North Carolina's Annual State Public Water Systems Compliance Report For the Calendar Year 2005

State of North Carolina's Violation Tables

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Organic Contaminants							
1,1,1-Tricholorethane (VOC)	0.2	0	0			75	56
1,1-Dichloroethylene (VOC)	0.007	5	2			75	56
1,1,2-Trichloroethane (VOC)	.005	0	0			75	56
1,2,4-Trichlorobenzene (VOC)	.07	0	0			75	56
1,2-Dibromo-3-chloropropane (DBCP) (SOC)	0.0002	0	0			41	31
1,2-Dichloroethane (VOC)	0.005	0	0			75	56
1,2-Dichloropropane (VOC)	0.005	0	0			75	56
2,3,7,8-TCDD (Dioxin) (SOC)	$3x10^{-8}$	State-wide waiver	State-wide waiver			State-wide waiver	State-wide waiver
2,4,5-TP (Silvex) (SOC)	0.05	0	0			42	32
2,4-D (SOC)	0.07	0	0			43	33
Acrylamide (SOC)				0	0		
Alachlor (SOC)	0.002	0	0			39	30
Atrazine (SOC)	0.003	0	0			41	30
Benzene (VOC)	0.005	0	0			75	56
Benzo(a)pyrene (SOC)	0.0002	0	0			39	30
Carbofuran (SOC)	0.04	0	0			41	31
Carbon tetrachloride (VOC)	0.005	0	0			75	56
Chlordane (SOC)	0.002	0	0			40	31

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Cis-1,2-Dichloroethylene (VOC)	0.07	0	0			75	56
Dalapon (SOC)	0.2	0	0			45	35
Di(2-ethylhexyl)adipate (SOC)	0.4	0	0			41	31
Di(2-ethylhexyl)phthalate (SOC)	0.006	0	0			36	29
Dichloromethane (VOC)	0.005	2	1			75	56
Dinoseb (SOC)	0.007	0	0			42	32
Diquat (SOC)	0.02	State-wide waiver	State-wide waiver			State-wide waiver	State-wide waiver
Endothall (SOC)	0.1	State-wide waiver	State-wide waiver			State-wide waiver	State-wide waiver
Endrin (SOC)	0.002	0	0			39	30
Epichlorohydrin (SOC)				0	0		
Ethylbenzene (VOC)	0.7	0	0			75	56
Ethylene dibromide (EDB) (SOC)	0.00005	9	3			42	32
Glyphosate (SOC)	0.7	State-wide waiver	State-wide waiver			State-wide waiver	State-wide waiver
Heptachlor (SOC)	0.0004	0	0			39	30
Heptachlor epoxide (SOC)	0.0002	0	0			41	30
Hexachlorobenzene (SOC)	0.001	0	0			39	30
Hexachlorocyclopentadiene (SOC)	0.05	0	0			39	30
Lindane (SOC)	0.0002	0	0			40	30
Methoxychlor (SOC)	0.04	0	0			39	30
Monochlorobenzene (VOC)	0.1	0	0			75	56
o-Dichlorobenzene (VOC)	0.6	0	0			75	56
para-Dichlorobenzene (VOC)	0.075	0	0			75	56
Total polychlorinated biphenyls (PCBs) (SOC)	0.0005	0	0			41	31
Pentachlorophenol (SOC)	0.001	0	0			42	32
Tetrachloroethylene (VOC)	0.005	0	0			75	56

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Trichloroethylene (VOC)	0.005	0	0			75	56
Styrene (VOC)	0.1	0	0			75	56
Toluene (VOC)	1	0	0			75	56
Trans-1,2-Dichloroethylene (VOC)	0.1	0	0			75	56
Xylenes (total) (VOC)	10	0	0			75	56
Toxaphene (SOC)	0.003	0	0			41	31
Oxamyl (Vydate) (SOC)	0.2	0	0			41	31
Pichloram (SOC)	0.5	0	0			42	32
Simazine (SOC)	0.004	0	0			39	30
Vinyl chloride (VOC)	0.002	0	0			75	56
SUBTOTAL		16	6			2629	84

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Inorganic Contaminants							
Antimony	0.006	0	0			12	8
Arsenic	0.01**	0	0			11	8
Asbestos	7 million fibers/L# 10 Φm long	0	0			0	0
Barium	2	0	0			11	8
Beryllium	0.004	0	0			11	8
Cadmium	0.005	0	0			11	8
Chrominum	0.1	0	0			11	8
Cyanide (as free cyanide)	0.2	0	0			11	8
Fluoride	4.0	2	2			11	8

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Mercury	0.002	0	0			11	8
Nitrate	10 (as Nitrogen)	1	1			25	17
Nitrite	1 (as Nitrogen)	0	0			0	0
Selenium	0.05	0	0			11	8
Thallium	0.002	0	0			14	8
SUBTOTAL		19	4			150	25

**North Carolina lowered the Arsenic Maximum Contaminant Level to 0.01ppm in the year 2002.

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Radionuclides							
Gross alpha	15 pCi/L	35	11			38	23
Uranium	20.1 pCi/L	45	12			35	21
Radium-226 and radium-228	5 pCi/L	102	29			25	20
Radium-226	3 pCi/L	0	0			36	22
Radium-228	2 pCi/L	0	0			38	23
Gross beta	4 mrem/yr	0	0			1	1
SUBTOTAL		182	39			173	27

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Total Coliform Rule							
Acute MCL Violation	Presence	21	19				
Non-acute MCL violation	Presence	349	274				

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Major routine and follow-up monitoring						3203	1709
Sanitary survey[2]						0	0
SUBTOTAL		370	288			3316	1768

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Surface Water Treatment Rule (SWTR)							
Filtered systems							
Monitoirng, routine/repeat						0	0
Treatment techniques				4	4		
Unfiltered systems							
Monitoring routine/repeat						1	1
Failure to filter				0	0		
Interim Enhanced Surface Water Treatment Rule (IESWTR)							
Monitoirng, routine/repeat						0	0
Treatment techniques				3	3		
SUBTOTAL				7	7	1	1

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Lead and Copper Rule							
Initial lead and copper tap M/R						174	131
Follow-up or routine lead and copper tap M/R						396	255
Treatment installation				0	0		

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Public Education				100	85		
SUBTOTAL				100	85	570	375

Contaminant Name	MCL (mg/l)[1]	MCLs/MRDLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 DBPR)							
Maximum Residual Disinfectant Levels (MRDL)	Depends	273	1			0	0
DBPs	Depends	0	0			811	401
Total Haloacetic Acids	0.060	30	26			182	170
Total Trihalomethanes	0.08	51	37			182	170
Treatment technique				8	3		
SUBTOTAL		354	64			1175	741

Contaminant Name	MCL (mg/l)[1]	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
Consumer Confidence Report (CCR)							
Complete Failure to Report						1367	1083
Public Notices (PN)							
Complete Failure to Report						0	0
SUBTOTAL						1367	1083

1 Values are in milligrams per liter (mg/L), unless otherwise specified.
2 Number of major monitoring violations for sanitary survey under the Total Coliform Rule.

Category	Activity	PWS Type	PWS_CNT	POP_SVD
Greater than 10000	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	C	116	5222452
Greater than 3300 less than 10000	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	C	147	854802
Less than 3300	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	C	1919	712443
Total Community			2182	6789697
Greater than 10000	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	NTNC	0	
Greater than 3300 less than 10000	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	NTNC	1	5750
Less than 3300	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	NTNC	526	141584
Total Non-Transient Non-Community			527	147334
All Populations	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	NC	4145	352013
Total Transient Non-Community			4145	352013
All Surface Water Systems	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	C, NTNC, NC	139	4523878
Total Surface Water			139	4523878
All Phase II/V and Lead and Copper Systems	Active and (Inactive status date between 1/1/2005 and 12/31/2005)	C, NTNC	2709	6937031
Total Phase II/V and Lead and Copper			2709	6937031
All Populations	ALL Types	NP	15814	2046
Total Non-Public			15814	2046

Definitions for Violation Table

The following definitions apply to the Summary of Violations table.

Filtered Systems: Water systems that have installed filtration treatment [40 CFR 141, Subpart H].

Inorganic Contaminants: Non-carbon-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally-occurring in some water, but can get into water through farming, chemical manufacturing, and other human activities. EPA has established MCLs for 15 inorganic contaminants [40 CFR 141.62].

Lead and Copper Rule: This rule established national limits on lead and copper in drinking water [40 CFR 141.80-91]. Lead and copper corrosion pose various health risks when ingested at any level, and can enter drinking water from household pipes and plumbing fixtures. States report violations of the Lead and Copper Rule in the following six categories:

Initial lead and copper tap M/R: SDWIS Violation Code 51 indicates that a system did not meet initial lead and copper testing requirements, or failed to report the results of those tests to the State.

Follow-up or routine lead and copper tap M/R: SDWIS Violation Code 52 indicates that a system did not meet follow-up or routine lead and copper tap testing requirements, or failed to report the results.
Treatment installation: SDWIS Violation Codes 58 AND 62 indicate a failure to install optimal corrosion control treatment system (58) or source water treatment system (62) which would reduce lead and copper levels in water at the tap. [One number is to be reported for the sum of violations in these two categories].
Public education: SDWIS Violation Code 65 shows that a system did not provide required public education about reducing or avoiding lead intake from water.

Maximum Contaminant Level (MCL): The highest amount of a contaminant that EPA allows in drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. MCLs are defined in milligrams per liter (parts per million) unless otherwise specified.

Monitoring: EPA specifies which water testing methods the water systems must use, and sets schedules for the frequency of testing. A water system that does not follow EPA's schedule or methodology is in violation [40 CFR 141].

States must report monitoring violations that are significant as determined by the EPA Administrator and in consultation with the States. For purposes of this report, significant monitoring violations are major violations and they occur when no samples are taken or no results are reported during a compliance period. A major monitoring violation for the surface water treatment rule occurs when at least 90% of the required samples are not taken or results are not reported during the compliance period.

Organic Contaminants: Carbon-based compounds, such as industrial solvents and pesticides. These contaminants generally get into water through runoff from cropland or discharge from factories. EPA has set legal limits on 54 organic contaminants that are to be reported [40 CFR 141.61].

Radionuclides: Radioactive particles which can occur naturally in water or result from human activity. EPA has set legal limits on four types of radionuclides: radium-226, radium-228, gross alpha, and beta particle/photon radioactivity [40 CFR 141]. Violations for these contaminants are to be reported using the following three categories:

Gross alpha: SDWIS Contaminant Code 4000 for alpha radiation above MCL of 15 picocuries/liter. Gross alpha includes radium-226 but excludes radon and uranium.
Combined radium-226 and radium-228: SDWIS Contaminant Code 4010 for combined radiation from these two isotopes above MCL of 5 pCi/L.
Gross beta: SDWIS Contaminant Code 4101 for beta particle and photon radioactivity from man-made radionuclides above 4 millirem/year.

Reporting Interval: The reporting interval for violations to be included in the first PWS Annual Compliance Report, which is to be submitted to EPA by January 1, 1998, is from July 1, 1996 through June 30, 1997. This interval will change for future annual reports. See guidance language for these intervals.

SDWIS Code: Specific numeric codes from the Safe Drinking Water Information System (SDWIS) have been assigned to each violation type included in this report. The violations to be reported include exceeding contaminant MCLs, failure to comply with treatment requirements, and failure to meet monitoring and reporting requirements. Four-digit SDWIS Contaminant Codes have also been included in the chart for specific MCL contaminants.

Surface Water Treatment Rule: The Surface Water Treatment Rule establishes criteria under which water systems supplied by surface water sources, or ground water sources under the direct influence of surface water, must filter and disinfect their water [40 CFR 141, Subpart H]. Violations of the "Surface Water Treatment Rule" are to be reported for the following four categories:

Monitoring, routine/repeat (for filtered systems): SDWIS Violation Code 36 indicates a system's failure to carry out required tests, or to report the results of those tests.
Treatment techniques (for filtered systems): SDWIS Violation Code 41 shows a system's failure to properly treat its water.
Monitoring, routine/repeat (for unfiltered systems): SDWIS Violation Code 31 indicates a system's failure to carry out required water tests, or to report the results of those tests.
Failure to filter (for unfiltered systems): SDWIS Violation Code 42 shows a system's failure to properly treat its water. Data for this violation code will be supplied to the States by EPA.

Total Coliform Rule (TCR): The Total Coliform Rule establishes regulations for microbiological contaminants in drinking water. These contaminants can cause short-term health problems. If no samples are collected during the one month compliance period, a significant monitoring violation occurs. States are to report four categories of violations:

Acute MCL violation: SDWIS Violation Code 21 indicates that the system found fecal coliform or E. coli, potentially harmful bacteria, in its water, thereby violating the rule.
Non-acute MCL violation: SDWIS Violation Code 22 indicates that the system found total coliform in samples of its water at a frequency or at a level that violates the rule. For systems collecting fewer than 40 samples per month, more than one positive sample for total coliform is a violation. For systems collecting 40 or more samples per month, more than 5% of the samples positive for total coliform is a violation.
Major routine and follow-up monitoring: SDWIS Violation Codes 23 AND 25 show that a system did not perform any monitoring. [One number is to be reported for the sum of violations in these two categories.]
Sanitary Survey: SDWIS Violation Code 28 indicates a major monitoring violation if a system fails to collect 5 routine monthly samples if sanitary survey is not performed.

Treatment Techniques: A water disinfection process that EPA requires instead of an MCL for contaminants that laboratories cannot adequately measure. Failure to meet other operational and system requirements under the Surface Water Treatment and the Lead and Copper Rules have also been included in this category of violation for purposes of this report.

Unfiltered Systems: Water systems that do not need to filter their water before disinfecting it because the source is very clean [40 CFR, Subpart H].

Violation: A failure to meet any state or federal drinking water regulation.

The information in these tables is based on data retrieved from the state's computer system/databases—the state's version of the Safe Drinking Water Information System (SDWIS/State). The SDWIS/ODS (EPA) computer system/databases were used for comparative purposes only.

The Violation Tables contain only certain violation types per EPA's Annual Public Water Systems Compliance Report instructions.

North Carolina allows variances and exemptions, but none were issued in 2005.

North Carolina has some State-wide waivers for certain contaminants.

North Carolina's State Report is available by contacting the EPA's Safe Drinking Water Hotline at 1-800-426-4791 or by calling the North Carolina Public Water Supply Section at 919-715-3243 or emailing a request to Martha.Fillinger@ncmail.net or going to the Public Water Supply Section's homepage at www.deh.enr.state.nc.us/pws. For an Excel file of the public water systems in violation that were used for this report, please call 919-715-3243 or email Martha.Fillinger@ncmail.net.