



GROUNDWATER CLEANUP AT SHAW A.F.B.

Shaw Air Force Base, S.C.

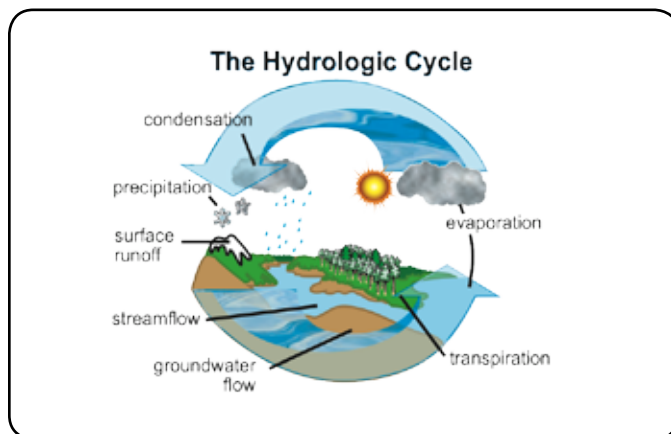
Like all military installations or commercial airports, Shaw has used many chemicals to support its national defense activities since it began operations as a flight training base called "Shaw Army Airfield" in 1941. For instance:

- Fuels for airplanes, vehicles and generators;
- Solvents for degreasing machinery and equipment;
- Cleaners for washing aircraft parts and clothing;
- Pesticides and herbicides to control pests and vegetation.

Sometimes these chemicals escaped into the environment from leaking tanks, being washed down floor drains or being spilled during transportation and use. Previous chemical disposal practices also contributed to soil and groundwater contamination. These were accepted disposal practices at the time, but are now known to cause environmental contamination and are no longer used. Your Air Force is committed to cleaning up the soil and groundwater contaminated with fuels, solvents and other chemicals from past activities here, even those it didn't cause.

HYDROLOGIC CYCLE

When rain falls to the ground, the water does not stop moving. Some of it flows along the surface in streams or lakes, while some is used by plants. Some evaporates and returns to the atmosphere and some sinks into the ground. This movement of water around the environment is called the hydrologic cycle.



WHAT IS GROUNDWATER?

Imagine pouring a glass of water onto a pile of sand. Where does the water go? The water moves into spaces between the particles of sand. Groundwater is water that fills the spaces between rocks and soil particles underground.

The area immediately below the land surface that contains both water and air in the open spaces is called the unsaturated zone.

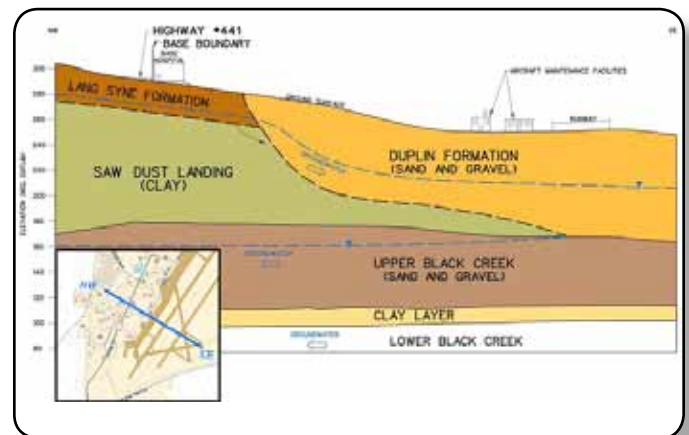
The area where water fills these spaces, below the unsaturated zone, is called the saturated zone.

The top of the saturated zone is called the water table. The water table may be only a foot below the ground surface or it may be hundreds of feet below, depending on the geology of the site. The water table is not flat; it often follows the shape of the land. When the water table meets the ground's surface, it forms springs, lakes, swamps or rivers.

The water table rises and falls depending on many factors, including heavy rains, melting snow and extended periods of drought. Human activity may also draw down the water table by pumping out water for drinking water supplies or irrigation.

Groundwater is stored in and moves through layers of soil, sand and rocks called aquifers. An aquifer is a layer of soil and rock under the ground's surface that allows water to pass through easily. Water can be pumped from an aquifer by wells to the earth's surface for municipal or household use.

The speed at which groundwater flows depends on the size of spaces in the soil or rock and how well the spaces are connected. Aquifers typically consist of gravel, sand or fractured rock. These materials are permeable because they have large connected spaces that allow water to flow through. Groundwater supplies are replenished, or recharged, by rain and snow melt. If contamination is present in or on soil above the aquifer, rain and snow melt can carry contaminants through the soil to the aquifer. An area of contamination in groundwater is called a plume.



At Shaw A.F.B., there are three groundwater aquifers at various depths affected by four cleanup sites at the base: the Lang Syne Aquifer, Duplin Aquifer and Upper Black Creek Aquifer. A clay layer forms a barrier and prevents groundwater contamination from reaching the Lower Black Creek Aquifer.

GROUNDWATER CLEANUP AT SHAW

At Shaw, there are four groundwater sites being investigated or cleaned up that impact off base land. The main groundwater contaminants in these plumes are chlorinated solvents such as trichloroethylene and perchloroethylene, as well as the jet fuel component benzene and the pesticide dieldrin.

A variety of cleanup solutions are being used to clean groundwater and reduce or eliminate any risk to human health and the environment. Treatment solutions in use include a pump and treat system with air stripper, permeable reactive barriers, in-situ chemical oxidation utilizing potassium permanganate injections, natural treatment, long-term monitoring and land use controls.

Additionally, air stripper treatment units have been installed on base drinking water wells and filters have been provided to local off-base residents who use private drinking water wells, to provide clean drinking water and reduce exposure risk.

INTERESTED IN LEARNING MORE?

Your Air Force takes very seriously its obligation to protect human health and the environment. We are committed to keeping the public informed and involved in cleanup. There are a variety of ways you can get involved. For example:

- Attend semi-annual public Restoration Advisory Board meetings;
- Sign up to be added to the Shaw environmental mailing list;
- Visit the information repository for Shaw at the Sumter County Public Library, where all technical reports and decision documents related to cleanup are made available for public review, 111 N. Harvin Street, Sumter, S.C. (It consists of an index of documents and contact information for Shaw AFB to receive copies of the documents.)

Simply call or email the Shaw point of contact below for more information.



Air Force contractors regularly test groundwater on and around Shaw A.F.B. as part of a comprehensive groundwater investigation and cleanup program.

POINTS OF CONTACT

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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

