

26 March 2013

Stephen M. Roberts
Chair, Perchlorate Advisory Panel
Science Advisory Board
US Environmental Protection Agency
Washington, DC

Dear Dr. Roberts:

Thank you for the opportunity to review and comment on the recent draft document SAB Advice (02/25/13 Draft) on Approaches to Derive a Maximum Contaminant Level Goal for Perchlorate (Draft Report). The report is substantially improved compared to earlier versions and the panel's hard work is to be commended. I am disappointed, however, in the continued omission of an emphasis on the critical role of iodine status in conferring susceptibility to the potential effects of perchlorate. By redefining the sensitive subpopulation as "hypothyroxinemic pregnant and lactating women and infants exposed to perchlorate . . .," the panel has omitted the role of iodine. The sensitive subpopulation should be defined as "pregnant and lactating women and infants exposed to perchlorate who are hypothyroxinemic due to iodide deficiency." Ensuring adequate iodine intake is the most direct approach to reducing risks from perchlorate exposure, especially for women of reproductive age;¹ women with adequate iodine intake who are hypothyroxinemic for other reasons would not be susceptible to risks from perchlorate.

Whether one believes that the adverse developmental effects of perchlorate are only inferential or are clearly documented, the adverse developmental effects of inadequate iodine are not debated. Iodine supplementation has been shown to inhibit perchlorate's developmental effects experimentally.² Recent biologically based dose-response modeling of the relationships among iodine status, perchlorate dose, and hypothyroxinemia in pregnant women and the fetus shows that iodine intake has a profound effect on the likelihood that perchlorate exposure would produce hypothyroxinemia.³ While the panel does mention the recent modeling and the role of iodine, the panel should emphasize to EPA that the critical role of iodine status must be included in any modeling performed for the purpose of regulating perchlorate.

Regulating perchlorate in drinking water absent any consideration of iodine status seems unlikely to address the underlying public health problem of greatest concern. While perhaps outside the charge of the current panel, I hope EPA will nonetheless consider taking advantage of the regulatory constraints of the Safe Drinking Water Act and use perchlorate regulation to supply enough iodine in drinking water to offset potential risk and address the true underlying public health problem.

Respectfully,

Gail Charnley PhD

¹ Brent R (2010). J. Clin. Endocrinol. Metab. 95:3154

² See, e.g., Clarkson J et al. (2006). Pp. 73-94 in Ecotoxicology, Ecological Risk Assessment, and Multiple Stressors (Arapis et al, eds) NATO Security Through Science Series, Springer

³ Lumen A et al. (2013). Tox. Sci. ahead-of-print