

of the IDSE is to identify Stage 2 DBPR compliance monitoring sites for capturing peaks. Because Stage 2 DBPR compliance will be determined at these new monitoring sites, distribution systems that identify elevated concentrations of TTHM and HAA5 will need to make treatment or process changes to bring the system into compliance with the Stage 2 DBPR. By identifying compliance monitoring sites with elevated concentrations of TTHM and HAA5, the IDSE will offer increased assurance that MCLs are being met across the distribution system. Both treatment changes and awareness of TTHM and HAA5 levels resulting from the IDSE will allow systems to better control for distribution system peaks.

The IDSE is designed to offer flexibility to public water systems. The IDSE requires TTHM and HAA5 monitoring for one year on a regular schedule that is determined by source water type and system size. Systems have the option of performing a site-specific study based on historical data, water distribution system models, or other data; and waivers are available under certain circumstances. The proposed IDSE requirements are discussed in sections V.H., V.I., and V.J. of this preamble and in subpart U of the proposed rule.

The second provision of the Stage 2 DBPR, which is designed to address variations in temporal and spatial exposure, is the new compliance calculation of the MCLs. The Stage 1 DBPR running annual average (RAA) calculation allows some locations within a distribution system to have higher DBP annual averages than others as long as the system-wide average is below the MCL. The Stage 2 DBPR will base compliance on a locational running annual average (LRAA) calculation where the annual average at each sampling location in the distribution system will be used to determine compliance with the MCLs. The LRAA will reduce exposures to peak DBP concentrations by ensuring that each monitoring site is in compliance with the MCLs as an annual average, and it will provide all customers drinking water that more consistently meets the MCLs.

EPA is proposing that systems comply with the Stage 2 DBPR MCLs in two phases, designated as Stage 2A and Stage 2B. In Stage 2A, beginning three years after the rule is final, all systems must comply with MCLs of 0.120 mg/L for TTHM and 0.100 mg/L for HAA5 as LRAAs at Stage 1 DBPR sampling sites, in addition to continuing to comply with the Stage 1 DBPR MCLs of 0.080 mg/L and 0.060 mg/L as RAAs for

TTHM and HAA5, respectively. In Stage 2B, systems must comply with MCLs of 0.080 mg/L and 0.060 mg/L as LRAAs for TTHM and HAA5, respectively, based on sampling sites identified through the IDSE. A more detailed discussion of the proposed Stage 2 DBPR MCL requirements can be found in sections V.D., V.I., and V.J. of this preamble and in § 141.64(b)(2) and (3), and § 141.136, and subpart V of the rule language.

The IDSE and LRAA calculation will lead to overall reductions in DBP concentrations and reduce short term exposures to high DBP concentrations, but even with this strengthened approach to regulating DBPs it will be possible for individual DBP samples to exceed the MCLs when systems are in compliance with the Stage 2 DBPR. The Stage 2 DBPR requires systems that experience significant excursions to evaluate distribution system operational practices and identify opportunities to reduce DBP concentrations in the distribution system. This provision will curtail peaks and reduce exposure to high DBP levels. Significant excursions are discussed in greater detail in section V.E.

The Stage 2 DBPR also contains provisions for regulating consecutive systems, defined in the Stage 2 DBPR as public water systems that buy or otherwise receive some or all of their finished water from another public water system on a regular basis. Uniform regulation of consecutive systems provided by the Stage 2 DBPR will ensure that consecutive systems deliver drinking water that meets applicable DBP standards. More information on regulation of consecutive systems can be found in sections V.C., V.H., V.I. and V.J.

Today's document proposes plant-based monitoring requirements for non-consecutive systems and certain consecutive systems. Plant-based monitoring means that the number of compliance monitoring locations within a distribution system is based on the number of plants, population served, and type of source water used by the distribution system. EPA is proposing population-based monitoring for consecutive systems that buy all their finished water from other public water systems. EPA is also requesting comment on whether this approach should be extended to all systems covered by today's rule. Under a population-based monitoring structure, the number of compliance monitoring locations is based only on the population served and source water type. Section V.I. describes population-

based monitoring and how it might affect systems complying with this rule.

C. What Are the Economic Impacts of the Stage 2 DBPR?

EPA quantified the potential benefits of the Stage 2 DBPR by estimating the reduction in bladder cancer cases that may result from the decrease in average DBP concentrations in disinfected water. Estimated reductions in DBP-related bladder cancers (including both fatal and non-fatal cases) result in annualized benefits ranging from \$0 to \$986 million (using a three percent discount rate), depending on the risk level assumed.

There may also be a number of important nonquantifiable benefits associated with reducing DBPs in drinking water, the primary ones being reduced potential risk of adverse reproductive and developmental effects including miscarriage, stillbirth, neural tube defects, heart defects, and cleft palate. Although a number of studies have found an association between reproductive and developmental endpoints and short-term exposure to elevated DBP levels, a causal link has not yet been established and information is not yet available to quantify potential effects. As a result, the Agency has not included an estimate of the potential benefits from reducing reproductive and developmental risks in its primary economic impact analysis of the Stage 2 DBPR. However, an illustrative calculation of potential fetal loss risk is discussed in Section VII and presented in more detail in the Economic Analysis (USEPA 2003i) to illustrate the benefits that could be associated with this rule. Reduction in other cancers potentially associated with DBP exposure represent additional unquantified health benefits.

EPA estimates the total annualized costs of the Stage 2 DBPR to be \$54 to \$64 million. This estimate includes costs associated with treatment changes, the Initial Distribution System Evaluation, changes in compliance monitoring, and rule implementation activities for both public water systems and States. EPA estimates that approximately 2.8 percent of all plants will need to convert to chloramines or add advanced treatment to comply with the Stage 2 DBPR.

Table I-1 presents the estimated quantified and unquantified benefits of the Stage 2 DBPR and the estimated costs. Analyses of unquantified benefits suggest that the total benefits associated with the Stage 2 DBPR might be much greater than these estimates. By targeting risks and building on the solid foundation of the Stage 1 DBPR, the