



Storm Drain 5 North (SD-5N) Groundwater Plume

The Air Force Center for Environmental Excellence (AFCEE) is the agency responsible for the Installation Restoration Program (IRP) at the Massachusetts Military Reservation (MMR). The IRP is the program that cleans up soil and groundwater contamination resulting from historic use of MMR.

Where did this groundwater plume come from?

The primary source of the SD-5N groundwater plume are historical releases and runoff of chlorinated cleaning solvents and fuel constituents from various military and industrial activities on the base. Other sites on MMR have also contributed to the contamination. The main contaminants of concern in the SD-5N plume are perchloroethene (PCE) and trichloroethene (TCE), both of which are volatile organic compounds (VOCs). These VOCs were formerly used as cleaning solvents.

What is the current status of the source area?

Excavation of contaminated soils at the SD-5N source area began in April 2001. Almost 6,500 tons of soil were removed and taken off-site for proper disposal at a state-permitted landfill. In August 2002, a soil vapor extraction (SVE) system was installed at the site. The SVE system extracts VOCs from the soil in vapor form. By injecting air and applying an air vacuum through a system of underground wells, contaminants are pulled to the surface in vapor form. Vapors are then treated using carbon adsorption, a process similar to carbon filtration of contaminated groundwater. Almost five pounds of contaminants were removed since startup. The SVE system was shutdown in March 2003.

What is the current status of the plume?

Treatment System: In August 1997, AFCEE began operation of an extraction, treatment, and reinjection (ETR) system to address the groundwater contamination. It contained a series of ten extraction wells, a treatment plant and eight reinjection wells located at the base boundary. The treatment plant used granular activated carbon to remove VOCs from groundwater at a rate of approximately 55 gallons per minute. Through February 2004, almost 600 million gallons of groundwater have been treated, removing almost 40 pounds of contaminants. The SD-5N system achieved approximately 99% of its total mass cleanup goal.

In August 2003, AFCEE, in agreement with the U.S. Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP), agreed to shut down the SD-5N treatment system.

Monitoring Program: AFCEE, EPA, and the DEP continually evaluate the results of the on-going ETR through a monitoring program known as System Performance and Ecological Impact Monitoring (SPEIM). With the shutdown of the SD-5N system, AFCEE has significantly reduced the number of wells sampled in this program in relation to the SD-5 treatment system.

The maximum contaminant level or MCL (as listed on the plume map) is a standard established by the EPA, under the Safe Drinking Water Act. It represents an acceptable level of a chemical that ensures the safety of a public drinking water supply. The DEP has established safe drinking water standards as well. If there are differences between federal and state levels for a given chemical, the more stringent (lower) value is applied.