

# Wellhead Protection: Prevention is the Solution

Here are 5 cases of groundwater contamination in Pennsylvania that may have been prevented by regulating land uses near wells serving public water systems.

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## Case 1: The North Penn Water Authority, Borough of Souderton, Montgomery County<sup>1</sup>

Gentle Cleaners, Inc., one of the parties potentially responsible for the site contamination, has been in business since 1953 and used tetrachloroethene (PCE) from 1953 to 1983 in dry cleaning operations. A PCE spill of 75 gallons was documented in the early 1970s. Very close to the Gentle Cleaners is the Granite Knitting Mills, a hosiery mill that has operated for over 50 years. This facility also used PCE as part of its dry cleaning operations. In 1979, NPWA discovered PCE in municipal well S-9 in the area and took the well out of service. The NPWA serves over 65,000 people in ten municipalities. Approximately 8,000 people live within 1 mile of the site. The site is 800 feet northwest of Skippack Creek, which is used for recreational activities.

Three potentially responsible parties (PRPs) were initially identified: Gentle Cleaners, Inc., Granite Knitting Mills, Inc., and Parkside Apartments. These PRPs are located near the center of the town and are all within a half-mile radius of two municipal wells, S-9 and S-10, which are owned by the NPWA; well S-9 is not currently being operated due to contamination by PCE.

## Case 2: Emmaus Borough Water System (EBWS), Lehigh County<sup>2</sup>

Water is supplied to area residents by the Emmaus Borough Water System (EBWS). The borough supplies 4,311 meter connections (over 16,000 people) with groundwater pumped from six production wells, all within a 3-mile radius of the site. Emmaus production well #5, approximately 0.7 miles northwest of the site, was taken out of service in 1981 because it contained elevated levels of trichloroethene (TCE). During the site investigation of January 1989, water samples of the on-site injection wells, monitoring wells, public supply wells, and private wells were obtained. High levels of the volatile organic compounds were detected in the injection wells and monitoring wells. Also, elevated levels of TCE were detected in a public supply well (29  $\mu\text{g/L}$ ) and a private well (11  $\mu\text{g/L}$ ). Lead was found in a public supply well at 7.3  $\mu\text{g/L}$ . Therefore, exposure to contaminated groundwater represents a completed exposure pathway for

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<sup>1</sup> The Division of Health Assessment and Consultation (DHAC), a division of the Agency for Toxic Substances and Disease Registry [http://www.atsdr.cdc.gov/hac/PHA/penn/npa\\_p1.html](http://www.atsdr.cdc.gov/hac/PHA/penn/npa_p1.html)

<sup>2</sup> The Division of Health Assessment and Consultation (DHAC), a division of the Agency for Toxic Substances and Disease Registry [http://www.atsdr.cdc.gov/hac/pha/rodale/rmc\\_p1.html](http://www.atsdr.cdc.gov/hac/pha/rodale/rmc_p1.html)

residents of Emmaus using contaminated borough public well water and private well users whose wells are downgradient of the site.

### **Case 3: Audubon Water Company, Montgomery County**

The Audubon Water Co. relies on eleven (11) wells throughout its service area to supply its customers. Wells #2 & #3 are contaminated by VOCs from the nearby Commodore Semiconductor Superfund site. The Commodore site was in active production from 1970-1992. Waste solvents were stored underground first in a concrete tank then in 1975 in an unlined steel tank. Both tanks were later found to have leaked. Cleanup has been going on for 6 years. Air strippers are being used to decontaminate. The current problem of copper in the systems drinking at 6.5 ppm (5 times the MCL) was apparently the result of the installation of new carbon filters to enhance the treatment process – chemicals used in preparation of the filters reacted with copper piping. The filters have been removed. The Water Co. also was late in notifying DEP of the violation. The water turned greenish blue; several people were sickened.<sup>3</sup>

### **Case 4: Plumstead Township, Bucks County**

MtBE turned up in public wells in Plumstead Twp. in 2005. Remediation was already going on for an underground tank at a neighborhood service station. That spill had apparently not moved off site. Additional contamination has been traced to another underground tank at a WaWa mini-mart. MTBE has been found in wells serving a development approximately 1/3 mile away from these sites and in wells serving the local fire hall and public works building 1/4 mile away. The WaWa site is undergoing remediation. The cause there was apparently in the vapor recovery system.<sup>4</sup>

### **Case 5: Bally Borough, Berks County**

Bally Borough is located near the border of Lehigh Co. The Borough is dependent on a well near their Borough office to supply drinking water to residents, including two schools with a combined enrollment of nearly 1,000 children. Contamination comes from the Bally Engineered Structures Superfund site. The municipal well has been under treatment since the 1991 for trichloroethane and trichloroethylene from a nearby superfund site. Those VOCs are being air-stripped. In 2003, 1-4 dioxane was also discovered in the well water. This contaminant is not air-strippable. It is also not a regulated contaminant and, though it is a suspected carcinogen, there is not MCL established. The closest standard, which is being used in Bally, is that for superfund remediation which is 6 ppb. The well tested at a range of 20 – 50 ppb. The well is approximately 1,000 feet from the Superfund site. The plume has not affected other wells in the area.<sup>5</sup>

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<sup>3</sup> DEP Update; US EPA Superfund Website

<sup>4</sup> CWA work with Plumstead residents

<sup>5</sup> Morning Call 3/18/03; Reading Eagle, 3/20/03; US EPA Superfund Website