

# Questions and Answers about Implementing Total Organic Carbon (TOC) Monitoring for the New EPA TOC Regulations<sup>1</sup>

**1. What is TOC?**

Total Organic Carbon (TOC) in water originates from both natural and unnatural sources. TOC levels have been correlated with the amount of Disinfection Byproducts (DBP) formed when water is chemically disinfected.

**2. What are the new EPA TOC regulations?**

Total Organic Carbon (TOC) monitoring is required by EPA as part of the “Stage I Disinfectants/ Disinfection Byproducts (D/DBP) Rule” published in December, 1998.<sup>1</sup> These regulations are based upon data obtained from the Information Collection Rule, conducted over the past two years. Specifically, TOC monitoring is addressed in the section, “DBP Precursor Removal Requirements.”

Step 1 of the DBP Precursor Removal Requirements requires that municipalities use enhanced coagulation or enhanced softening to meet the TOC percent removal concentrations, unless alternative requirements are met.<sup>1</sup> The TOC percent removal concentrations are shown in the table below. Municipalities which are unable to meet Step 1 must apply for alternative requirements, Step 2.

**3. Who must comply and when?**

- Large Subpart H\* systems (population >10,000), December 2001.
- Small Subpart H\* systems (population <10,000), December 2003.

**4. How often do I need to monitor TOC and how many samples do I need to run?**

One pair of samples (one raw water sample and one treated water sample) per month is required. However, Subpart H systems with a treated water average TOC of <2.0 ppm for two consecutive years, or treated water average TOC of <1.0 ppm for one year, qualify for reduced monitoring. Reduced monitoring requirements consist of one pair of samples (one raw water sample and one treated water sample) per quarter.

**5. What TOC methods are specified by the new regulations?**

There are three methods approved for TOC analysis: 5310 B, 5310 C, and 5310 D, as published in the **Standard Methods 19th Edition Supplement**. Sievers\*\* methodology, preferred by leading municipal water labs, is approved in method 5310 C. Sievers

TOC percent removal concentrations for Step 1 requirements

<i>Source Water Alkalinity</i>			
Source Water TOC (mg/L)	0-60 mg/L as CaCO <sub>3</sub>	> 60-120 mg/L as CaCO <sub>3</sub>	> 120 mg/L as CaCO <sub>3</sub>
<i>Percent Removal Required</i>			
> 2.0-4.0	35	25	15
> 4.0-8.0	45	35	25
> 8.0	50	40	30

TOC Analyzers are proven to have the lowest detection limits, superior accuracy and unsurpassed precision when compared to any other TOC technology.

**6. When should I get started?**

The D/DBP recommends that municipalities begin monitoring TOC twelve months prior to the compliance date to determine whether Step 1 TOC removals can be met. Although not required, proactive monitoring provides time for the municipality to obtain approval for alternate TOC removal require-

ments, Step 2, if Step 1 requirements cannot be met. If municipalities choose not to monitor proactively, and subsequently determine after the compliance date that they cannot meet the Step 1 requirements, they are in violation.

**7. How can I get started?**

GE Analytical Instruments is committed to helping you comply with the new TOC EPA regulations. With Sievers patented technology, the 900 Series TOC Analyzers are unparalleled in their ease of use, sensitivity, and low maintenance.

<sup>1</sup> USEPA. *Disinfectants and Disinfection Byproducts: Final Rule. Fed. Reg 63:241:69390 (Dec. 16, 1998)*

\* *Subpart H systems are public water systems that use surface water or groundwater under the influence of surface water as a source.*

\*\* *Trademark of General Electric Company; may be registered in one or more countries.*

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