

Stakeholder's Meeting: Arsenic in Drinking Water - Tuesday, May 5, 1998

EXECUTIVE SUMMARY

Monterey, California

Background

The Office of Ground Water and Drinking Water (OGWDW) in EPA holds stakeholder meetings to help refocus priorities in the drinking water program and to improve strong, flexible relationships among EPA, States, Tribes, local governments, water utilities, and the public. OGWDW held an arsenic stakeholders meeting in Monterey, California, prior to the semi-annual Association of California Water Agencies (ACWA) meeting. EPA outlined the statutory requirements, research activities, the regulatory approach, policy issues and ongoing arsenic work in order to solicit input and obtain continued stakeholder involvement in the arsenic regulatory development process.

SUMMARY

Regulatory History and Future. EPA's primary drinking water regulation for arsenic, the Maximum Contaminant Level (MCL) of 50 g/L, was first used in 1943 by the Public Health Service. In the early 1990's EPA delayed revising the MCL because of cost and risk assessment considerations. In the 1996 amendments to the Safe Drinking Water Act (SDWA), Congress directed EPA to write an arsenic research plan, expand health effects research, and propose a new regulation for arsenic by January 1, 2000. Therefore, EPA will use current and future arsenic research, to the extent available, to meet the statutory deadlines. Focused long-term arsenic research efforts will be applied in future reviews of the regulation, which will be re-evaluated every 6 years (or sooner, if warranted). A meeting participant stated the need for EPA to track on-going research so stakeholders can understand what information will be available.

Arsenic Research Plan. The arsenic research plan is the framework for EPA's in-house and external research and others to improve the basis for regulatory decisions on arsenic health risks. The plan identifies short-term (supporting the January 1, 2000 proposal) and longer-term studies of exposure and susceptibility, analytical methods, cancer and non-cancer health effects, and risk assessment. Short-term risk management research involves studies of arsenic control technologies. Long-term outcomes will be in the areas of bioavailability assessment, dose response interactions, and epidemiological study gaps. The draft plan submitted for peer review in 1998 is now final, and is at www.epa.gov/ORD/WebPubs/final/arsenic.pdf. Stakeholders found out that all research used by EPA, including short-term research, will undergo peer review that meets EPA standards. Stakeholders noted the emphasis on arsenic research, and EPA mentioned research studies of other chemicals. People discussed small system access to hard copies of information and representation in consultations with small entities. Stakeholders expressed interest in reviewing the risk assessment.

EPA Health Effects Research--Current and Future. Arsenic is a known human carcinogen that can also produce non-cancer effects including dermal, neurological, cardiovascular, and reproductive/developmental effects. Risk assessment issues include the determination of a linear or non-linear dose response curve; epidemiology studies to assess exposure, dose-response, and health effects; and better understanding of arsenic metabolism and mode of action. EPA presented ongoing U.S. health and exposure studies and international collaborations which will provide the greatest returns beyond the year 2000 by reducing uncertainties in quantitative estimates and understanding health effect endpoints. Stakeholders asked how international studies related to U.S. populations and what would be peer reviewed in early 1999. Stakeholders commented that the scientific language needed to be made more understandable for the general public.

Analytical Methods and Monitoring. EPA reviewed currently approved analytical methods that measure total arsenic which have performance evaluation data to help derive a practical quantization level (PQL). Analytical capability is only one aspect considered in setting an MCL, so the MCL is not set purely on the basis of the lowest value that can be measured. ORD research involves speciation analysis in water, food, and urine. EPA provided background on current monitoring requirements for arsenic, the standardized monitoring framework for other inorganic chemicals, and chemical monitoring reform (CMR) efforts. Stakeholders asked about previous efforts to redefine PQL, preservation of arsenic valences, trigger values for monitoring under the CMR, alternative monitoring guidelines, private certification of laboratories, cost of methods, and quality assurance and control.

Treatment Technology. EPA presented an overview of seven treatment options, the point-of-use and point-of-entry devices that are now options for small systems, EPA's ORD work on technologies and waste disposal; and granting variances. Future ORD work will include performance evaluation of full scale systems, oxidation of arsenic, and reporting on the February 25 arsenic "state of the science" treatment workshop. ORD's residual disposal studies will complement a new AWWA Research Foundation (AWWARF) residual study. EPA discussed the national level affordability-based variances for small systems. Participants mentioned a few experimental technologies. EPA mentioned local pretreatment programs and state water quality standards. Stakeholders mentioned increased water usage and water costs from adding treatments, increased salinity in ground water recharge, treatment costs, affordability, the small percent used for drinking water, combined cost of compliance of several new MCLs, cost of site acquisition, and blending. Others had questions on levels of treatment and bottled water in the work place.

Occurrence Data. EPA discussed the databases used to draft national arsenic occurrence projections in 1992. New sources of occurrence data include 25 State databases, four industry surveys, and the U.S. Geological Survey (USGS) ambient ground water database (scheduled for release in fall 1998). EPA will evaluate the quality of the data, develop statistical methods, and establish occurrence and exposure projections to assess costs and benefits. Stakeholders were requested to comment on how EPA should combine databases. The group discussed several of the databases and offered to provide additional data. The USGS ambient ground water database will be linked by county to populations served and may also assist in evaluating treatment costs. Stakeholders asked about the USGS analytical method, well depth and concentration analysis, and water use information.

MCLG Development, Revisions, and Peer Reviews. For most people exposure to arsenic is primarily from ingestion of food and water. An increased understanding of arsenic-induced carcinogenesis results from understanding its modes of action and the effect of exposure routes. The National Research Council (NRC) of the National Academy of Sciences (NAS) is reviewing EPA's current human health risk estimates, the Taiwanese data (which were used to derive EPA's surface water criterion and Canada's drinking water standard), and the adequacy of the MCL and surface water quality criteria values. EPA had an expert panel review arsenic's mode of action for EPA's Integrated Risk Information System (IRIS). Stakeholders asked about EPA's DNA methylation research, the new cancer assessment guidelines, exposure from foods and beverages, available databases, and use of long-term research.

Regulatory Development and Public Participation. Several risk management components are considered when developing a drinking water regulation: treatment technologies; analytical; occurrence assessment; and cost/benefit assessments. In the 1996 amendments, Congress directed EPA to use the best available, peer-reviewed science for decision-making; study populations at greater risk; list treatment technologies for small systems; assess incremental costs and benefits; determine whether costs justify the benefits; and establish a national occurrence database by August 6, 1999. EPA must address a number of other statutes and executive orders when issuing a regulation.

EPA seeks to involve all interested parties at all appropriate stages in the development of arsenic regulations. Approaches include having EPA hold additional stakeholder meetings, schedule in-depth meetings, time arsenic meetings to coincide with other EPA or association meetings, utilize the OGWDW website, contribute to trade newsletters, and maintain mailing lists as methods for increasing

communication before the comment period on the proposed rule. Consultations with the Science Advisory Board and National Drinking Water Advisory Council are open to the public. A stakeholder expressed interest in commenting on all supporting documents before the proposal is issued. He also suggested that EPA hold another stakeholders' meeting in early 1999 to present more details of MCL development.

Next Steps. The Office of Ground Water and Drinking Water web page lists announcements of future meetings and contains meeting summaries. Stakeholders are encouraged to contact EPA staff who made presentations. People who wish to get copies of EPA manuscripts accepted for publication should contact [Irene Dooley, \[dooley.irene@epamail.epa.gov\]](mailto:dooley.irene@epamail.epa.gov) who will pass the names and addresses on to EPA's ORD scientists.