

## Environmental Protection Agency

## § 141.30

and concurred in by the Administrator of the U.S. Environmental Protection Agency.

### **§ 141.30 Total trihalomethanes sampling, analytical and other requirements.**

(a) Community water system which serve a population of 10,000 or more individuals and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process shall analyze for total trihalomethanes in accordance with this section. For systems serving 75,000 or more individuals, sampling and analyses shall begin not later than 1 year after the date of promulgation of this regulation. For systems serving 10,000 to 74,999 individuals, sampling and analyses shall begin not later than 3 years after the date of promulgation of this regulation. For the purpose of this section, the minimum number of samples required to be taken by the system shall be based on the number of treatment plants used by the system, except that multiple wells drawing raw water from a single aquifer may, with the State approval, be considered one treatment plant for determining the minimum number of samples. All samples taken within an established frequency shall be collected within a 24-hour period.

(b)(1) For all community water systems utilizing surface water sources in whole or in part, and for all community water systems utilizing only ground water sources that have not been determined by the State to qualify for the monitoring requirements of paragraph (c) of this section, analyses for total trihalomethanes shall be performed at quarterly intervals on at least four water samples for each treatment plant used by the system. At least 25 percent of the samples shall be taken at locations within the distribution system reflecting the maximum residence time of the water in the system. The remaining 75 percent shall be taken at representative locations in the distribution system, taking into account number of persons served, different sources of water and different treatment methods employed. The results of all analyses per quarter shall be arithmetically averaged and reported to the State within 30 days of

the system's receipt of such results. Results shall also be reported to EPA until such monitoring requirements have been adopted by the State. All samples collected shall be used in the computation of the average, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in paragraph (e) of this section.

(2) Upon the written request of a community water system, the monitoring frequency required by paragraph (b)(1) of this section may be reduced by the State to a minimum of one sample analyzed for TTHMs per quarter taken at a point in the distribution system reflecting the maximum residence time of the water in the system, upon a written determination by the State that the data from at least 1 year of monitoring in accordance with paragraph (b)(1) of this section and local conditions demonstrate that total trihalomethane concentrations will be consistently below the maximum contaminant level.

(3) If at any time during which the reduced monitoring frequency prescribed under this paragraph applies, the results from any analysis exceed 0.10 mg/l of TTHMs and such results are confirmed by at least one check sample taken promptly after such results are received, or if the system makes any significant change to its source of water or treatment program, the system shall immediately begin monitoring in accordance with the requirements of paragraph (b)(1) of this section, which monitoring shall continue for at least 1 year before the frequency may be reduced again. At the option of the State, a system's monitoring frequency may and should be increased above the minimum in those cases where it is necessary to detect variations of TTHM levels within the distribution system.

(c)(1) Upon written request to the State, a community water system utilizing only ground water sources may seek to have the monitoring frequency required by paragraph (b)(1) of this section reduced to a minimum of one sample for maximum TTHM potential per year for each treatment plant used by

the system taken at a point in the distribution system reflecting maximum residence time of the water in the system. The system shall submit the results of at least one sample for maximum TTHM potential using the procedure specified in paragraph (g) of this section. A sample must be analyzed from each treatment plant used by the system and be taken at a point in the distribution system reflecting the maximum residence time of the water in the system. The system's monitoring frequency may only be reduced upon a written determination by the State that, based upon the data submitted by the system, the system has a maximum TTHM potential of less than 0.10 mg/l and that, based upon an assessment of the local conditions of the system, the system is not likely to approach or exceed the maximum contaminant level for total TTHMs. The results of all analyses shall be reported to the State within 30 days of the system's receipt of such results. Results shall also be reported to EPA until such monitoring requirements have been adopted by the State. All samples collected shall be used for determining whether the system must comply with the monitoring requirements of paragraph (b) of this section, unless the analytical results are invalidated for technical reasons. Sampling and analyses shall be conducted in accordance with the methods listed in paragraph (e) of this section.

(2) If at any time during which the reduced monitoring frequency prescribed under paragraph (c)(1) of this section applies, the results from any analysis taken by the system for maximum TTHM potential are equal to or greater than 0.10 mg/l, and such results are confirmed by at least one check sample taken promptly after such results are received, the system shall immediately begin monitoring in accordance with the requirements of paragraph (b) of this section and such monitoring shall continue for at least one year before the frequency may be reduced again. In the event of any significant change to the system's raw water or treatment program, the system shall immediately analyze an additional sample for maximum TTHM potential taken at a point in the distribution system reflecting maximum resi-

dence time of the water in the system for the purpose of determining whether the system must comply with the monitoring requirements of paragraph (b) of this section. At the option of the State, monitoring frequencies may and should be increased above the minimum in those cases where this is necessary to detect variation of TTHM levels within the distribution system.

(d) Compliance with §141.12 shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in paragraph (b)(1) or (2) of this section. If the average of samples covering any 12 month period exceeds the Maximum Contaminant Level, the supplier of water shall report to the State pursuant to §141.31 and notify the public pursuant to subpart Q. Monitoring after public notification shall be at a frequency designated by the State and shall continue until a monitoring schedule as a condition to a variance, exemption or enforcement action shall become effective.

(e) Sampling and analyses made pursuant to this section shall be conducted by one of the total trihalomethanes methods as directed in §141.24(e), and the *Technical Notes on Drinking Water Methods*, EPA-600/R-94-173, October 1994, which is available from NTIS, PB-104766, or in §141.131(b). Samples for TTHM shall be dechlorinated upon collection to prevent further production of trihalomethanes, according to the procedures described in the methods, except acidification is not required if only THMs or TTHMs are to be determined. Samples for maximum TTHM potential should not be dechlorinated or acidified, and should be held for seven days at 25 °C (or above) prior to analysis.

(f) Before a community water system makes any significant modifications to its existing treatment process for the purposes of achieving compliance with §141.12, such system must submit and obtain State approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not

## Environmental Protection Agency

## § 141.31

be adversely affected by such modification. Each system shall comply with the provisions set forth in the State-approved plan. At a minimum, a State approved plan shall require the system modifying its disinfection practice to:

(1) Evaluate the water system for sanitary defects and evaluate the source water for biological quality;

(2) Evaluate its existing treatment practices and consider improvements that will minimize disinfectant demand and optimize finished water quality throughout the distribution system;

(3) Provide baseline water quality survey data of the distribution system. Such data should include the results from monitoring for coliform and fecal coliform bacteria, fecal streptococci, standard plate counts at 35 °C and 20 °C, phosphate, ammonia nitrogen and total organic carbon. Virus studies should be required where source waters are heavily contaminated with sewage effluent;

(4) Conduct additional monitoring to assure continued maintenance of optimal biological quality in finished water, for example, when chloramines are introduced as disinfectants or when pre-chlorination is being discontinued. Additional monitoring should also be required by the State for chlorate, chlorite and chlorine dioxide when chlorine dioxide is used. Standard plate count analyses should also be required by the State as appropriate before and after any modifications;

(5) Consider inclusion in the plan of provisions to maintain an active disinfectant residual throughout the distribution system at all times during and after the modification.

(g) The water sample for determination of maximum total trihalomethane potential is taken from a point in the distribution system that reflects maximum residence time. Procedures for sample collection and handling are given in the methods. No reducing agent is added to “quench” the chemical reaction producing THMs at the time of sample collection. The intent is to permit the level of THM precursors to be depleted and the concentration of THMs to be maximized for the supply being tested. Four experimental parameters affecting maximum THM pro-

duction are pH, temperature, reaction time and the presence of a disinfectant residual. These parameters are dealt with as follows: Measure the disinfectant residual at the selected sampling point. Proceed only if a measurable disinfectant residual is present. Collect triplicate 40 ml water samples at the pH prevailing at the time of sampling, and prepare a method blank according to the methods. Seal and store these samples together for seven days at 25 °C or above. After this time period, open one of the sample containers and check for disinfectant residual. Absence of a disinfectant residual invalidates the sample for further analysis. Once a disinfectant residual has been demonstrated, open another of the sealed samples and determine total THM concentration using an approved analytical method.

(h) The requirements in paragraphs (a) through (g) of this section apply to subpart H community water systems which serve a population of 10,000 or more until December 31, 2001. The requirements in paragraphs (a) through (g) of this section apply to community water systems which use only ground water not under the direct influence of surface water that add a disinfectant (oxidant) in any part of the treatment process and serve a population of 10,000 or more until December 31, 2003. After December 31, 2003, this section is no longer applicable.

[44 FR 68641, Nov. 29, 1979, as amended at 45 FR 15545, 15547, Mar. 11, 1980; 58 FR 41345, Aug. 3, 1993; 59 FR 62469, Dec. 5, 1994; 60 FR 34085, June 29, 1995; 63 FR 69464, Dec. 16, 1998; 65 FR 26022, May 4, 2000; 66 FR 3776, Jan. 16, 2001]

### Subpart D—Reporting and Recordkeeping

#### § 141.31 Reporting requirements.

(a) Except where a shorter period is specified in this part, the supplier of water shall report to the State the results of any test measurement or analysis required by this part within (1) The first ten days following the month in which the result is received, or (2) the first ten days following the end of the required monitoring period as stipulated by the State, whichever of these is shortest.