022	1.0 ^d	1.3		

Parameter	Env-Dw	Group	SDWIS contaminant ID#	MCL (mg/L)	Trigger (mg/L)	Source	Health Effects---at levels above the MCL
Corrosivity ¹	706.01 (b) 706.02 (b)	IOC		Non-corrosive ¹			
Cyanide (as free C) ¹	704.02	IOC	1024	0.2 ¹	0.1	Used in electroplating, steel proc, plastics, synthetic fibers	Neurological, thyroid problems
Fluoride ^a	704.02	IOC	1025	4.0 ^a	2.0	Geological; additive to drinking water, toothpaste	Skeletal damage/mottled teeth in children
Fluoride ^d	706.01 (b)	IOC	1025	2.0 ^d	2.0		
Foaming Agents ¹	706.01 (b) 706.02 (b)	IOC		0.5 ¹			
Iron ^d	706.01 (b)	IOC	1028	0.3 ^d	0.3	Geological	Aesthetic
Lead ^c	704.03	IOC	5000	Trigger exceeded at 90% ^c	0.015	Corrosion of household plumbing; erosion of natural deposits	Delays in physical or mental development in infants and children
Manganese ^d	706.01 (b)	IOC	1032	0.05 ^d	0.05	Geological	Aesthetic
Mercury	704.02	IOC	1035	0.002	0.001	Geological; used in mfg. of paint, paper, fungicides	Nervous system disorders, kidney damage
Nickel ⁿ		IOC	1036	n.e. ⁿ		Geological; electroplating, battery production, ceramics	Heart, liver, skin, weight loss
Nitrate (as N)	704.02	IOC	1040	10	5	Geological; fertilizer, sewage, feedlots	Methemoglobinemia, "Blue Baby Syndrome"
Nitrite (as N)	704.02	IOC	1041	1	0.5	Geological; fertilizer, sewage, feedlots	Methemoglobinemia, "Blue Baby Syndrome"
Total Nitrate and Nitrite	704.02	IOC	1038	10	5	Geological; fertilizer, sewage, feedlots	Methemoglobinemia, "Blue Baby Syndrome"
Odor ¹	706.01 (b) 706.02 (b)	IOC		3 threshold odor number ¹			
pH ^{b,d}	706.01 (b)	IOC	1925	6.5-8.5 ^{b,d}	8.5	Precipitation and geology	Aesthetic
Selenium	704.02	IOC	1045	0.05	0.025	Geological; by-product of copper mining/smeltering	Numbness in fingers or toes; circulatory problems, hair or nail loss
Silver ¹	706.01 (b) 706.02 (b)	IOC	1050	0.1 ¹	0.1		
Sodium ^r	706.01 (b) 713.08	IOC	1052	100-250	250	Road salt, septic systems (salt from water softeners)	Aesthetic
Sulfate ^d	706.01 (b)	IOC	1055	250 ^d	250	Naturally occurring	
Sulfide ¹	706.01 (b) 706.02 (b)	IOC	0008	0.05 ¹	0.05		
Thallium	704.02	IOC	1085	0.002	0.001	Geological; electronics industry, alloys and glass mfg	Kidney, liver, or intestinal problems; blood chemistry; hair loss

Parameter	Env-Dw	Group	SDWIS contaminant ID#	MCL (mg/L)	Trigger (mg/L)	Source	Health Effects---at levels above the MCL
Total Dissolved Solids ^l	706.01 (b) 706.02 (b)	IOC	1930	500 ^l	500		
Zinc ^d	706.01 (b)	IOC	1095	5 ^d	5	Galvanized pipes	Possible presence of other health related heavy metals
Analytical Gross Alpha ^e		Rad	4002	n.e. ^e		Erosion of natural deposits and radioactive materials	
Compliance Gross Alpha	703.01 (a)	Rad	4000	15 pCi/L	If Detected	Erosion of natural deposits and radioactive materials	Increased risk of cancer
Radium 226 ^e	703.01 (a,c)	Rad	4020	n.e. ^e		Erosion of natural deposits	
Radium 228 ^e	703.01 (a,c)	Rad	4030	n.e. ^e		Erosion of natural deposits	
Radium 226 & 228 (Combined)	703.01 (a,c)	Rad	4010	5 pCi/L	If Detected	Erosion of natural deposits	Increased risk of cancer
Uranium (Mass)	703.01 (a)	Rad	4006	30 ug/L	If Detected	Erosion of natural deposits	Increased risk of cancer; kidney problems
Radon ^k	703.02 (a)	Rad	4004	n.e. ^k		Erosion of natural deposits and radioactive materials	Increased risk of cancer
Beta Particles ⁱ	703.01 (a)	Rad	4100	4 mrem/year ⁱ	If Detected	Decay of natural and man-made deposits	Increased risk of cancer
Alachlor (Lasso)	705.02 (b)	SOC	2051	0.002	If Detected	Herbicide used on corn, soybeans	Eyes, liver, kidney, or spleen problems; anemia; increased risk of cancer
Aldicarb (Temik) ^o	705.02 (b)	SOC	2047	0.003 ^o	If Detected	Insecticide used on cotton, potatoes	Sweating, leg weakness, nausea, nervous system problems
Aldicarb sulfoxide ^o	705.02 (b)	SOC	2043	0.004 ^o	If Detected	Degraded from Aldicarb by Plants	Nervous system problems
Aldicarb sulfone (aldoxycarb) ^o	705.02 (b)	SOC	2044	0.002 ^o	If Detected	Degraded from Aldicarb by Plants	Nervous system problems
Atrazine (Atranex, Crisazine)	705.02 (b)	SOC	2050	0.003	If Detected	Herbicide, weed control	Cardiovascular system or reproductive problems
Carbofuran (Furadon, 4F)	705.02 (b)	SOC	2046	0.04	If Detected	Soil fumigation. Insecticide on corn, cotton	Nervous system, reproductive difficulties, headache, sweating, nausea
Chlordane	705.02 (b)	SOC	2959	0.002	If Detected	Banned Insecticide for termite control	Liver or nervous system problems; increased risk of cancer
Dalapon ^h	705.02 (b,c)	SOC	2031	0.2 ^h	If Detected	Herbicide	Kidney problems
Dibromochloropropane (DBCP) ^h	705.02 (b,c)	SOC	2931	0.0002 ^h	If Detected	Soil fumigation on soybeans, corn; prohibited in 1977	Liver or kidney problems; increased risk of cancer
Di(2-ethylhexyl)adipate	705.02 (b)	SOC	2035	0.4	If Detected	Plastics	General toxic effects or reproductive difficulties; increased risk of cancer
Di(2-ethylhexyl)phthalate	705.02 (b)	SOC	2039	0.006	If Detected	Plastics	Liver and reproductive problems; increased risk of cancer
Dinoseb	705.02 (b)	SOC	2041	0.007	If Detected	Herbicide	Reproductive difficulties
Diquat ^h	705.02 (b,c)	SOC	2032	0.02 ^h	If Detected	Herbicide	Cataracts
Endothall ^h	705.02 (b,c)	SOC	2033	0.1 ^h	If Detected	Herbicide	Stomach and intestinal problems

Parameter	Env-Dw	Group	SDWIS contaminant ID#	MCL (mg/L)	Trigger (mg/L)	Source	Health Effects---at levels above the MCL
Endrin ⁱ	705.02 (b)	SOC	2005	0.002 ⁱ	If Detected	Banned Pesticide	Liver problems/nervous system effects
Ethylene dibromide (EDB) ^h	705.02 (b,c)	SOC	2946	0.00005 ^h	If Detected	Gas additive; soil fumigant, solvent, prohibited in 1984	Reproductive, liver, or kidney problems, increased risk of cancer
Glyphosate	705.02 (b)	SOC	2034	0.7	If Detected	Herbicide	Kidney problems; reproductive difficulties
Heptachlor	705.02 (b)	SOC	2065	0.0004	If Detected	Banned insecticide	Liver damage; increased risk of cancer
Heptachlor epoxide	705.02 (b)	SOC	2067	0.0002	If Detected	Breakdown product of heptachlor	Liver damage; increased risk of cancer
Hexachlorobenzene	705.02 (b)	SOC	2274	0.001	If Detected	Fungicide, wood preservatives	Liver or kidney problems; reproductive difficulties; increased risk of cancer
Hexachlorocyclopentadiene	705.02 (b)	SOC	2042	0.05	If Detected	Waste By-Product in mfg of Chlorinated Pesticides	Kidney or stomach problems
Lindane	705.02 (b)	SOC	2010	0.0002	If Detected	Insecticide used on seed, lumber, livestock, restricted 1983	Liver or kidney problems
Methoxychlor (DMDT, Martate)	705.02 (b)	SOC	2015	0.04	If Detected	Insecticide used on fruit trees, vegetables, livestock	Reproductive difficulties
Oxamyl (Vydate)	705.02 (b)	SOC	2036	0.2	If Detected	Insecticide used on apples, potatoes, & tomatoes.	Slight nervous system effects
PAH (Benzo(a)pyrene)	705.02 (b)	SOC	2306	0.0002	If Detected	Fossil fuel, wood, coal, or tar burning	Reproductive difficulties; increased risk of cancer
Pentachlorophenol	705.02 (b)	SOC	2326	0.001	If Detected	Wood preservative and herbicide	Liver or kidney problems; increased risk of cancer
Picloram	705.02 (b)	SOC	2040	0.5	If Detected	Herbicide	Liver problems
Polychlorinated biphenyls (PCB) ^h	705.02 (b,c)	SOC	2383	0.0005 ^h	If Detected	Waste chemical runoff; old transformer	Skin changes; immune deficiencies; reproductive or nervous system deficiencies; increased risk of cancer
Simazine	705.02 (b)	SOC	2037	0.004	If Detected	Herbicide	Blood problems
Toxaphene	705.02 (b)	SOC	2020	0.003	If Detected	Insecticide used on cotton and cattle; prohibited in 1982	Liver, thyroid, or kidney problems; increased risk of cancer
2,3,7,8 TCDD (Dioxin) ^h	705.02 (b,c)	SOC	2063	0.00000003 ^h	If Detected	Combustion emissions	Reproductive difficulties; increased risk of cancer
2,4,5 TP (Silvex)	705.02 (b)	SOC	2110	0.05	If Detected	Herbicide (prohibited in 1984)	Liver problems
2,4-D	705.02 (b)	SOC	2105	0.07	If Detected	Herbicide to control broad leaf weeds	Kidney, liver, or adrenal gland problems
Benzene	705.01 (b)	VOC	2990	0.005	If Detected	Gas additive; Industrial solvent	Anemia; increased risk of cancer
Carbon tetrachloride	705.01 (b)	VOC	2982	0.005	If Detected	Industrial solvent/degreaser	Liver problems; increased risk of cancer
1,2 Dichlorobenzene (o-)	705.01 (b)	VOC	2968	0.6	If Detected	Industrial chemicals	Liver, kidney, or circulatory system problems
1,4 Dichlorobenzene (para-)	705.01 (b)	VOC	2969	0.075	If Detected	Used in insecticides, moth balls, air deodorizers	Anemia; liver, kidney, or spleen problems

Parameter	Env-Dw	Group	SDWIS contaminant ID#	MCL (mg/L)	Trigger (mg/L)	Source	Health Effects---at levels above the MCL
1,2 Dichloroethane	705.01 (b)	VOC	2980	0.005	If Detected	Industrial extraction solvent	Increased risk of cancer
1,1-Dichloroethylene	705.01 (b)	VOC	2977	0.007	If Detected	Industrial extraction solvent	Liver problems
1,2-Dichloroethylene (cis-)	705.01 (b)	VOC	2380	0.07	If Detected	Industrial extraction solvent	Liver problems
1,2-Dichloroethylene (trans-)	705.01 (b)	VOC	2979	0.1	If Detected	Industrial extraction solvent	Liver problems
Dichloromethane (methylene chloride)	705.01 (b)	VOC	2964	0.005	If Detected	Solvent	Increased risk of cancer; liver problems
1,2-Dichloropropane	705.01 (b)	VOC	2983	0.005	If Detected	Industrial solvent	Increased risk of cancer
Ethylbenzene	705.01 (b)	VOC	2992	0.7	If Detected	Gas additive	Kidney or liver problems
Methyl tertiary-butyl ether (MtBE) ^g	705.01 (b)	VOC	2251	0.013 ^g	If Detected	Gasoline additive	Kidney or liver damage; increased risk of cancer
Methyl tertiary-butyl ether (MtBE) ^d	706.01 (b)	VOC	2251	0.020 ^d	0.020		
Monochlorobenzene (Chlorobenzene)	705.01 (b)	VOC	2989	0.1	If Detected	Industrial solvent	Liver or kidney problems
Styrene	705.01 (b)	VOC	2996	0.1	If Detected	Plastic mfg; resins used in H2O treatment equip	Liver, kidney, or circulatory system problems
Tetrachloroethylene	705.01 (b)	VOC	2987	0.005	If Detected	Dry cleaning, industrial solvent	Liver problems; increased risk of cancer
Toluene	705.01 (b)	VOC	2991	1	If Detected	Gas additive; Industrial solvent	Kidney, nervous system, or liver problems
1,1,1-Trichloroethane	705.01 (b)	VOC	2981	0.2	If Detected	Industrial solvent/degreaser	Nervous system, circulatory, or liver problems
1,2,4-Trichlorobenzene	705.01 (b)	VOC	2378	0.07	If Detected	Mfg of herbicides, dye carrier	Adrenal gland problems
1,1,2-Trichloroethane	705.01 (b)	VOC	2985	0.005	If Detected	Industrial solvent	Kidney, liver, or immune system problems
Trichloroethylene	705.01 (b)	VOC	2984	0.005	If Detected	Waste from dry cleaning materials; industrial solvent	Liver problems; increased risk of cancer
Vinyl chloride	705.01 (b)	VOC	2976	0.002	If Detected	Leaching from PVC pipes; plastics factory discharge	Increased risk of cancer
Xylene (total)	705.01 (b)	VOC	2955	10	If Detected	Paint and Ink solvent: gas refining by- product	Nervous system damage
Chloroform (Trichloromethane) ^{f,m}	705.03 (c)	DBP	2941	combined 0.080 ^{f,m}		Disinfection by product	Increased risk of cancer
Bromoform ^{f,m}	705.03 (d)	DBP	2942	combined 0.080 ^{f,m}		Disinfection by product	Increased risk of cancer
Bromodichloromethane ^{f,m}	705.03 (d)	DBP	2943	combined 0.080 ^{f,m}		Disinfection by product	Increased risk of cancer
Chlorodibromomethane (Dibromochloromethane) ^{f,m}	705.03 (d)	DBP	2944	combined 0.080 ^{f,m}		Disinfection by product	Increased risk of cancer

Parameter	Env-Dw	Group	SDWIS contaminant ID#	MCL (mg/L)	Trigger (mg/L)	Source	Health Effects---at levels above the MCL
Total Trihalomethanes ^{f,m}	705.03 (c)	DBP	2950	0.080 ^{f,m}		Disinfection by product	Increased risk of cancer
Bromate ^m	705.03 (c)	DBP	1011	0.010 ^m		Disinfection by product (from ozonation process)	Increased risk of cancer
Chlorite ^m	705.03 (c)	DBP	1009	1.0 ^m		Disinfection by product (from use of chlorine dioxide)	Nervous system, increased risk of anemia
Haloacetic Acids ^m	705.03 (c)	DBP	2456	0.060 ^m			
Di-isopropyl ether (DIPE) ^e		VOCU	0006	n.e. ^e		Gasoline additive	
Ethyl tertiary butyl ether (ETBE) ^e		VOCU	0005	n.e. ^e		Gasoline additive	
Tertiary amyl methyl ether (TAME) ^e		VOCU	0003	n.e. ^e		Gasoline additive	
Tertiary butyl alcohol (TBA) ^e		VOCU	0004	n.e. ^e		Gasoline additive	

Abbreviations:

SDWIS – Safe Drinking Water Information System

MCL - Maximum Contaminant Level

Bio - biological parameter

Rad - radiological parameter

IOC - inorganic compound

SOC - synthetic organic compound

VOC - volatile organic compound

VOCU - volatile organic compound - unregulated

DBP - disinfection by-product

n.e. - not established-reporting is required

Footnotes:

^a Fluoride has a primary MCL of 4.0 mg/L (Env-Dw 704.02) and a secondary MCL of 2.0 mg/L (Env-Dw 706.01)

^b pH is expressed in units of hydrogen ion activity

^c Lead and Copper samples are collected in tap water throughout the distribution system: Env-Dw 714

^d Aesthetic Regulated Secondary MCLs: Env-Dw 706

^e Recommended additional reporting parameters

^f TTHM MCL combined equals 0.080 mg/L; DBP Group samples are collected in tap water throughout the distribution system: Env-Dw 705.03 and Env-Dw 715

^g MtBE has a primary MCL of 0.013 mg/L (Env-Dw 705.01) and a secondary MCL of 0.020 mg/L (Env-Dw 706.01)

^h Sampling required only as part of the initial pumping test and water quality sampling program required by Env-Dw 301 or Env-Dw 302, as applicable; Env-Dw 705.02(c)

ⁱ Testing required only for systems deemed vulnerable by DES and notified that testing is mandatory

^j Monitoring for Asbestos is conducted every 9 years for systems containing asbestos lined pipes: Env-Dw 711

^k Radon testing only required for initial water quality of new wells: Env-Dw 710.05

^l Secondary MCLs waived after initial water quality testing: Env-Dw 706.02(b)

^m Only applicable to systems that add a chemical disinfectant in the treatment process: Env-Dw 705.03 and Env-Dw 715

ⁿ Monitoring and reporting requirements for nickel remain even though the MCL and MCLG were removed from state/federal regulations

^o MCLs have been federally established for Aldicarbs but no monitoring is required: Env-Dw 712.10

^p Bio Group samples are collected during the initial pumping test and then in tap water throughout the distribution system (Env-Dw 709) or source water (Env-Dw 717)

^q Presence of Total Coliform may trigger additional requirements (Env-Dw 709, 717, & 720)

^r Special Sodium requirements mandate periodic sampling and reporting (Env-Dw 713.08)