



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY NEW ENGLAND

May 26, 2000

## Groveland Wells Superfund Site

The 850-acre Superfund site includes most of the aquifer that supplied the town of Groveland's drinking water wells. The town shut down those two wells in 1979 after finding trichloroethylene (TCE) contamination. TCE is a manmade chemical used in industry as a degreaser for metal parts. Water rationing was imposed and the town developed a new well drawing from a different aquifer. Of the original two wells, one was permanently abandoned and the other was reopened after the U.S. Environmental Protection Agency (EPA) installed a treatment system which removed TCE and provided potable water. The well treatment system currently is not operating because contamination is no longer detected in this particular well.

### How the Aquifer got Contaminated with TCE

Evidence shows that at least 3,000 gallons of waste oil and TCE were released and other accidental spills occurred as a result of activities of the Valley Manufactured Products Company. This company has been in operation since 1963 and is located off of Washington Street in Groveland, MA. An extensive groundwater plume containing principally TCE exists in the aquifer under the site as a result of these releases.

### A Groundwater Treatment Plant is Built

For the past ten years, Valley Manufactured Products Company has been operating a soil vapor extraction system which removes contamination from the soil, preventing its evaporation into the air. In addition, EPA built a



groundwater treatment plant located between the Valley Manufactured Products Company and Mill Pond to remove TCE from the groundwater. The plant became operational in May 2000.

### Three Steps to Removing TCE Contamination from the Groundwater

Ten groundwater extraction wells pump 150 gallons of contaminated groundwater per minute from the area's deep and shallow aquifer and transfer it to the groundwater treatment plant.

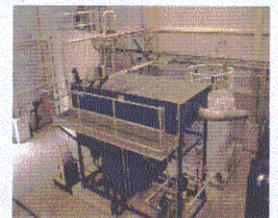


The treatment process in the plant includes: 1. removing suspended solids from the groundwater; 2. destroying the contaminants in the groundwater; and 3.

preventing contaminants from entering the air. Prior to being discharged to Mill Pond, treated water is monitored to ensure that it meets stringent discharge requirements.

### One: Removing Suspended Solids

In order to destroy the contaminants in the groundwater, it is important to remove as much solids as possible because they interfere with the destruction of contaminants. The groundwater that is pumped into the plant is sent to the clarifier where solids settle to the bottom. The groundwater is then sent to the pressure filters where more solids are removed. The removed solids are sent to the thickener for additional settling.



The solids that are removed in this process are sent to the filter press. This press squeezes out most of the remaining water, which is then transported back through the process, and the collected solids, or sludge, are removed and properly disposed of off-site.

## **T**wo: **Destroying Contaminants in the Groundwater**

After suspended solids are removed from the groundwater, the water is processed through the ultraviolet oxidation system.



TCE, the primary contaminant, is a volatile organic compound which has a tendency to

evaporate into the air from water or soil. By exposing TCE-contaminated groundwater to ultraviolet light, the volatile organic compounds are broken down and destroyed. Hydrogen peroxide is added to assist the ultraviolet light in destroying the TCE. After destroying TCE, the hydrogen peroxide is then broken down into water and oxygen, thereby removing hydrogen peroxide from the groundwater.

The treated groundwater then enters a holding tank where it is monitored for water quality before it is allowed to be discharged to Mill Pond. Should the treated water not meet water quality requirements, the system automatically sends it through

the entire treatment process again until it does meet the stringent standards.

## **T**hree: **Preventing Contaminants from Entering the Air**

Any volatile organic compounds that evaporate during the treatment process are captured and treated using carbon filters before being released to the atmosphere.

## **What Should Neighbors Expect?**

No odors or emissions are released by the treatment plant.

The groundwater treatment plant operates 24 hours a day, seven days a week, with at least two licensed operators running the plant eight hours a day, five days a week. The plant can be monitored remotely at off-site locations. In addition, in the event of any equipment malfunction, the plant automatically shuts down and personnel are contacted through an auto-dial alert system.

EPA will operate and maintain the facility for the first ten years, after which the MA Department of Environmental Protection will assume operating and maintenance responsibility.

The groundwater treatment plant will operate until Superfund cleanup goals have been met, which is estimated to be up to thirty years.

## **What Will Happen to the Groundwater Treatment Plant after Cleanup Goals have been Met?**

The Archdiocese of Boston owns the property and has given EPA the right to build, operate, and maintain the groundwater treatment plant. In return, when the cleanup goals have been met, the equipment inside will be properly decommissioned and removed and the ownership of the building will be retained by the Archdiocese.

### **For More Information Contact:**

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