

Stakeholder's Meeting: Arsenic in Drinking Water

EXECUTIVE SUMMARY

**Wednesday, February 25, 1998
San Antonio, TX**

Background

Since 1995, the Office of Ground Water and Drinking Water (OGWDW) in EPA has held 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. On February 25, OGWDW held an arsenic stakeholders meeting in San Antonio, Texas, that followed a two-day American Water Works Association (AWWA) workshop on inorganics held on February 23 and 24. EPA outlined the statutory requirements, research activities, the regulatory approach, policy issues and on-going arsenic work in order to solicit input and obtain continued stakeholder involvement in the arsenic regulatory development process.

SUMMARY

Legislative Requirements and Regulatory History. EPA's primary drinking water regulation for arsenic, the Maximum Contaminant Level (MCL), is based upon a Public Health Service value of 50 parts per billion (ppb), or micrograms per liter (μL). In the 1996 amendments to the Safe Drinking Water Act (SDWA), Congress directed EPA to expand arsenic 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. Meeting participants asked whether the regulation would be a short-term rule subject to re-evaluation following the research, about the process for revising the risk assessment, and about the role of external reviews. While acknowledging the tension between the nature of long term research to further elucidate arsenic health effects and the relatively short term statutory requirements for a revision of the current MCL, EPA representatives indicated a commitment to meeting the statutory deadlines by thoroughly examining all existing information. In addition, the Agency is committed to a once every 6-year reevaluation of all its primary drinking water regulations, including arsenic (or sooner, if warranted).

Regulatory Development. In the 1996 amendments, Congress directed EPA to emphasize risk communication; 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. Several risk management components are considered when developing a drinking water regulation: treatment technologies; analytical; occurrence assessment; and cost/benefit assessments. The drinking water standard is set as close to the nonenforceable health goal as feasible, considering analytical method capability, occurrence, treatment technologies, and regulatory costs and benefits. EPA must address a number of other statutes and executive orders when issuing a regulation. Stakeholders expressed interest in having time to comment during the development of the proposed rule.

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 were informed that beverage intake was considered in the exposure analysis, and that organic arsenicals have lower acute toxicity than inorganic ones. At the present time, it is not possible to adequately assess the potential long-term effects of organic arsenicals. The NRC/NAS report (expected out in late summer) will be available for review; and exposure data are being researched.

Treatment Technology. EPA presented an overview of seven treatment options that were considered for rulemaking efforts in the early 1990's, the point-of-use and point-of-entry devices that are now options for small systems, and waste disposal issues. 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. Participants asked EPA to consider several experimental technologies, data being developed by a utility, small system controls, and increased water usage and water costs from adding treatments.

Analytical Methods and Monitoring. EPA reviewed currently approved analytical methods that measure total arsenic in the 2 ppb ($\mu\text{g/L}$) range which have performance evaluation data to help derive a practical quantitation level (PQL). Analytical capability is only one aspect considered in setting an MCL, so the MCL is not set purely on the basis of a value that can be measured. Future ORD research involves speciation analysis in water, food, and urine. EPA provided background on current monitoring requirements for arsenic. Stakeholders discussed whether there will be waivers for the arsenic monitoring requirements; the higher PQL determined by AWWA; the availability of arsenic speciation techniques; and the fact that EPA intends to establish a total arsenic MCL.

Occurrence Data. EPA discussed the databases used to draft national arsenic occurrence projections in 1992. New sources of occurrence data include 25 State databases, three industry surveys, and the U.S. Geological Survey (USGS) ambient ground water database (scheduled for release in fall 1998). EPA will evaluate the data, develop statistical methods, and establish occurrence and exposure projections to assess costs and benefits. Stakeholders were requested to share other occurrence studies and comments on how EPA should combine databases. Participants appreciated the complexity of developing a national estimate and mentioned sources of databases. The USGS ambient ground water database will be linked by county to populations served and may assist in evaluating treatment costs. A stakeholder found out that the national projection will not reflect site-specific concentration changes over time that occur when pumping from aquifers. Stakeholders suggested that varying regional patterns of water usage can affect the national occurrence and cost estimates.

Arsenic Research Plan. The arsenic research plan identifies short-term and long-term studies of modes of action, human exposure and susceptibility, methods to measure exposures, cancer and non-cancer health effects, and risk management areas. Short term outcomes will mostly be in the area of risk management concerning 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 will be on EPA's ORD website in April.

EPA Health Effects Research -- Current and Future. Arsenic is a known human carcinogen that can also produce non-cancer effects including neurological, vascular, and 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 studies and international collaborations. Laboratory studies will provide the greatest returns beyond the year 2000 by reducing uncertainties in quantitative estimates and understanding endpoints. A stakeholder mentioned a pilot study in Inner Mongolia addressing the dose-response curve for skin lesions that should be completed in June 1999.

Public Participation Process Alternatives. EPA seeks to involve all interested parties before the proposed rule public comment period. Approaches include having EPA hold additional stakeholder

meetings, prepare meeting summaries, 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. Consultations with the Science Advisory Board and National Drinking Water Advisory Council are open to the public. A stakeholder asked that the scientific community be viewed as a stakeholder and that scientists be alerted about the next meeting. Another stakeholder voiced concerns about the arsenic rule's impact on small systems.

Next Steps. The Safe Drinking Water Hotline, (800) 426-4791, will accept registrations for EPA's third stakeholder meeting May 5 in California. Stakeholders are encouraged to contact EPA staff who made presentations.