

b. *Consideration of regulatory alternatives.* This section will discuss EPA's and the Stage 2 M-DBP Advisory Committee's decision-making process as an array of alternative MCL strategies were considered. EPA believes that the MCL alternative proposed today (MCLs of 0.080 mg/L TTHM, 0.060 mg/L HAA5 as LRAAs) is supported by the best available research, data, and analysis. The science related to cancer and reproductive and developmental health effects that may be associated with DBPs, in conjunction with occurrence data that show that a significant number of high DBP levels occur under current regulatory scenarios, justify a change in regulation. EPA believes that this proposal achieves an appropriate balance between the available science and the uncertainties. EPA believes that regulatory action is necessary and prudent in the interest of further public health protection and that the LRAA alternative in combination with the IDSE is a balanced and reasonable approach. Although it will not remove all DBP peaks (individual samples with values greater than the MCL), this proposed regulation will ensure that DBP exposures across a system's distribution system are further reduced, are more equitable, and may reduce cancer and reproductive and developmental risk.

The Advisory Committee discussions primarily focused on the relative magnitude of exposure reduction versus the expected impact on the water industry and its customers. Initially, this analysis compared expected reductions in DBP levels and predictions of treatment technology changes associated with a wide variety of Stage 2 DBPR MCL alternatives.

After initial discussions, EPA and the Advisory Committee primarily focused on four types of alternative rule scenarios.

*Preferred Alternative.*—MCLs of 0.080 mg/L TTHM and 0.060 mg/L HAA5 as LRAAs. Bromate MCL of 0.010 mg/L.

*Alternative 1.*—MCLs of 0.080 mg/L TTHM and 0.060 mg/L HAA5 as LRAAs. Bromate MCL of 0.005 mg/L.

*Alternative 2.*—MCLs of 0.080 mg/L TTHM and 0.060 mg/L HAA5 as individual sample maximums (*i.e.*, no single sample could exceed the MCL). Bromate MCL of 0.010 mg/L.

*Alternative 3.*—MCLs of 0.040 mg/L TTHM and 0.030 mg/L HAA5 as RAAs. Bromate MCL of 0.010 mg/L.

EPA and the Advisory Committee, with assistance from the Technical Workgroup, conducted an in-depth analysis of these regulatory alternatives. In the process of evaluating alternatives,

EPA and the Advisory Committee reviewed vast quantities of data and many analyses that addressed health effects, DBP occurrence, predicted reductions in DBP levels, predicted technology changes, and capital, annual, and household costs. Details of the compliance, occurrence, and cost forecasts for the four alternative rule scenarios are described in the Stage 2 DBPR Economic Analysis (EA) (USEPA 2003i) and the Stage 2 DBPR Occurrence Document (USEPA 2003o).

In the end, the Advisory Committee recommended the Preferred Alternative in combination with the IDSE which they believed would reduce exposure to high levels of DBPs. Today, EPA is proposing the Preferred Alternative in combination with the IDSE.

The only difference between the Preferred Alternative and Alternative 1 is the bromate MCL. The Advisory Committee's recommendation to maintain the Stage 1 DBPR bromate MCL of 0.010 mg/L is discussed in section V.G. of today's proposal.

Alternatives 2 and 3 are significantly more stringent than the Stage 1 DBPR with respect to the TTHM and HAA5 requirements. Alternative 2 would require that all samples be below the MCL. Because DBP occurrence is variable across the distribution system and over time (as discussed in section IV), systems would have to base their disinfectant and treatment strategies on controlling their highest DBP occurrence levels. Alternative 3 maintains the Stage 1 DBPR RAA compliance calculation, but reduces the Stage 1 DBPR MCLs by 50 percent. Both alternatives 2 and 3 would cause significant changes in treatment for a large number of systems. The estimated costs for Alternatives 2 and 3 are approximately an order of magnitude above the costs for the Preferred Alternative (see section VII.B.).

Consistent with this greater stringency of alternatives 2 and 3, the predicted DBP reductions and the resulting health benefits for them are greater than those predicted for the Preferred Alternative. Although all members of the Advisory Committee believed that the science showing reproductive and developmental health effects that have been associated with DBPs was sufficient to cause concern and warrant regulatory action, the Advisory Committee did not believe that the association was certain enough to justify the substantial change in treatment technologies that would be required to meet these alternatives. Thus, the Advisory Committee rejected Alternatives 2 and 3.

c. *Basis for the LRAA.* This section discusses the data and information EPA used to determine that the LRAA is an appropriate compliance strategy for today's proposed rule. EPA has chosen compliance based on an LRAA due to concerns about levels of DBPs above the MCL in some portions of the distribution system. The LRAA standard will eliminate system-wide averaging. The individuals served in areas of the distribution system with above average DBP occurrence levels masked by averaging under an RAA are not receiving the same level of health protection. Although an LRAA standard still allows averaging at a single location over an annual period, EPA believes that changing the basis of compliance from an RAA to an LRAA will result in decreased exposure to above average DBP levels (*see* section VII.A. for predictions of DBP reductions under the LRAA MCLs). This conclusion is based on three considerations:

(1) There is considerable evidence that under the current RAA MCL compliance monitoring requirements a small but significant proportion of monitoring locations experience high DBP levels. As summarized in section IV of this preamble, 14 and 21% of Information Collection Rule systems currently meeting the Stage 1 DBPR RAA MCLs had TTHM and HAA5 single sample concentrations greater than the Stage 1 MCLs and ranged up to 140 µg/L and 130 µg/L respectively (Figures IV-1 and IV-2), though most of these exceedences were below 100 µg/L.

(2) In some situations, the populations served by certain portions of the distribution system consistently receive water that exceeds the MCL even though the system is in compliance. As discussed in section IV of this preamble, some Information Collection Rule systems meeting the Stage 1 DBPR RAA MCLs had monitoring locations that exceeded 0.080 mg/L TTHM and/or 0.060 mg/L HAA5 as an annual average (*i.e.*, as LRAAs) by up to 25% (Figures IV-3 and IV-4). Five percent of plants that achieved compliance with the Stage 1 TTHM MCL of 0.080 mg/L based on an RAA had a particular sampling location that exceeded 0.080 mg/L as an LRAA (Figure IV-3). Figure IV-4 shows similar results based on Information Collection Rule HAA5 data. Three percent of plants that met the Stage 1 HAA5 MCL of 0.060 mg/L as an RAA had a sampling location that exceeded 0.060 mg/L as an LRAA. Customers served at these locations consistently received water with TTHM and/or HAA5 concentrations higher than the system-wide MCL.