



The Phase I Rule

F • A • C • T • S • H • E • E • T

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The Phase I Rule was published in the *Federal Register* on Wednesday, July 8, 1987. It became effective on January 9, 1989. This rule, also called the Volatile Organic Chemicals Rule or the VOC Rule, set water quality standards for 8 VOCs and required all Community and Non-Transient, Non-Community water systems to monitor for and, if necessary, treat their supplies for these chemicals. VOC monitoring requirements were revised on January 30, 1991 to synchronize them with other VOC monitoring requirements established in the Phase II Rule. Monitoring requirements for Phase I VOCs were synchronized under the Standardized Monitoring Framework, a monitoring framework established by Phase II in January 1, 1991. Monitoring under this framework started in January 1, 1993.

VOCs are among the most widely used chemicals. They are usually found in groundwater, where they may remain for long periods of time. VOCs have been found in about 20 percent of the nation's water supplies.

Water Quality Standards

Maximum Contaminant Levels

VOC	MCL (mg/L)
Benzene	0.005
Carbon Tetrachloride	0.005
1,2-Dichloroethane	0.005
Para-Dichlorobenzene	0.075
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.20
Trichloroethylene	0.005
Vinyl Chloride	0.002

mg/L = milligrams per liter.

Maximum Contaminant Level Goals (MCLGs): For each chemical, EPA has set a non-enforceable health goal which water systems should try to achieve. Water containing a chemical in an amount equal to or below its MCLG is not expected to cause any health problems, even over a lifetime of drinking this water.

Maximum Contaminant Levels (MCLs): MCLs for each chemical are set as close to their MCLGs as is technically and economically feasible, and are protective of public health.

Monitoring Requirements

Previously, monitoring requirements for the eight VOCs in this rule were phased-in by system size, with monitoring beginning according to Table 1. On January 1, 1993, monitoring requirements were synchronized with the Standardized Monitoring Framework, which was developed to simplify monitoring for all present and upcoming regulated chemicals. Table 2 presents the monitoring requirements under the Standardized Framework.

- **Sampling** - Ground water systems must sample at entry points to the distribution system which are representative of each well after any application of treatment. Surface water systems shall sample at points within the distribution system which are representative of each source or at entry points to the distribution system after any application of treatment. Samples must be analyzed by a State-certified lab.
- **Initial sampling frequency** - All systems must take four consecutive quarterly samples in the initial compliance period, unless there are prior sample results taken between January 1, 1988 and December 31, 1992 that may be "grandfathered" for this requirement. Under 40 CFR 141.62(e)(2), States must designate the year in which each system will perform its initial sampling. If the State allows the system to use grandfathered data, the system must not have detected any results at or above 0.0005 mg/L. If this is the case, the system shall begin annual sampling in 1993.

Table 1. Monitoring Dates

System Size (population)	Monitoring to begin no later than
Over 10,000	January 1, 1988
3,300 to 10,000	January 1, 1989
Less than 3,300	January 1, 1991

- **Repeat sampling frequency** - If a system does not detect VOCs in any initial samples, then the State may allow a system to decrease its monitoring frequency beginning in the second compliance period as described below.
 - Ground water systems must take at least one sample annually. After 3 years of annual sampling with no detection, sampling may be further reduced to once every 3 years.
 - Surface water systems must sample annually.
- **Trigger to increase monitoring** - If VOCs are detected or if the MCL is exceeded in any initial or repeat sample, the system must resume quarterly monitoring for the VOCs. For VOCs, the trigger level is detection above a concentration of 0.0005 milligrams per liter (mg/L). The system must begin quarterly sampling starting in the next calendar quarter until the State determines the system is "reliably and consistently below the MCL."
- **Vulnerability Assessments** - Monitoring may also be reduced if the system obtains a use or susceptibility waiver based on the occurrence of VOCs in initial samples and either the use of the VOC in that area or on the results of a vulnerability assessment.
- **Unregulated contaminant monitoring** - Under the Phase I Rule, systems were required to monitor for 51 other contaminants, using the same starting dates given in Table 1. Many of these "unregulated" contaminants have now become regulated; only 14 of the original 51 are still "unregulated." No MCLs have been set for these contaminants, and systems only need to report the results of this monitoring to the State. Systems must repeat their sampling for unregulated contaminants every 5 years.

For More Information

Call the Safe Drinking Water Hotline
at 1-800-426-4791

Table 2. Current Standardized VOC Monitoring Frequencies

Source		Waiver	Monitoring Frequency	
Surface		no	4 quarterly samples	
Ground		no	4 quarterly samples	

Source	Size(Conn.)	Waiver	Occurrence	Monitoring Frequency
Surface	N/A	yes	N/A	State Discretion
Ground	N/A	yes	no detect	1 sample/6 years
Surface	>500	no	no detect	1 sample/ year
	<500	no	no detect	1 sample/ year
Ground	>500	no	no detect	1 sample/ year ¹
	<500	no	no detect	1 sample/ year ¹
Surface	N/A	no	detect	quarterly ²
Ground	N/A	no	detect	quarterly ²

NOTES:

¹State may reduce to 1 sample during each 3 year compliance period after 3 years. ²State may reduce to annual after "reliably and consistently" less than MCL.

Variances and Exemptions

Systems which cannot meet the MCLs for VOCs are eligible for variances only if the system has installed the best treatment available technology, defined for these chemicals in 40 CFR 141.61. Other factors, including health concerns, the installation of POU/POE devices or provision of bottled water, also must be considered before a variance is granted.