

Stage 2 DBPR will deliver cost-effective reductions in DBP levels and associated potential public health risks.

TABLE I-1.—COSTS AND BENEFITS OF THE STAGE 2 DBPR BASED ON ANNUALIZATION DISCOUNT RATE OF 3%

Costs	Benefits	Unquantified benefits
\$54–64 M	\$0–986 M	Reduction in potential reproductive and developmental health effects, potential reduction in colon and rectal cancer, improved taste and odor of drinking water, control of contaminants that may be regulated in the future.

II. Background

A combination of factors have influenced the development of the proposed Stage 2 DBPR. These include the initial 1992–1994 Microbial and Disinfection Byproduct (M–DBP) stakeholder deliberations and EPA’s Stage 1 DBPR proposal; the 1996 Safe Drinking Water Act (SDWA) Amendments; the 1996 Information Collection Rule; the 1998 Stage 1 DBPR; other new data, research, and analysis on disinfection byproduct (DBP) occurrence, treatment, and health effects since the Stage 1 DBPR; and the Stage 2 DBPR Microbial and Disinfection Byproducts Federal Advisory Committee. The following shows how EPA arrived at this proposal for regulating disinfection byproducts.

A. What Is the Statutory Authority for the Stage 2 DBPR?

The SDWA, as amended in 1996, authorizes EPA to promulgate a national primary drinking water regulation (NPDWR) and publish a maximum contaminant level goal (MCLG) for contaminants the Administrator determines “may have an adverse effect on the health of persons,” is “known to occur or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern,” and for which “in the sole judgement of the Administrator, regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems” (SDWA section 1412(b)(1)(A)). MCLGs are non-enforceable health goals set at a level at which “no known or anticipated adverse effects on the health of persons occur and which allows an adequate margin of safety”. These health goals are published at the same time as the NPDWR (sections 1412(b)(4) and 1412(a)(3)).

The Agency may also consider additional health risks from other contaminants and establish an MCL “at a level other than the feasible level, if the technology, treatment techniques, and other means used to determine the feasible level would result in an increase in the health risk from drinking

water by—(i) increasing the concentration of other contaminants in drinking water; or (ii) interfering with the efficacy of drinking water treatment techniques or processes that are used to comply with other national primary drinking water regulations” (section 1412(b)(5)(A)). When establishing an MCL or treatment technique under this authority, “the level or levels of treatment techniques shall minimize the overall risk of adverse health effects by balancing the risk from the contaminant and the risk from other contaminants the concentrations of which may be affected by the use of a treatment technique or process that would be employed to attain the MCL or levels” (section 1412(b)(5)(B)).

Finally, section 1412(b)(2)(C) of the Act requires EPA to promulgate a Stage 2 DBPR 18 months after promulgation of the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR). Consistent with statutory requirements for risk balancing (section 1412(b)(5)(B)), EPA will finalize the LT2ESWTR concurrently with the Stage 2 DBPR to ensure simultaneous protection from microbial and DBP risks.

B. What Is the Regulatory History of the Stage 2 DBPR?

The first rule to regulate DBPs was promulgated on November 29, 1979. The Total Trihalomethanes Rule (44 FR 68624) (USEPA 1979) set an MCL of 0.10 mg/L for total trihalomethanes (TTHMs). Compliance was based on the running annual average (RAA) of quarterly averages of all samples collected throughout the distribution system. This TTHM standard applied only to community water systems using surface water and/or ground water that served at least 10,000 people and added a disinfectant to the drinking water during any part of the treatment process.

Under the Surface Water Treatment Rule (SWTR) (54 FR 27486, June 29, 1989) (USEPA 1989a), EPA set MCLGs of zero for *Giardia lamblia*, viruses, and *Legionella*; and promulgated NPDWRs for all public water systems using surface water sources or ground water sources under the direct influence of

surface water. The SWTR includes treatment technique requirements for filtered and unfiltered systems that are intended to protect against the adverse health effects of exposure to *Giardia lamblia*, viruses, and *Legionella*, as well as other pathogenic organisms.

EPA also promulgated the Total Coliform Rule (TCR) on June 29, 1989 (54 FR 27544) (USEPA 1989b) to provide protection from microbial contamination in distribution systems of all types of public water supplies. The TCR established an MCLG of zero for total and fecal coliform bacteria, and an MCL based on the percentage of positive samples collected during a compliance period. Under the TCR, no more than 5 percent of distribution system samples collected in any month may contain coliform bacteria.

Together, the SWTR and the TCR were intended to address risks associated with microbial pathogens that might be found in source waters or associated with distribution systems. However, while reducing exposure to pathogenic organisms, the SWTR also increased the use of disinfectants in some public water systems and, as a result, exposure to DBPs in those systems.

In 1992, prompted by concerns about health risk tradeoffs between disinfection byproducts and microbial pathogens, EPA initiated a negotiated rulemaking with a wide range of stakeholders. The negotiators included representatives of State and local health and regulatory agencies, public water systems, elected officials, consumer groups, and environmental groups. The Regulatory Negotiating Committee met from November 1992 through June 1993. Following months of intensive discussions and technical analyses, the Regulatory Negotiating Committee recommended the development of three sets of rules: an Information Collection Rule, a two-staged approach for regulating DBPs, and an “interim” Enhanced Surface Water Treatment Rule (IESWTR) to be followed by a “final” Enhanced Surface Water Treatment Rule (USEPA 1996a, USEPA 1998c, USEPA 1998d). EPA took the first step towards implementing this strategy by proposing