North Carolina's Annual State Public Water Systems Compliance Report For the Calendar Year 2003

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 2003 violations the State of North Carolina generated.

At the end of 2003, North Carolina had 2,165 active 'community' systems, 4,222 active 'transient non-community' systems, 561 active 'non-transient non-community' systems, 81 active 'adjacent community' systems (State defined), 7 active 'adjacent campground' systems (State defined), 181 active 'campground' systems (State defined), and 277 active 'sub-metered' systems (State defined) which is a total of 7,494 active public water systems (Federal and State).

For the calendar year of 2003 or for compliance periods which covered any part of 2003, North Carolina generated 14,340 violations. These violations were acquired by 4,521 water systems. Of these 4,521water systems, 400 water systems became "inactive" during 2003. Which means 2,973 water systems did not receive a violation for or during 2003.

Of these 4,521 water systems:
1,625 (36%) had 1 violation (107 water systems became "inactive");
901 (20%) had 2 violations (53 water systems became "inactive");
580 (13%) had 3 violations (56 water systems became "inactive");
406 (9%) had 4 violations (51 water systems became "inactive");
264 (6%) had 5 violations (30 water systems became "inactive");
226 (5%) had 6 violations (36 water systems became "inactive");
169 (4 %) had 7 violations (15 water systems became "inactive");
102 (2%) had 8 violations (15 water systems became "inactive");
78 (2%) had 9 violations (10 water systems became "inactive");
58 (1%) had 10 violations (5 water system became "inactive"); and
112 (2%) had 11 or more violations (22 water systems became "inactive").

Of these 14,340 violations:
639 (5%) were MCL violations for 441 water systems:
- 125 (28%) are community water systems (2 water systems became "inactive");
- 6 (1%) is adjacent community water systems (0 water systems became "inactive");
- 27 (6%) are non-transient non-community water systems (3 water systems became "inactive");
- 266 (60%) are transient non-community water systems (31 water systems became "inactive");
- 16 (4%) are campground water systems (0 water systems became "inactive"); and
- 1 (<1%) is sub-metered water systems (0 water systems became "inactive").
- This makes 5% of North Carolina's public water systems having had a water quality issue in 2003.

7,009 (48%) were monitoring/reporting violations with 262 (4%) of those being reduced down to a reporting violation only for 3,218 water systems:
- 2,120 (66%) are transient non-community water systems (200 water systems became "inactive");
- 716 (22%) are community water systems (29 water system became "inactive");
- 53 (2%) are adjacent community water systems (4 water systems became "inactive");
- 1 (<1%) is adjacent campground water system (0 water systems became "inactive");

249 (8 %) are non-transient non-community water systems (21 water systems became “inactive”);
76 (2%) are campground water systems (0 water system became “inactive”);
3 (<1%) are sub-metered water systems (0 water systems became “inactive”).

6,685 (47%) were ‘other reporting’ violations which are the Public Notice (PN) violations, Consumer Confidence Report (CCR) violations, and CCR Certification Form violations for 3,626 water systems:

1,003 (28%) are community water systems (25 water systems became “inactive”);
48 (1%) are adjacent community water systems (4 water systems became “inactive”);
2,119 (58%) are transient non-community water systems (166 water systems became “inactive”);
133 (4%) are non-transient non-community water systems (6 water systems became “inactive”);
48 (1%) are campground water systems (0 water systems became “inactive”);
275 (8%) are sub-metered water systems (1 water system became “inactive”).

7 (<1%) were Treatment Technique violations for 5 water systems:

5 (100%) are community water systems (0 water systems became “inactive”).

North Carolina’s field staff performed 2,006 “inspections”. There were 5,540 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 5,540 “reasons” were performed at the same time as the ‘inspection”.

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

North Carolina allows variances and exemptions, but none were issued in 2003.

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

North Carolina requires all 48 unregulated 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 2003 are the same as the regulated 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 2003

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			239	170
1,1-Dichloroethylene (VOC)	0.007	4	1			239	170

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
1,1,2-Trichloroethane (VOC)	.005	0	0			239	170
1,2,4-Trichlorobenzene (VOC)	.07	0	0			239	170
1,2-Dibromo-3-chloropropane (DBCP) (SOC)	0.0002	0	0			211	157
1,2-Dichloroethane (VOC)	0.005	0	0			239	170
1,2-Dichloropropane (VOC)	0.005	0	0			239	170
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			211	157
2,4-D (SOC)	0.07	0	0			211	157
Acrylamide (SOC)				0	0		
Alachlor (SOC)	0.002	0	0			211	157
Atrazine (SOC)	0.003	0	0			211	157
Benzene (VOC)	0.005	0	0			239	170
Benzo(a)pyrene (SOC)	0.0002	0	0			211	157
Carbofuran (SOC)	0.04	0	0			211	157
Carbon tetrachloride (VOC)	0.005	0	0			239	170
Chlordane (SOC)	0.002	0	0			211	157
Cis-1,2-Dichloroethylene (VOC)	0.07	0	0			239	170
Dalapon (SOC)	0.2	0	0			211	157
Di(2-ethylhexyl)adipate (SOC)	0.4	0	0			211	157
Di(2-ethylhexyl)phthalate (SOC)	0.006	1	1			211	157
Dichloromethane (VOC)	0.005	2	1			239	170
Dinoseb (SOC)	0.007	0	0			211	157
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			211	157

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
Epichlorohydrin (SOC)				0	0		
Ethylbenzene (VOC)	0.7	0	0			239	170
Ethylene dibromide (EDB) (SOC)	0.00005	6	2			211	157
Glyphosate (SOC)	0.7	State-wide waiver	State-wide waiver			State-wide waiver	State-wide waiver
Heptachlor (SOC)	0.0004	0	0			211	157
Heptachlor epoxide (SOC)	0.0002	0	0			211	157
Hexachlorobenzene (SOC)	0.001	0	0			211	157
Hexachlorocyclopentadiene (SOC)	0.05	0	0			211	157
Lindane (SOC)	0.0002	0	0			211	157
Methoxychlor (SOC)	0.04	0	0			211	157
Monochlorobenzene (VOC)	0.1	0	0			239	170
o-Dichlorobenzene (VOC)	0.6	0	0			239	170
para-Dichlorobenzene (VOC)	0.075	0	0			239	170
Total polychlorinated biphenyls (PCBs) (SOC)	0.0005	0	0			211	157
Pentachlorophenol (SOC)	0.001	0	0			211	157
Tetrachloroethylene (VOC)	0.005	0	0			239	170
Trichloroethylene (VOC)	0.005	1	1			239	170
Styrene (VOC)	0.1	0	0			239	170
Toluene (VOC)	1	0	0			239	170
Trans-1,2-Dichloroethylene (VOC)	0.1	0	0			239	170
Xylenes (total) (VOC)	10	0	0			239	170
Toxaphene (SOC)	0.003	0	0			211	157
Oxamyl (Vydate) (SOC)	0.2	0	0			211	157
Pichloram (SOC)	0.5	0	0			211	157
Simazine (SOC)	0.004	0	0			211	157

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
Vinyl chloride (VOC)	0.002	0	0			239	170
SUBTOTAL		14	6			11771	8594

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	3	2			146	132
Arsenic	0.01**	15	5			146	132
Asbestos	7 million fibers/L# 10 Φm long	0	0			0	0
Barium	2	0	0			146	132
Beryllium	0.004	0	0			146	132
Cadmium	0.005	2	1			146	132
Chrominum	0.1	0	0			146	132
Cyanide (as free cyanide)	0.2	0	0			146	132
Fluoride	4.0	0	0			146	132
Mercury	0.002	1	1			146	132
Nitrate	10 (as Nitrogen)	13	9			832	799
Nitrite	1 (as Nitrogen)	0	0			337	328
Selenium	0.05	0	0			146	132
Thallium	0.002	2	2			146	132
Total nitrate and nitrite	10 (as Nitrogen)	0	0			0	0
SUBTOTAL		36	20			2775	2579

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	6			123	98
Radium-226 and readium-228	5 pCi/L	25	12			17	11
Gross beta	4 mrem/yr	0	0			1	1
SUBTOTAL		37	18			141	110

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	30	30				
Non-acute MCL violation	Presence	395	331				
Major routine and follow-up monitoring						4369	2637
Sanitary survey[2]						0	0
SUBTOTAL		425	361			4369	2637

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				3	2		
Unfiltered systems							
Monitoring routine/repeat						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
Failure to filter				0	0		
Interim Enhanced Surface Water Treatment Rule (IESWTR)							
Monitoirng, routine/repeat						0	0
Treatment techniques				4	3		
SUBTOTAL				7	5	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
Lead and Copper Rule							
Initial lead and copper tap M/R						72	60
Follow-up or routine lead and copper tap M/R						147	132
Treatment installation				0	0		
Public Education				0	0		
SUBTOTAL				0	0	219	192

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)							
Monitoring, routine						3	3
Total Haloacetic Acids	0.060	30	14			144	120
Total Trihalomethanes	0.08/ 0.1	12/82	6/36			144	120
Treatment technique				0	0		
SUBTOTAL		42/112	20/50			291	291

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						385	203
Public Notices (PN)							
Complete Failure to Report						5504	2689
SUBTOTAL						5889	2892

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.