M/DBP Research Meeting
November 19, 1997

EXECUTIVE SUMMARY

EPA held a public meeting on November 19, 1997, in Washington, D.C., to discuss the adequacy of the microbial pathogen and disinfection byproduct (M/DBP) research in support of the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and the Disinfection Byproducts Stage 2 Rule (Stage 2 DBPR). The purpose of the meeting was to present EPA's assessment of whether the current M/DBP research will provide the information needed to support the LT2ESTWR and Stage 2 DBPR and to receive feedback from the public on EPA's judgement.

EPA summarized the findings from a draft "white paper" that was developed in advance of the meeting. This draft provided a detailed evaluation of the adequacy of the research for microbial pathogens and DBPs in the areas of health effects, occurrence, methods, treatment, and risk assessment in support of the LT2ESWTR and the Stage 2 DBPR.

Background

EPA is in the process of developing drinking water regulations for microbial pathogens and disinfectants and disinfection byproducts (M/DBP rules). To assist in the development of the M/DBP rules, EPA initiated a formal regulatory negotiation process in 1992 to develop new and revised standards for microbial pathogens and DBPs. During the course of the negotiations, the participants found that more specific information on the occurrence and treatment of contaminants, as well as additional information on their health effects was needed in order to assess the impact of controlling the level of DBPs while maintaining adequate microbial protection. The participants agreed that public water systems (PWSs) would collect additional occurrence and treatment data associated with DBPs and microbes. The data collection effort was formalized in the ICR. In addition, EPA agreed to conduct further research on health effects and treatment.

In response to the need to conduct significantly more research, EPA has developed a research plan which identifies over $50 million in M/DBP research needed to support the development of the rules noted above. Concurrent with revising the research plan, EPA developed a draft "white paper" that provides the public with EPA's evaluation of the adequacy of the M/DBP research to provide the information needed to develop the Stage 2 DBPR and the LT2ESWTR.

Summary

The meeting was divided into three areas: introduction; research for microbial pathogens; and research for DBPs. The introduction provided participants with: information on the schedules for the M/DBP rules; the key information needed to develop drinking water regulations; the importance of research to provide this information; the use of the research tracking system developed by EPA; and an overview of the "white paper" developed for the meeting.

The Agency first presented their judgement on the adequacy of the health effects and assessment research for microbial pathogens. EPA concluded that the dose-response research will provide data on the range of potential risks from Cryptosporidium and that epidemiology studies should provide information that will indicate the magnitude of the risk from different pathogens including Cryptosporidium. In regard to methods research for microbial pathogens, and research on pathogen occurrence and indicators, EPA concluded that the research should be sufficient to allow the characterization of Cryptosporidium occurrence for individual systems and the classification of source waters based on

different levels of microbial contamination. For treatment, EPA concluded that research on physical treatment optimization will be adequate and that research on removal of microbial surrogates for Cryptosporidium removal may provide a method for assessing overall Cryptosporidium removal. Supplemental research on the reliability of indicators (e.g., turbidity) to monitor the effectiveness of treatment to consistently achieve high levels of Cryptosporidium removal could provide a greater level of confidence in treatment capability. For inactivation research, EPA concluded that the use of surrogates and the integrated disinfection design framework may be useful to supplement the inactivation map for Cryptosporidium and that an expert workshop in January will provide more direction in this area. For small systems, EPA concluded that research on treatment processes was adequate, but that additional research on innovative and cost-effective technologies was desirable to facilitate higher levels of microbial control for small systems.

For DBPs, EPA divided the health effects area into three issues: risk from chlorinated waters; risk of DBPs from disinfectants other than chlorine (e.g., ozone); and the risks from brominated species. For chlorinated waters, EPA concluded that research was adequate in some areas (e.g., toxicology studies for individual chlorinated DBPs), but additional research was needed in several areas including improving exposure assessments for epidemiology studies. For determining risks from DBPs from alternative disinfectants, EPA concluded that additional research may be needed depending on the recommendations from expert panels on reproductive epidemiology and complex mixtures. In regard to the risks from brominated species, EPA concluded that research should provide a substantial body of information for the Stage 2 DBP rule. EPA concluded that the research for health assessments, occurrence, methods, and treatment technologies was generally adequate to support the Stage 2 DBP rule. Several areas that may warrant additional research include improving methods for MX and cyanogen chloride if they are included in the Stage 2 rule and developing better control and formation models for bromate.

Next Steps.

EPA requested comments within two-weeks on the "white paper". Based on these comments, EPA will revise the "white paper". In addition, EPA indicated that another meeting would be scheduled for March or April to provide the public with an update on several efforts that were not completed in time for the November 19th meeting, but which are important for understanding the appropriate research direction. Finally, EPA requested comments on ways to improve its research tracking system.