NPL Site Narrative for Shenandoah Road Ground Water Contamination

SHENANDOAH ROAD GROUND WATER CONTAMINATION
East Fishkill, New York

Conditions at Proposal (January 11, 2001): The Shenandoah Road Ground Water Contamination site includes a hazardous substance source area located at 7 East Hook Cross Road in the Town of East Fishkill, Dutchess County, New York and a ground water plume of tetrachloroethene (PCE) and other volatile organic compounds that has impacted private wells used for drinking water. Sampling performed since April 2000 has shown that 59 homes in this area have been impacted with levels of PCE, a solvent, above the Federal and State Maximum Contaminant Level (MCL) of 5 parts per billion (ppb). As part of an ongoing Removal Action, EPA has installed point-of-entry treatment (POET) systems at 56 of the 59 residences at which the MCL for PCE was exceeded (owners of 3 additional residences purchased treatment systems independently); EPA is currently monitoring and maintaining all systems to safeguard the health of the residents. There are no nearby public water systems.

Beginning in April 2000, the New York State Department of Health (NYSDOH) began sampling residential wells in the area. In June 2000, EPA initiated a sampling program in coordination with NYSDOH. The majority of the homes in the impacted area have been sampled (approximately 230) at least once. A pattern of contamination emerged from these sampling events revealing the highest levels of contamination (1,600 ppb in a residential well) nearest the source, with overall levels of contamination decreasing with distance from the source.

The facility on East Hook Cross Road, which is believed to be the source of the contamination, consists of a small building that reportedly was used for the repair and cleaning of microchip racks used in computer chip manufacturing from the late 1960s through the mid 1970s. According to a former employee, a "dry cleaning solvent" was used to clean these racks. On October 4, 2000, the septic system at this property was uncovered. The system was filled with material: an upper liquid layer, a middle sludge layer and a lower oily layer. All layers are contaminated with PCE; the lower oily layer is approximately 93% PCE (934,000,000 ppb), while the middle layer has levels up to 71,000,000 ppb PCE. Although the chip rack cleaning operation ceased in the mid 1970s, the septic system at this property has remained in limited use since then, serving as a continuing source of ground water contamination for approximately 30 years. On November 7, 2000, EPA removed ten 55-gallon drums of liquid from the septic system to prevent further overflow into the soil. EPA is in the planning stages of removing the septic system and surrounding contaminated soil from the site. A second potential source of contamination, an acid pit described by one of the former employees of the commercial business at the site, has not yet been located.

The sampling events have documented the extent of ground water contamination due to the source. Currently, 59 residential wells have exceeded the MCL for PCE. A total of 20 wells exceeded the EPA Removal Action Level of 70 ppb PCE. As a result of this extensive contamination, the State of New York referred this site to EPA for inclusion on the National Priorities List on September 6, 2000.

The site is in a rural area consisting of residential subdivisions and farms/wooded area. The topography is dominated by the Shenandoah Mountain Ridge and a valley that runs generally in a southwest/northeast

direction. The source is located on a ridge at the northeast point of Shenandoah Mountain. Contaminated wells are located immediately adjacent to and topographically lower than the source, and onwards into the valley in a predominantly northeast/east direction. Ground water is the sole source of potable water in the impacted area. There are two aquifers of concern in the area: a surficial aquifer of unconsolidated deposits, and bedrock aquifers (granitic gneiss and carbonate rock). Residential well sampling conducted by NYDSOH and EPA from April through September 2000, has shown these aquifers to be interconnected. Residential wells on Shenandoah Mountain are predominantly screened in the granitic gneiss, while wells in the valley are predominantly screened in the carbonate rock.

Status (June 2001): EPA is considering various alternatives for this site.

For more information about the hazardous substances identified in this narrative summary, including general information regarding the effects of exposure to these substances on human health, please see the Agency for Toxic Substances and Disease Registry (ATSDR) ToxFAQs. ATSDR ToxFAQs can be found on the Internet at ATSDR - ToxFAQs (http://www.atsdr.cdc.gov/toxfaqs/index.asp) or by telephone at 1-888-42-ATSDR or 1-888-422-8737.