

adequate for making national occurrence estimates, but would not suffice for making site specific source water density estimates. This finding further contributed to the rationale supporting Alternative C under the proposed IESWTR.

The NODA for the IESWTR (62 FR 59498, Nov. 3, 1997) (USEPA 1997a) presented the recommendations of the Stage 1 MDBP Federal Advisory Committee for the IESWTR. As stated in the NODA, the Committee engaged in extensive discussions regarding the adequacy of relying solely on physical removal to control *Cryptosporidium* and the need for inactivation. There was an absence of consensus on whether it was possible at that time to adequately measure *Cryptosporidium* inactivation efficiencies for various disinfection technologies. This was a significant impediment to addressing inactivation in the IESWTR. However, the Committee recognized that inactivation requirements may be necessary under future regulatory scenarios, as shown by the following consensus recommendation from the Stage 1 MDBP Agreement in Principle:

EPA should issue a risk based proposal of the Final Enhanced Surface Water Treatment Rule for *Cryptosporidium* embodying the multiple barrier approach (e.g., source water protection, physical removal, inactivation, etc.), including, where risks suggest appropriate, inactivation requirements (62 FR 59557, Nov. 3, 1997) (USEPA 1997a).

The preamble to the final IESWTR (63 FR 69478, Dec. 16, 1998) (USEPA 1998a) states that EPA was unable to consider the proposed Alternative B (treatment requirements for *Cryptosporidium* based on source water occurrence levels) for the IESWTR because occurrence data from the Information Collection Rule survey and related analysis were not available in time to meet the statutory promulgation deadline. The Agency affirmed, though, that further control of *Cryptosporidium* would be addressed in the LT2ESWTR.

In today's notice, EPA is proposing a risk based approach for control of *Cryptosporidium* in drinking water. Under this approach, the required level of additional *Cryptosporidium* treatment relates to the source water pathogen density. EPA believes many of the data gaps that prevented the adoption of this approach under the IESWTR have been addressed. As described in Section III of this preamble, information on *Cryptosporidium* occurrence from the Information Collection Rule and Information Collection Rule Supplemental Surveys, along with new data on *Cryptosporidium* infectivity, have provided EPA with a better

understanding of the magnitude and distribution of risk for this pathogen. Improved analytical methods allow for a more accurate assessment of source water *Cryptosporidium* levels, and recent disinfection studies with UV, ozone, and chlorine dioxide provide the technical basis to support *Cryptosporidium* inactivation requirements.

b. *Control of Cryptosporidium in unfiltered systems.* There is particular concern about *Cryptosporidium* in the source waters of unfiltered systems because this pathogen has been shown to be resistant to conventional disinfection practices. In the IESWTR, EPA extended watershed control requirements for unfiltered systems to include the control of *Cryptosporidium*. EPA did not establish *Cryptosporidium* treatment requirements for unfiltered systems because available data suggested an equivalency of risk in filtered and unfiltered systems. This is described in the final IESWTR as follows:

it appears that unfiltered water systems that comply with the source water requirements of the SWTR have a risk of cryptosporidiosis equivalent to that of a water system with a well operated filter plant using a water source of average quality (63 FR 69492, Dec. 16, 1998) (USEPA 1998a)

The Agency noted that data from the Information Collection Rule would provide more information on *Cryptosporidium* levels in filtered and unfiltered systems, and that *Cryptosporidium* treatment requirements would be re-evaluated when these data became available.

In today's notice, EPA is proposing *Cryptosporidium* inactivation requirements for unfiltered systems. These proposed requirements stem from an assessment of *Cryptosporidium* source water occurrence in both filtered and unfiltered systems using data from the Information Collection Rule and other surveys, as described in Section III of this preamble. These new data do not support the finding described in the IESWTR of equivalent risk in filtered and unfiltered systems. Rather, *Cryptosporidium* treatment by unfiltered systems is necessary to achieve a finished water risk level equivalent to that of filtered systems. In addition, the development of *Cryptosporidium* inactivation criteria for UV, ozone, and chlorine dioxide in the LT2ESWTR has made it feasible for unfiltered systems to provide *Cryptosporidium* treatment.

c. *Uncovered finished water storage facilities.* In the IESWTR proposal, EPA solicited comment on a requirement that systems cover finished water storage

facilities to reduce the potential for contamination by pathogens and hazardous chemicals. Potential sources of contamination to uncovered storage facilities include airborne chemicals, runoff, animal carcasses, animal or bird droppings, and growth of algae and other aquatic organisms (59 FR 38832, July 29, 1994) (USEPA 1994).

The final IESWTR established a requirement to cover all new storage facilities for finished water for which construction began after February 16, 1999 (63 FR 69493, Dec. 16, 1998) (USEPA 1998a). In preamble to the final IESWTR, EPA described future regulation of existing uncovered finished water storage facilities as follows:

EPA needs more time to collect and analyze additional information to evaluate regulatory impacts on systems with existing uncovered reservoirs on a national basis . . . EPA will further consider whether to require the covering of existing reservoirs during the development of subsequent microbial regulations when additional data and analysis to develop the national costs of coverage are available.

EPA continues to be concerned about contamination resulting from uncovered finished water storage facilities, particularly the potential for virus contamination via bird droppings, and now has sufficient data to estimate national cost implications for various regulatory control strategies. Therefore, EPA is proposing control measures for all systems with uncovered finished water storage facilities in the LT2ESWTR. New data and proposed requirements are described in section IV.E of this preamble.

D. Federal Advisory Committee Process

In March 1999, EPA reconvened the M-DBP Federal Advisory Committee to develop recommendations for the Stage 2 DBPR and LT2ESWTR. The Committee consisted of organizational members representing EPA, State and local public health and regulatory agencies, local elected officials, Indian Tribes, drinking water suppliers, chemical and equipment manufacturers, and public interest groups. Technical support for the Committee's discussions was provided by a technical workgroup established by the Committee at its first meeting. The Committee's activities resulted in the collection and evaluation of substantial new information related to key elements for both rules. This included new data on pathogenicity, occurrence, and treatment of microbial contaminants, specifically including *Cryptosporidium*, as well as new data on DBP health risks, exposure, and control. New information relevant to the