


DEPARTMENT OF HEALTH & HUMAN SERVICES

 Public Health Service
 Centers for Disease Control
 and Prevention (CDC)

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Subject: Epi-Aid Trip Report: An assessment of health concerns in a community exposed to chloramine treated tap water in Vermont, 2006–2007 (Epi-2007-054).

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INTRODUCTION

The U.S. Environmental Protection Agency (EPA) requires all public water supplies (PWSs) using surface water to disinfect the water provided to their customers. In addition, all PWSs are required to maintain a residual disinfectant throughout the water distribution system to control bacterial re-growth. PWSs have several options for methods to disinfect drinking water, including filtration or chemical disinfection with chlorine or chloramine. Because chloramine produces fewer of the drinking water disinfection by-products that are currently regulated by the EPA, using chloramine as a secondary disinfectant is becoming more common. Chloramine is produced by combining chlorine and ammonia in water and, under the usual conditions of water and wastewater chlorination, monochloramine is the principal end product and disinfectant. Chloramine has been approved for use by the EPA; however, data gaps remain about the potential health effects of using chloramine for large scale water disinfection.

Chloramine has been used since before World War II for drinking water treatment. Its most frequent current use is as a residual disinfectant; its use allows systems to maintain the required detectable residual throughout the distribution system while simultaneously controlling regulated disinfection byproducts (total trihalomethanes (TTHM) and five haloacetic acids (HAA5)). There is also evidence that chloramine may control biofilm in the distribution system more effectively than other residual disinfectants (see EPA's website for information about chloramine disinfection of drinking water: <http://www.epa.gov/safewater/disinfection/chloramine/index.html>).

BACKGROUND

On April 10, 2006, Vermont's Champlain Water District (CWD) changed its drinking water treatment process to use chloramine rather than chlorine as the secondary disinfectant. CWD's use of chloramine is consistent with use in systems across the

country. This change affected Chittenden County (12 municipal systems that serve approximately 68,000 people). Between April 2006 and May 2007, the Vermont Department of Health Agency of Human Services and the Champlain Water District received approximately 74 calls from community members reporting a wide range of health symptoms, including upper respiratory symptoms, complaints of watery eyes and nose, scratchy throat, gastrointestinal ailments, skin rashes, and “itchy skin.” The Division of Environmental Hazards and Health Effects (EHHE) of the National Center for Environmental Health (NCEH) was asked to investigate community concerns regarding exposure to chloramine treated tap water.

METHODS

On September 25, 2007 a seven person team from CDC and the EPA arrived in Burlington, Vermont. The team from CDC consisted of two Epidemic Intelligence Service Officers, a Senior Epidemiologist, and a Medical Student. The team from the EPA consisted of the Associate Director of Drinking Water from EPA’s Region 1 in Boston, MA; and a Water Engineer, and an Environmental Science and Policy Specialist from the Office of Water/Ground Water and Drinking Water Standards and Risk Management Division in Washington, DC. The objective of the trip was to gather information to better understand community concerns about symptoms believed to be associated with exposure to tap water disinfected with chloramine.

Tuesday afternoon, 9/25, the CDC team met with the Vermont Department of Health and reviewed a questionnaire prepared by CDC to characterize symptoms which people reported to be associated with chloramine exposure.

On Wednesday 9/26, there was a full day of meetings that allowed an organized venue for various groups to express their concerns about chloramine exposure. Our meetings started with the Commissioner of Health, Commissioner of Environmental Conservation, and Health Department staff. We then met with the Champlain Water District senior staff and engineers, and then the State’s Senator and local Representatives. In the afternoon on Wednesday, we met with advocacy groups: People Concerned about Chloramine (PCAC) and Vermonters for a Clean Environment. On Thursday morning 9/27, we toured the water treatment plant to view their drinking water treatment process. Home visits and telephone interviews were conducted from Wednesday afternoon through Friday afternoon. We returned to Atlanta on Friday evening, 9/28.

The media requested permission to attend all of the meetings scheduled for Wednesday. They were provided the opportunity to interview representatives from each group involved in the meetings and to record the meeting with the advocacy groups.