

TABLE V-8.—NUMBER OF TREATMENT PLANTS PER SYSTEM (BASED ON DATA FROM 1995 CWSS (1))—Continued

Source water type	Population served	No. of systems in database	No. of treatment plants per system					
			10th percentile	Median	Mean	90th percentile	95th percentile	Maximum
	10,000–99,999	128	1	4	4.2	9	11	18
	≥100,000	21	1	3	9.9	31	32	33

(1) Results from analysis of 1995 CWSS data (Question Q18). The analysis uses a statistical bootstrapping approach to generate the number of plants per system. Details of this analysis are described in the 2002 revisions to the Model Systems Report [to be published]. The maximums reflect the maximum number of plants per system among the respondents to the 1995 CWSS. Since the 1995 CWSS database only reflects a fraction of all the systems in the respective size categories, some systems are likely to have a higher number of plants per system than the maximums listed in this table.

Noteworthy in Table V-8 are the wide ranges of number of plants per system in the various size categories for both ground water and surface water systems and, consequently, the wide range of potential monitoring implications. Since the number of treatment plants directly influences the number of samples required, systems serving the same number of people may have more than a 10-fold difference in required sampling, depending on the numbers of plants in their systems. For example, Table V-8 indicates that for ground water systems serving at least 10,000 people, at least 10% of the systems had only one treatment plant, while 10% (90th percentile) had 10 or more treatment plants.

While Table V-8 does not take into account factors that may reduce monitoring requirements, such as common aquifer determinations, EPA believes these data indicate that DBP sampling requirements based on the number of water treatment plants per system may be excessive for many systems. This is particularly the case for those systems with many ground water plants, since their DBP levels are often low and relatively stable.

Conversely, for other systems, such as large surface water systems with one plant, plant-based monitoring requirements may not require enough samples to fairly represent DBP occurrence in the distribution system. For example, under the plant-based approach, a system with only one plant serving 100,000–499,000 people would have the same sampling requirements as a system with one plant serving 11,000 people. The larger of these two systems is likely to have much more pipe length and other complex factors influencing DBP formation (such as number of storage tanks or booster chlorination points in the distribution system). Also, systems with multiple plants must take the same number of samples per plant, even if one plant provides a much higher percentage of the water than another.

Another issue with plant-based monitoring requirements is when plants or consecutive system entry points are operated seasonally or intermittently. A monitoring location that represents a plant or entry point during a monitoring period when it is in operation will not be representative when that plant or entry point it is not in operation.

A third issue is requirements for consecutive systems. For consecutive systems that also treat source water to produce finished water, each consecutive system entry point is considered a treatment plant for the purpose of determining monitoring requirements, except when the State allows multiple entry points to be treated as a single plant (see section V.C. for further discussion). Each entry point is treated as a separate plant to recognize different source waters and treatment (resulting in different DBP levels) from the wholesale system(s) and the treatment plants(s) operated by the consecutive system. However, under this plant-based approach, State determinations of monitoring requirements for consecutive systems will be complicated, especially in large combined distribution systems with many connections between systems.

ii. Approaches to addressing issues with plant-based monitoring. EPA is requesting comment on two approaches to address the issues with plant-based monitoring requirements described in this subsection. One approach is to keep the proposed plant-based monitoring approach and add new provisions to address specific concerns. Another approach is to base monitoring requirements on population served in lieu of the number of water treatment plants per system. The following paragraphs describe each approach.

EPA could maintain a plant-based monitoring approach and try to address the related issues described in this subsection through modifying the proposed monitoring requirements with provisions like the following:

—Set a limit on the maximum number of IDSE and routine monitoring

samples that could be required. EPA believes that this limit should be different for systems using ground water or surface water or mixed systems and for different system size categories. However, the Agency has not developed a rationale to specify maximum sample numbers for specific system categories.

—Include a provision that would allow States to reduce the required number of samples for reasons other than those currently proposed (*i.e.*, common aquifer determinations and low DBP levels). EPA would have to develop specific criteria in the rule for systems to qualify for State approval of reduced monitoring. For example, in subpart H mixed systems, States could be given discretion to reduce routine compliance monitoring for ground water sources, since such sources typically have lower DBP concentrations.

—Develop criteria by which systems with very large distribution systems but with few plants would be required to conduct additional IDSE or routine monitoring in order to better characterize DBP exposure throughout the distribution system.

These provisions would allow for some issues to be addressed, but would make implementation complex and could add a significant burden to States.

An alternative approach to addressing the issues with plant-based monitoring requirements is to apply population-based monitoring requirements to all systems. Under a population-based monitoring approach, the total system population served and the source water type would determine the number of IDSE and routine monitoring samples taken. Monitoring requirements would not be based on the number of plants per system or consecutive system entry points. States would not be required to make common aquifer determinations or address whether plants are combined into a single pipe prior to entering the distribution system.

Proposed population-based monitoring requirements for