Historical Water-Modeling Results of Single-Species VOC-Contaminated Drinking Water at U.S. Marine Corps Base Camp Lejeune, North Carolina

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Two of three water-distribution systems that have historically supplied drinking water to family housing at U.S. Marine Corps Base Camp Lejeune, North Carolina, were contaminated with volatile organic compounds (VOCs). Tarawa Terrace was contaminated mostly with tetrachloroethylene (PCE) and Hadnot Point was contaminated mostly with trichloroethylene (TCE). Therefore, The Agency for Toxic Substances and Disease Registry (ATSDR) is conducting an epidemiological study to evaluate whether in utero and infant (up to 1 year of age) exposures to drinking water contaminated with VOCs at Camp Lejeune were associated with specific birth defects and childhood cancers. The study includes births occurring during the period 1968–1985 to women who were pregnant while they resided in family housing at the base. Historical information and data have indicated that one source of contamination—ABC One-Hour Cleaners—was responsible for contaminating Tarawa Terrace water-supply wells, whereas multiple sources, such as on-base industrial areas and fuel farms, were responsible for contaminating Hadnot Point water-supply wells. Results for the Tarawa Terrace area indicate that PCE concentrations in drinking water exceeded the current maximum contaminant level for PCE of 5 micrograms per liter (μg/L) for 346 months—November 1957–February 1987; the maximum simulated PCE concentration in Tarawa Terrace drinking water was 183 μg/L during March 1984 compared to a measured concentration of 215 μg/L during February 1985. Analyses for the Hadnot Point area of the base are in progress and results using the historical reconstruction process should be available by the end of 2009.

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