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Senate Committee on Environment and Public Works

Oversight Hearing on the Environmental Protection Agency's Implementation of the Safe Drinking Water Act's Unregulated Drinking Water Contaminants Program

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Chairman Boxer, ranking Member Senator Inhofe, and Members of the Committee, good morning. Thank you for this opportunity to testify today before the Committee on Environment and Public Works regarding the implementation of the Safe Drinking Water Act's unregulated drinking water contaminants (UDWC) program.

I am Jeffrey K. Griffiths, MD MPH&TM, a Professor of Public Health and of Medicine at Tufts University School of Medicine, and Chair of the Drinking Water Committee of the US EPA's Science Advisory Board. [My professional training has been as a pediatrician, internist, and infectious diseases epidemiologist. I was the Director of the public health program at Tufts University for five years, and have studied waterborne diseases for over twenty years. I have been involved in the national regulation of drinking water contaminants for approximately 15 years, and served on the National Drinking Water Advisory Council for over a decade]. I was a member of both the 2001 National Academy of Sciences' National Research panel, and the 2004 National Drinking Water Advisory Council committee, which recommended a significant sea change in the way the US EPA it assesses unregulated drinking water contaminants. We recommended that contaminants be selected for regulation using a systematic, scientifically sound, and transparent process. Please allow me to elaborate as this relates to today's hearing.

An increasing number of contaminants and our capacity to understand their health effects

In order to implement the UDWC program, both water occurrence and health impact information is needed. Many challenges exist. Factually, ever more contaminants are being found in water as our detection capacities improve. However health effects information can be expensive and time consuming to acquire, and is currently available for only a small number of contaminants. The

number of known unregulated contaminants has now outstripped our capacity to analyze them all on an individual basis using traditional approaches. Furthermore, health effects differ for people at different life stages; what may be safe for one group may not be safe for another. These challenges must be acknowledged and overcome - but cannot serve as an excuse for inaction.

Transparency, public participation, and confidence in the process

A transparent and public process promotes a robust scientific basis for decision making, and confidence with acceptance by the public. The 1998 candidate contaminant list determination was quite murky and extensively relied on expert opinion. As well we know, experts can differ in their opinions. Implementation of the UDWC program should be transparent, welcome stakeholders and the public, and be mindful of social equity issues.

The perchlorate story illustrates the importance of these points.

Perchlorate was unexpectedly discovered in ground water when water testing improved in the 1990s, and was found to be present in groundwater throughout the country. This demonstrates the benefits of continuously improving the monitoring of our water supply.

In the 1990s, perchlorate was already known to interfere with the thyroid gland's uptake of iodine. Since then, new animal data[1] suggests that perchlorate's adverse effects on the thyroid are found at unexpectedly low levels of exposure. Similarly, work by the Centers for Diseases Control (CDC) has shown that thyroid hormone levels were significantly lower in women who were exposed to low levels of perchlorate which had not been thought to affect thyroid function.[2]

This data, and data from many other studies, suggests that perchlorate is of public health concern. It demonstrates the value of appropriately focusing resources so that new health information can be generated which may dispel, or increase, concerns about a contaminant.

Perchlorate has now been found to be concentrated in breast milk. It may replace iodine which is essential for babies. Breast-feeding mothers may provide their infants with inadequate iodine and perversely feed them excessive perchlorate. A 2007 study [3] concluded that 90% of the babies of women who drank water containing perchlorate at the 2006 preliminary groundwater remediation goal set by the EPA of 24.5 micrograms per liter would receive a daily dose nearly three times the maximum amount established for infants. [This information was used by Massachusetts to set a drinking water standard of 2 micrograms per liter,[4] currently the most stringent standard in the United States]. The point is that breast fed babies get all of their nutrition from Mom. They are fed breast milk which concentrates perchlorate, and so their mothers have to drink low levels of perchlorate to protect their infants from perchlorate enriched milk. This information about a specific susceptible population provides a key insight into the potential health effects of perchlorate which would have been missed otherwise.

It was surprising to many, including me, when in the face of this information, the EPA did not target perchlorate for regulation in 2008. This decision was controversial and used by many as an example of a lack of transparency in the UDWC evaluation process. Indeed, the fact that not one new chemical compound has been identified for regulation since the adoptions of the 1996 Safe Drinking Water Amendments suggests that implementation has been hampered by a lack of

scientific resources, a lack of data, or inadequate transparency. Many of the decisions to not regulate contaminants have been driven by a lack of information.

In sum,

Drinking water contaminants continue to be high on the burner of public discourse. In addition to perchlorate, unregulated compounds such as chromium VI, volatile organic compounds (VOCs) such as trichloroethylene and its chemical relatives, and a variety of agricultural and pharmaceutical compounds are of public health concern. The EPA has the opportunity to re-invigorate the implementation of the unregulated drinking water implementation process by:

(1) analyzing groups of similar compounds for regulation when appropriate;
(2) devoting sufficient resources so that worrisome compounds are adequately monitored on a national basis;
(3) studying health effects in both the general population and in sensitive subpopulations; and
(4) using an open and transparent process, which will maximize scientific credibility and build public confidence.

Thank you for this opportunity to comment and I welcome any questions.

Cited publications

[1] McLanahan ED, Andersen ME, Campbell JL, Fisher JW. Competitive inhibition of thyroidal update of dietary iodide by perchlorate does not describe perturbations in rat serum total T4 and TSH. Environ Health Perspect 2009; 117:731-738.

[2] Blount BC, Pirkle JL, Osterloh JD, Valentin-Blasini L, Caldwell KL. Urinary perchlorate and thyroid hormone levels in adolescent and adult men and women living in the United States. Environ Health Perspect 2006 114:1865-1871.

[3] Ginsberg GL, Hattis DB, Zoeller RT, Rice DC. Evaluation of the US EPA/OSWER preliminary remediation goal for perchlorate in groundwater: focus on exposure to nursing infants. Environ Health Perspect 2997 115:361-369.

[4] Zewdie T, Smith CM, Hutcheson M, Rowan West C. 2010 Basis of the Massachusetts Reference Dose and Drinking Water Standard for Perchlorate. Environ Health Perspect 2010 118:41-48.