



DNREC/EPA
Fact Sheet #4
September 28, 2002



Metachem Products, LLC

Groundwater Issues

Background

- In September 1981, a 5,000-gallon spill of industrial monochlorobenzene occurred at the facility, then known as Standard Chlorine, while workers were filling a railroad tank car.
- In January 1986, a chain reaction of tank failures caused a spill of approximately 169,000 gallons of trichlorobenzene and approximately 400,000 gallons of paradichlorobenzene.
- Based on the environmental impacts from the above spills at the facility, EPA placed the site on its National Priority List (NPL) in 1987.

Groundwater Treatment

- Following the spills in 1986, four (4) Groundwater Recovery Wells were installed to collect groundwater for treatment. A system was installed to treat the emissions from the collected groundwater. The water was sent through an air stripper to remove the organic chemical contamination and then to the facility's wastewater treatment plant. Chemicals removed from the water by the air stripper were combusted in the facility's #3 boiler. DNREC required Standard Chlorine to monitor the quality of the groundwater and the efficiency of the recovery wells on a quarterly basis and report the results to DNREC and EPA.
- In November 1987, EPA began a Remedial Investigation (RI) to define the nature and extent of the groundwater contamination at the facility. The RI included sampling and analysis of soil, sediment, surface water, and groundwater, as well as performing human health and ecological risk assessments based on the results of the sampling and analysis conducted.
- In September 1992, EPA released the RI report summarizing its findings. The contaminants of primary concern at the facility are the various forms of chlorobenzene (mono, para, di, tri, and tetra-chlorobenzene), which were found in the soil and sediment along the flow path of the spills northwest from the facility toward Red Lion Creek. Similar contaminants were found in the shallow depths of the Columbia Aquifer. The contamination formed a plume that extended north-northeast from the facility toward Red Lion Creek. No contamination was found in the deeper Potomac Aquifer, which is a drinking water aquifer. The human health risk and ecological risk assessments determined that the potential human health risk was limited to onsite workers, and that the plants and animals in the path of the contamination were potentially at greatest risk from the contamination.
- EPA released the Feasibility Study in May 1993. This study examined several possible approaches that could be used to clean up the Site, exploring the advantages, disadvantages and costs of each.
- EPA released a Proposed Plan for public comment in 1994. The Proposed Plan laid out several possible alternatives for cleanup of the Site. One of these was identified as EPA's preferred alternative. The alternative involved containment and treatment of the groundwater. A fifth groundwater recovery well was added to the existing four well system.

- In March 1995, after various changes in response to comments, EPA issued a Record of Decision (ROD) selecting the cleanup plan (remedy) for the Site. The ROD selected a remedy for groundwater, consisting of a subsurface barrier wall to be installed near Red Lion Creek to capture and contain the contaminated groundwater and a pump-and-treat system to remove the contamination from the captured groundwater.
- In 1996, EPA ordered Standard Chlorine to design and implemented a pump-and-treat system. The design has not been completed. The current system was installed in 1986 as an interim measure, until the final system specified in the ROD was designed and installed.
- Standard Chlorine sold the facility to Metachem Products, LLC, in 1998.
- EPA is currently upgrading and repairing the groundwater recovery system to be placed back into service to continue to treat the groundwater. The system is being modified to allow it to operate without the #3 boiler and the air stripper. The system will use a liquid carbon filter to remove contamination from the water. This is an industrial-size version of the technology used in the carbon water filters many Americans have in their refrigerators or on their kitchen faucets to filter their drinking water. At the current time, the EPA is attempting to remove the Dense Non-Aqueous Phase Liquid (DNAPL) from two of the five recovery wells by using a specialized pump. This process will begin the week of Oct 7, 2002 and is expected to take 2-3 weeks. It was determined that an attempt should be made to remove the DNAPL prior to restarting the system. Once this is complete, the recovery system will be placed back into service. (See Recent Sampling Section of this Fact Sheet for description of DNAPL.)

Recent Sampling

- After EPA and DNREC took possession of the site in May 2002, one of the areas investigated was the wastewater treatment plant (WWTP) and all the inputs into the WWTP. During this investigation, a leak was detected at the outlet of the pump and treat system leading to the WWTP. It was determined that the groundwater recovery system needed to be investigated more thoroughly to determine if other maintenance was necessary. The pumps were removed and samples were taken from the recovery wells, at which time raw product was found in two of the five recovery wells. The material is known as DNAPL and has a low solubility in water. Being denser than water, it moves downward through groundwater leaving residual product trapped in the aquifer and pools of free-phase contamination settling on top of less permeable zones (clay). Once a spill occurs and DNAPL reaches the subsurface it acts as a continuous source of contamination, slowly dissolving into the groundwater.
- EPA and DNREC also took the opportunity to collect a full round of groundwater samples while the recovery system was shutdown for investigation and maintenance. This round of groundwater sampling data will be used to evaluate the current groundwater recovery system and determine if the selected remedy is still the most appropriate method to clean-up the site.
- On August 28, 30 and September 2, 2002, DNREC conducted groundwater sampling of 49 wells (35 monitoring wells, 3 recovery wells and 11 test wells) located on the Metachem site and neighboring parcels, including wells on property owned by Motiva, Oxychem, and Air Products. Samples were taken from both the Columbia and Potomac Aquifers.
- The groundwater samples are being analyzed for semi-volatiles and volatiles, such as benzene and trichlorobenzene. Preliminary results will be presented at the October 8th public meeting. Validated results will be available for public review in early November 2002.
- EPA and DNREC plan to do subsequent sampling and data gathering based on the results of this groundwater data.

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