

Chemist, town resident says perchlorate ‘ion-exchange’ filter economical, not experimental, used by millions; including at Cape Cod military installation

Submitted by Prof. William Moomaw, Ph.D.

Prof. Bill Moomaw holds a PhD in chemistry from MIT, and was Professor of Chemistry at Williams College where he also directed the Center for Environmental Studies. For ten years he chaired the American Chemical Society’s Task Force on the Toxic Substance Control Act.

He is currently a professor of International Environmental Policy at Tufts University and Senior Director of the Tufts Institute of the Environment. He is a resident of Williamstown where he and his wife have owned a home for 34 years.

He provided technical advice to the Town at the time of the formation of the regional sewage treatment system, and in the decision to create a pressure sewer line along Cold Spring Road during the 1970s. He has served on the Town Planning Board and as Williamstown’s representative to the Berkshire Regional Planning Commission.

He has served as President and Vice-President of the Mt. Greylock PTO.

A Williamstown resident, Moomaw served on the town’s planning board in the 1980s. 617-627-2732, william.moomaw@tufts.edu

Ion exchange resins are used to soften water and remove toxic impurities to protect drinking water, remediate contaminated ground water and to reach low levels of contaminating ions for critical industrial processes.

There are literally many millions of homes in the United States that use this technology, which has been available for more than 50 years, and is proven and reliable. It is also inexpensive (\$0.30 - \$0.80 per 1000 gals.), and can be installed in a very short period of time. Systems are modular and come in sizes for a single water faucet up to systems that can treat thousands of gallons per day.

High levels of perchlorate are known to cause thyroid damage. There is no set standard for perchlorate, but a recommended level of no more than 1.ppb has been tentatively set by US EPA while a standard is being set. This is a very conservative level.

Ion exchange is recommended along with more complex biological treatment as a principle means for removing perchlorate. There are two different ion exchange systems. Each is capable of removing perchlorate down to the 1 ppm level or better, and one is supposed to reach the limit of detection level of 0.35 parts per billion (ppb) as defined by US EPA.

A resin that is specifically designed to remove perchlorate is available from Rohm and Hass 1(800 RH Amber). It is available in a 7 cu ft drum at a cost of \$4116. It is essential to have a full chemical analysis to determine the ultimate level of perchlorate removal.

This is the technology of choice for purifying vast quantities of groundwater at the Massachusetts Military Reservation. Further information may be obtained from Kris Kurley of the Impact Area Groundwater Study Program 508-968-5626, Ellie Grillo, Mass. Dept. of Environmental Protection; or Jim Murphy, USEPA, 617-918-1028. There is also a website www.groundwaterprogram.org. A summary of 65 perchlorate treatment studies for groundwater is available online at www.gwrtac.org.

In choosing an onsite option it is important to know where the contamination is occurring. Is the perchlorate entering the well itself, deep under the ground? Or is it coming into the water piping system from the well or within the school building. If it is the latter, a simple plumbing repair could solve the problem at a very low cost. If the contamination is at the well, then it is not necessary to remove the relatively low levels of perchlorate that go to high flow uses such as showers. Hence the water from only one well needs to be treated at most.

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