



Proposed Stage 2 Disinfectants and Disinfection Byproducts Rule

Summary

EPA is proposing the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) to reduce disease incidence associated with the disinfection byproducts that form when public water supply systems add disinfectants. The Stage 2 DBPR will supplement existing regulations by requiring water systems to meet disinfection byproduct maximum contaminant levels (MCLs) at each monitoring site in the distribution system. The proposal also contains a risk-targeting approach to better identify monitoring sites where customers are exposed to high levels of disinfection byproducts (DBPs). This proposed regulation will reduce DBP exposure and provide more equitable health protection, and will result in lower cancer and reproductive and developmental risks.

Background

Chlorine and other chemical disinfectants have been widely used by public water systems as a principal barrier to microbial contaminants in drinking water. DBPs are formed when certain disinfectants interact with organic and inorganic materials in source waters. The levels of DBPs in drinking water can vary significantly from one point in a distribution system to another. Epidemiology and toxicology studies have shown a link between bladder, rectal and colon cancers and DBP exposure. Additionally, human epidemiology and animal toxicology studies report an association between chlorinated drinking water and reproductive and developmental endpoints such as spontaneous abortion, stillbirth, neural tube defects, pre-term delivery, intrauterine growth retardation, and low birth weight. Because of the combined weight of evidence from the health data, and consideration of the large number of people exposed to DBPs (approximately 254 million Americans), EPA has proposed additional DBP control measures beyond those already required for public water systems.

The proposed Stage 2 DBPR reflects a consensus Agreement in Principle of the Stage 2 M-DBP Federal Advisory Committee. This Committee consisted of organizational members representing EPA, State and local public health and regulatory agencies, local elected officials, Indian tribes, large and small drinking water suppliers, chemical and equipment manufacturers, and public interest groups. The Committee's activities resulted in the collection and evaluation of substantial new information. The Committee signed an Agreement in Principle stating the consensus recommendations of the group that was published by EPA in December, 2000.

About this Regulation

The Stage 2 DBPR will protect public health by supplementing existing drinking water regulations with risk-targeted monitoring and compliance determinations for current disinfection byproduct MCLs. This regulation will apply to all systems that add a disinfectant other than ultraviolet light.

Initial Distribution System Evaluation (IDSE): Under the Stage 2 DBPR, systems will conduct an evaluation of their distribution system to identify the locations with high disinfection byproduct concentrations. These locations will then be used by the systems as the sampling sites for DBP compliance monitoring.

Locational Running Annual Average: Under the Stage 2 DBPR, compliance with the maximum contaminant levels for two groups of disinfection byproducts (total trihalomethanes (TTHM) and

haloacetic acids (HAA5)) will be calculated for each monitoring location in the distribution system. This approach, referred to as the locational running annual average (LRAA), differs from current requirements which determine compliance by calculating the running annual average of samples from all monitoring locations across the system.

Other requirements: The Stage 2 DBPR would also require systems to determine if they are experiencing short term peaks in DBP levels referred to as “significant excursions.” Systems experiencing significant excursions would be required to review their operational practices and work with their State to determine actions that may be taken to prevent future excursions.

Environmental and Public Health Benefits

The Stage 2 DBPR will improve the control of disinfection byproducts in drinking water systems with the highest risk levels. EPA estimates that full implementation of the Stage 2 DBPR will reduce the incidence of bladder cancer cases by up to 182 cases per year, with an associated reduction of up to 47 premature deaths. While the Stage 1 DBPR provided a major reduction in DBP exposure, new national survey data suggest that some customers are receiving drinking water with elevated, or peak DBP concentrations even when the average levels in their water distribution systems are in compliance with the Stage 1 DBPR. Some of these peak concentrations can be substantially greater than the Stage 1 DBPR maximum contaminant levels (MCLs). The new survey results also showed that existing Stage 1 DBPR monitoring sites may not be the locations where the highest DBP concentrations occur in distribution systems. EPA’s analysis of this new information concludes that significant public health benefits may be achieved through further cost-effective reduction of DBPs in distribution systems. The new requirements provide for more consistent protection from DBPs across the entire distribution system and the reduction of DBP peaks, requiring only those systems with the greatest risk to make capital improvements. In addition, reduction of reproductive and developmental health effects that may be associated with exposure to elevated DBP levels will come from the provisions of this regulation, though these benefits have not been quantified.

Cost of the Regulation

The Stage 2 DBPR will result in increased costs to public water systems and States. The annual cost of the rule is expected to be \$54.3 to 63.9 million. Public water systems will bear approximately 98 percent (equivalent to \$53.1 to 62.8 million) of this total cost, with States incurring the remaining 2 percent (\$1.1 to 1.2 million). The average annual household cost is estimated to be \$0.51 per year, and over 99 % of households will experience annual costs of less than \$12 per year.

How to Get Additional Information

For general information on the Stage 2 DBPR, contact the Safe Drinking Water Hotline, at (800) 426-4791. For copies of the Federal Register notice of the proposed regulation or technical fact sheets, visit the EPA Safewater website, www.epa.gov/safewater/ndbp/st2/st2dbpr.html. The Safe Drinking Water Hotline is open Monday through Friday, excluding legal holidays, from 9:00 a.m. to 5:30 p.m. Eastern Time.