North Carolina's Annual State Public Water Systems Compliance Report
For the Calendar Year 2004

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). The SDWIS/Fed (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. The below information and statistics are based on ALL of the 2004 violations the State of North Carolina generated.

At the end of 2004, North Carolina had 2,185 active 'community' systems, 4,075 active 'transient non-community' systems, 544 active 'non-transient non-community' systems, 81 active 'adjacent community' systems (State defined), 14 active 'adjacent campground' systems (State defined), 2 active 'adjacent non-transient non-community' systems (State defined), and 186 active 'campground' systems (State defined), which is a total of 7,087 active public water systems (Federal and State).

For the calendar year of 2004, or for compliance periods which covered any part of 2004, North Carolina generated 13,819 violations. These violations were acquired by 4,105 water systems. Of these 4,105water systems, 316 water systems became "inactive" during 2004. Which means 2,666 water systems did not receive a violation for or during 2004.

Of these 4,105 water systems:
1,406 (34%) had 1 violation (119 water systems became "inactive");
873 (21%) had 2 violations (71 water systems became "inactive");
531 (13%) had 3 violations (37 water systems became "inactive");
335 (8%) had 4 violations (26 water systems became "inactive");
232 (6%) had 5 violations (16 water systems became "inactive");
167 (4%) had 6 violations (8 water systems became "inactive");
143 (4%) had 7 violations (9 water systems became "inactive");
117 (3%) had 8 violations (5 water systems became "inactive");
91 (2%) had 9 violations (9 water systems became "inactive");
75 (2%) had 10 violations (7 water system became "inactive"); and
135 (3%) had 11 or more violations (9 water systems became "inactive").

Of these 13,819 violations:
690 (5%) were MCL/MRDL violations for 505 water systems: (This makes 7% of North Carolina's public water systems having had a water quality issue in 2004.)
- 320 (62%) are transient non-community water systems (18 water systems became "inactive");
- 135 (27%) are community water systems (0 water systems became "inactive");
- 28 (6%) are non-transient non-community water systems (4 water systems became "inactive");
- 14 (3%) are campground water systems (1 water systems became "inactive");
- 8 (2%) is adjacent community water systems (0 water systems became "inactive"); and

7,293 (53%) were Monitoring/Reporting violations with 600 (8%) of those being reduced down to a Reporting violation for 3,080 water systems:
- 1,793 (58%) are transient non-community water systems (193 water systems became "inactive");
- 870 (28%) are community water systems (32 water system became "inactive");
- 304 (10%) are non-transient non-community water systems (18 water systems became "inactive");
- 59 (2%) are campground water systems (4 water systems became "inactive");
- 45 (2%) are adjacent community water systems (5 water systems became "inactive");
- 8 (<1%) is adjacent campground water system (0 water systems became "inactive");

1 (<1%) is adjacent non-transient non-community water system (0 water systems became "inactive"); and
5,818 (42%) were 'other' violations which are the Public Notice (PN) violations, Consumer Confidence Report (CCR) violations, CCR Certification Form violations Lead Public Education violations, and Lead and/or Copper OCCT (optimal corrosion control treatment) violations for 2,769 water systems:
1,753 (63%) are transient non-community water systems (150 water systems became "inactive");
744 (27%) are community water systems (23 water systems became "inactive");
173 (6%) are non-transient non-community water systems (8 water systems became "inactive");
64 (2%) are campground water systems (2 water systems became "inactive");
34 (1%) are adjacent community water systems (10 water systems became "inactive");
1 (1%) are adjacent campground water systems (0 water systems became "inactive"); and
18 (<1%) were Treatment Technique violations for 5 water systems:
5 (100%) are community water systems (0 water systems became "inactive").

In 2004, North Carolina's field staff performed 2,795 sanitary surveys. There were 6,335 other on-sites visit reasons which were performed as well. Examples of these other on-sites reasons are such items as "sample collection", "technical assistance", "investigations of complaints or violations", "emergency assistance", "engineering determination/advice", etc. Some of these 6,335 "reasons" were performed at the same time as the sanitary survey.

North Carolina allows variances and exemptions, but none were issued in 2004.

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

North Carolina requires all 48 unregulated (SOC and VOC) contaminants under the old section 141.40 to be tested along with the regulated contaminants. The number of violations and systems in violation for the unregulated contaminants for 2004 are the same as the regulated (SOC and VOC) contaminants listed in the table.

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.

State of North Carolina's Violation Tables for 2004

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			159	120
1,1-Dichloroethylene (VOC)	0.007	2	1			159	120
1,1,2-Trichloroethane (VOC)	.005	0	0			159	120
1,2,4-Trichlorobenzene (VOC)	.07	0	0			159	120
1,2-Dibromo-3-chloropropane (DBCP) (SOC)	0.0002	0	0			143	112

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
1,2-Dichloroethane (VOC)	0.005	0	0			159	120
1,2-Dichloropropane (VOC)	0.005	0	0			159	120
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			143	112
2,4-D (SOC)	0.07	0	0			143	112
Acrylamide (SOC)				0	0		
Alachlor (SOC)	0.002	0	0			143	112
Atrazine (SOC)	0.003	0	0			143	112
Benzene (VOC)	0.005	0	0			159	120
Benzo(a)pyrene (SOC)	0.0002	0	0			143	112
Carbofuran (SOC)	0.04	0	0			143	112
Carbon tetrachloride (VOC)	0.005	0	0			159	120
Chlordane (SOC)	0.002	0	0			143	112
Cis-1,2-Dichloroethylene (VOC)	0.07	0	0			159	120
Dalapon (SOC)	0.2	0	0			143	112
Di(2-ethylhexyl)adipate (SOC)	0.4	0	0			143	112
Di(2-ethylhexyl)phthalate (SOC)	0.006	0	0			143	112
Dichloromethane (VOC)	0.005	2	1			159	120
Dinoseb (SOC)	0.007	0	0			143	112
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			143	112
Epichlorohydrin (SOC)				0	0		
Ethylbenzene (VOC)	0.7	0	0			159	120
Ethylene dibromide (EDB) (SOC)	0.00005	4	1			143	112

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
Glyphosate (SOC)	0.7	State-wide waiver	State-wide waiver			State-wide waiver	State-wide waiver
Heptachlor (SOC)	0.0004	0	0			143	112
Heptachlor epoxide (SOC)	0.0002	1	1			143	112
Hexachlorobenzene (SOC)	0.001	0	0			143	112
Hexachlorocyclopentadiene (SOC)	0.05	0	0			143	112
Lindane (SOC)	0.0002	1	1			143	112
Methoxychlor (SOC)	0.04	0	0			143	112
Monochlorobenzene (VOC)	0.1	0	0			159	120
o-Dichlorobenzene (VOC)	0.6	0	0			159	120
para-Dichlorobenzene (VOC)	0.075	0	0			159	120
Total polychlorinated biphenyls (PCBs) (SOC)	0.0005	0	0			143	112
Pentachlorophenol (SOC)	0.001	0	0			143	112
Tetrachloroethylene (VOC)	0.005	0	0			159	120
Trichloroethylene (VOC)	0.005	0	0			159	120
Styrene (VOC)	0.1	0	0			159	120
Toluene (VOC)	1	0	0			159	120
Trans-1,2-Dichloroethylene (VOC)	0.1	0	0			159	120
Xylenes (total) (VOC)	10	0	0			159	120
Toxaphene (SOC)	0.003	0	0			143	112
Oxamyl (Vydate) (SOC)	0.2	0	0			143	112
Pichloram (SOC)	0.5	0	0			143	112
Simazine (SOC)	0.004	0	0			143	112
Vinyl chloride (VOC)	0.002	0	0			159	120
SUBTOTAL		10	5			7595	302

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	2	2			107	98
Arsenic	0.01**	15	6			107	98
Asbestos	7 million fibers/L# 10 Φm long	2	2			145	145
Barium	2	1	1			107	98
Beryllium	0.004	2	2			107	98
Cadmium	0.005	0	0			107	98
Chrominum	0.1	0	0			107	98
Cyanide (as free cyanide)	0.2	0	0			107	98
Fluoride	4.0	1	1			107	98
Mercury	0.002	0	0			107	98
Nitrate	10 (as Nitrogen)	20	15			711	686
Nitrite	1 (as Nitrogen)	0	0			207	204
Selenium	0.05	1	1			107	98
Thallium	0.002	3	1			107	98
SUBTOTAL		47	31			2240	1083

**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	12	9			20	13
Uranium	20.1 pCi/L	16	8			20	13
Radium-226 and radium-228	5 pCi/L	34	25			44	22

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
Radium-226	3 pCi/L	0	0			1	1
Radium-228	2 pCi/L	0	0			3	3
Gross beta	4 mrem/yr	1	1			15	9
SUBTOTAL		63	43			103	61

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	31	30				
Non-acute MCL violation	Presence	456	363				
Major routine and follow-up monitoring						3573	1907
Sanitary survey[2]						0	0
SUBTOTAL		487	393			3573	1907

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				0	0		
Unfiltered systems							
Monitoring routine/repeat						0	0
Failure to filter				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
Interim Enhanced Surface Water Treatment Rule (IESWTR)							
Monitoirng, routine/repeat						11	2
Treatment techniques				18	5		
SUBTOTAL				18	5	11	2

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						82	69
Follow-up or routine lead and copper tap M/R						128	120
Treatment installation				0	0		
Public Education				26	26		
SUBTOTAL				26	26	210	189

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)							
Total Organic Carbon						33	16
Chlorine	4.0	0	0			1000	328
Bromate	0.010	0	0			1	1
Total Haloacetic Acids	0.060	30	26			182	170
Total Trihalomethanes	0.08	51	37			182	170
Treatment technique				0	0		
SUBTOTAL		81	63			1398	515

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						449	375
Public Notices (PN)							
Complete Failure to Report						5372	2534
SUBTOTAL						5821	2909

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.

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.