



**Children's
Environmental
Health
Network**

September 18, 2009

Water Docket
Environmental Protection Agency
Mailcode 2822T
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Re: Docket ID No. **EPA-HQ-OW-2009-0297**

Submitted via www.regulations.gov

The Children's Environmental Health Network (the Network) appreciates the opportunity to comment on the importance of regulating perchlorate in drinking water. We wish to associate ourselves with the comments submitted by Clean Water Action, the Center for Public Environmental Oversight et al on this topic.

The Network is a national organization whose mission is to promote a healthy environment and to protect the fetus and the child from environmental health hazards. The Network's Board and committee members include internationally-recognized experts in children's environmental health science and policy who serve on key Federal advisory panels and scientific boards. We recognize that children, in our society, have unique moral standing. The Children's Environmental Health Network was created to promote the incorporation of basic pediatric facts such as these in policy and practice:

- Children's bodies and behaviors differ from adults. In general, they are more vulnerable than adults to toxic chemicals.
- Children are growing. Pound for pound, children eat more food, drink more water and breathe more air than adults. Thus, they are likely to be more exposed to substances in their environment than are adults. Children have higher metabolic rates than adults and are different from adults in how their bodies absorb, detoxify and excrete toxicants.
- Children's systems, including their nervous, reproductive, digestive, respiratory and immune systems, are developing. This process of development creates periods of vulnerability when toxic exposures may result in irreversible damage when the same exposure to a mature system may result in little or no damage.

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- Children behave differently than adults, leading to a different pattern of exposures to the world around them. For example, they exhibit hand-to-mouth behavior, ingesting whatever substances may be on their hands, toys, household items, and floors. Children play and live in a different space than do adults. For example, very young children spend hours close to the ground where there may be more exposure to toxicants in dust, soil, and carpets as well as low-lying vapors such as radon, mercury vapor or pesticides.
- Children have a longer life expectancy than adults; thus they have more time to develop diseases with long latency periods that may be triggered by early environmental exposures, such as cancer or Parkinson's disease.

Clear, sound science underlies these principles. A solid consensus in the scientific community supports these concepts.

The world in which today's children live has changed tremendously from that of previous generations. There has been a phenomenal increase in the substances to which children are exposed. According to the EPA, more than 83,000 industrial chemicals are currently produced or imported into the United States. Thousands of chemicals are ubiquitous in our environment worldwide. Traces of hundreds of chemicals are found in all humans and animals. Every day, children are exposed to a mix of chemicals, most of them untested for their effects on developing systems. Many of these chemicals are readily passed across the placenta to the fetus, to the infant via breast milk, or via toys and other children's products. Many of these chemicals are also ingested in food and water. Many also are absorbed by children through the lungs by respiration of contaminated air.

The Network believes that the potential health impacts from exposure to perchlorate through drinking water are significant and that they warrant prompt regulation to protect public health and safety. Setting a drinking water standard will provide the U.S. Environmental Protection Agency (EPA) with a "meaningful opportunity for health risk reduction for persons served by public water systems".

Consequently, **EPA should move as quickly as possible to establish a more protective reference dose for perchlorate** and then to promulgate a maximum contaminant level (MCL) for perchlorate that is no higher than one part per billion (ppb). We base this view on the scope of the contamination in drinking water supplies, exposure of the American population through other pathways, including food, and the most recent scientific studies that demonstrate serious health threats, even at low levels, to a larger portion of the population than previously recognized. These studies are based upon a much larger exposure data set than the studies upon which the current reference dose, and thus the entire regulatory regime, is based.

Perchlorate has been found in more than 400 drinking water sources in 26 states, potentially affecting tens of millions of people. EPA's own data say that nearly 17 million people receive their water from public water systems where perchlorate has been found at levels exceeding 4 ppb. Were sampling routinely conducted with a detection limit of 1 ppb, that number would be much higher—particularly considering the estimated 20 million people in the Southwest who receive drinking water from the Colorado River.

In responding to this threat, EPA must set a drinking water standard for perchlorate that protects the most vulnerable subpopulations, particularly pregnant women, fetuses, infants, and small children. By interfering with the thyroid's ability to take up iodide, perchlorate can suppress the development of thyroid hormones critical to growth, development, and metabolism. This puts fetuses and children at particular risk for learning and behavioral disabilities; impaired gait, vision, and hearing; and even mental retardation. Exposure calculations must therefore consider the ingestion rates for these populations, and the reference dose should consider the particular vulnerabilities of these age groups. EPA should also include in its calculations low birth weight babies, and underweight infants as these populations may be extremely vulnerable.

EPA must also consider other exposure pathways and additional contaminants in the environment that impact thyroid function when establishing the MCL. Studies of perchlorate levels in food, including breast milk, show that the population is exposed through multiple pathways in addition to contaminated drinking water. EPA should determine potential aggregate exposures based on a broad range of contamination levels, and not just the mean, which was the basis for current estimates. While data have also demonstrated a particular threat to the significant number of individuals, especially women of child bearing age, who are iodide deficient, the current modeling does not include this threat.

Given this widespread problem (CDC estimates up to 30% of women do not get sufficient dietary iodide), it is critical to take into consideration the potential for exposure to other thyroid-active agents. Consequently, EPA must consider the cumulative impact of perchlorate, other substances in the environment that inhibit the uptake of iodide by the thyroid, and inadequate supplies of iodide in American diets, all of which makes a stringent drinking water standard necessary to be truly health protective.

Moreover, a 1 ppb or lower MCL is supported by the most recent comprehensive studies, and these should be central to EPA's analysis. The industry-supported Greer study, which serves as the basis for EPA's current reference dose as well as California's current 6 ppb standard, consisted of a 14-day study of 37 healthy adults. In more recent years, Blount et al analyzed a nationally representative sample of 2299 U.S. residents, and they have documented anti-thyroid effects in a large population of women exposed to perchlorate at concentrations far lower than levels previously shown to have such effects. This study and subsequent data clearly justify promulgation of an even more protective MCL. It should be noted that California's Office of Environmental Health Hazard Assessment is in the process of reevaluating its Public Health Goal, on which the state MCL is based.

Finally, we wish to discourage EPA from again referring the perchlorate assessment to the National Research Council (of the National Academies of Sciences) for further review. A referral would delay the process without a great deal of additional review.

A perchlorate drinking water standard of no higher than 1 ppb would protect a large share of the American population currently at risk. Given the scope of the perchlorate contamination nationally, the multiple exposure pathways and other environmental contaminants impacting thyroid function and development, and the data demonstrating a serious health threat to a significant part of the country's population, EPA is obligated to establish such a drinking water standard. We applaud the agency's consideration of how to move forward to regulate this contaminant and urge you to take steps to establish a protective MCL as soon as possible.

Sincerely,

Nsedu O. Witherspoon, MPH
Executive Director