



PERCHLOROETHYLENE

Shaw Air Force Base, S.C.

Perchloroethylene or tetrachloroethylene, called "PCE," is a manufactured chemical commonly referred to as "dry cleaning fluid" because more than 80 percent of PCE produced is used in the dry cleaning industry. PCE is also used in metal degreasing, in the production of other chemicals and is used in some consumer products such as paint strippers and spot removers. It evaporates easily into air and has a sharp, sweet odor.

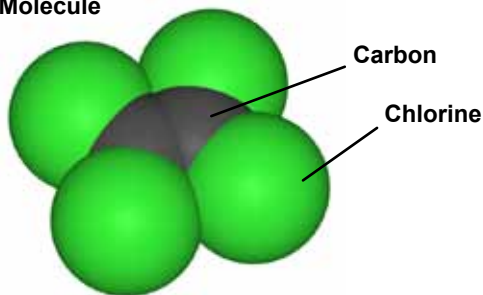
PCE is a man-made substance first used in the U.S. in the 1930s. Since 1989, the demand for PCE has declined about 35 percent. Demand for PCE is expected to continue to decline due to solvent recycling and changing technology.

Here at Shaw, PCE groundwater plumes have been discovered in two locations. One of those plumes is in the Upper Black Creek Aquifer, which is a drinking water source located 150 feet below ground surface. A "pump-and-treat" system with air stripper has been installed to clean PCE from that aquifer. The other plume is in the shallow Lang Syne Aquifer. The Air Force is finalizing a study at that site to determine the best treatment system.

It is worth noting, the amount of PCE in groundwater here is VERY dilute (a few parts of tetrachloroethylene per billion parts of water) compared to the compounds in their original form (thousands of parts per million).

Most private citizens living over PCE plumes off base get their water from High Hills Rural Water Company. On base, the Air Force has installed air strippers on base drinking water wells to ensure a safe drinking water supply. The South Carolina Department of Health and Environmental Control oversees the restoration process.

PCE Molecule



WHAT HAPPENS TO PCE WHEN IT ENTERS THE ENVIRONMENT?

PCE can enter the environment through spills or leaks or when released into the air during use. It evaporates quickly in air and passes quickly through soil into groundwater. It breaks down slowly in the environment.

WHAT ARE REGULATORY STANDARDS FOR PCE?

State and federal drinking water standards for PCE are both set at five parts per billion, equivalent to 1 tablespoon (about 250 drops) of water in an Olympic-size swimming pool.

HOW MIGHT I BE EXPOSED TO PCE?

There are a few ways people might be exposed to PCE:

- Using products containing PCE;
- Drinking groundwater containing PCE;
- Working in or living next to dry cleaning facilities.

HOW CAN PCE AFFECT MY HEALTH?

If you came into direct contact with full-strength PCE, the vapors could irritate your skin, eyes and upper respiratory tract.

Breathing PCE fumes can produce headaches, dizziness, nausea and vomiting. Contact causes skin redness and chapping. Long-term significant exposure may result in liver, kidney and central nervous system damage.

Since discovery of trace amounts of PCE in groundwater, Shaw has taken aggressive steps to thoroughly investigate and install treatment systems on the extremely diluted PCE groundwater plumes and to enact land use controls to reduce or eliminate exposure risk to PCE by humans on and around the base.



Dry cleaning accounts for 80% of PCE usage in the U.S. Shaw A.F.B. has installed a pump-and-treat system with air stripper to treat a PCE plume caused by a decades-old release of from an on-base dry cleaning operation.

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FOR MORE INFORMATION

U.S. Environmental Protection Agency: www.epa.gov
South Carolina Department of Health & Environmental Control: www.scdhec.gov

