

News Release

(Fort A.P. Hill Benefits the Chesapeake Bay while Training Troops)

By Alison Cooley

Water makes up 80 percent of the earth's surface. It is home to fish and many plants in the Chesapeake Bay, and humans cannot survive without it. What happens when natural or human-induced disasters occur, leaving water supplies contaminated and unfit for consumption? The Army swings into action and makes its own pure water. This is an important Army mission in wartime, peace operations, and disaster assistance.

In May of 1997, eleven Army Reverse Osmosis Water Purification Units (ROWPUs) were used in Grand Forks, North Dakota to provide much needed drinking water as part of the relief effort during the Red River floods. These units could not have been so effectively deployed without extensive practice and training on the ROWPU equipment. Through field exercises, at facilities like Fort A.P. Hill, Virginia, soldiers learn how to purify water for human consumption when disaster strikes.

ROWPUs are used for water purification. The ROWPU system mounts on a tractor-trailer and pumps water out of a pond or other water body. The water is then processed, producing drinking water and wastewater. The wastewater contains brine (salt) and sediment, and may be discharged to a sewage treatment plant for treatment.

Fort A.P. Hill, in Central Virginia, is known as one of the Army's most active training facilities. It is the sixth largest installation on the East Coast, with 75,944 acres of federally owned land and 111 acres of leased land along the Rappahannock River. Because of its location in the Chesapeake Bay watershed, Fort A.P. Hill must be very aware of the environmental implications of the training conducted on this land.

In 1996, a POLEX (Petroleum, Oil, and Lubricant Exercises) Coordinator identified the need for a ROWPU training site at Fort A.P. Hill. A float bridge expert also saw the need for a full closure float bridge training site at Fort A.P. Hill. By combining the two needs, Buzzard's Roost Pond was selected to become a multi-purpose ROWPU site. A partnership was formed between Fort A.P. Hill's Integrated Training Area Management (ITAM) Program and Fort A.P. Hill's Environmental Division to construct the ROWPU site. The two groups worked together to design an innovative training site that was environmentally sound and met the needs of multiple training missions. A goal of the project was to maximize utilization of the site. Chris Landgraf, a contractor with Fort A.P. Hill's Environmental Division, designed the site and oversaw its construction. Fort A.P. Hill now has the only multi-purpose ROWPU site that is used for three training missions: water purification, full closure float bridge, and nuclear, biological, and chemical (NBC) decontamination.

The Fort A.P. Hill site at Buzzard's Roost Pond, a three-acre body of water, is ideal because it offers diverse training opportunities unlike most water purification training areas. This pond offers multi-mission and joint mission training at one site. When conducting multi-mission

training, units can practice two missions concurrently, such as using a ROWPU and deploying a float bridge. Joint mission training allows two units to train simultaneously on the site. To simulate real-life situations, the site allows various scenarios for setting-up and operating a ROWPU such as field sites, roadside, and in urban areas.

The multi-mission ROWPU site can also be used as a full closure, float bridge training site. A heavy-wheeled vehicle drops sections of a pontoon bridge onto the water. These sections are assembled to create a pontoon bridge. The pontoon bridge can be maintained as a semi-permanent structure or used for mobile expeditions. The site at Buzzard's Roost Pond uses cable concrete (non-woven geo-textile material) for reinforcement at the shoreline of the pond. This cable concrete material forms a 20-foot ramp for vehicles to enter the water, and it distributes the weight of the 60,000-pound vehicle as it drops the bridge into the pond. The cable concrete material stabilizes the shoreline and allows vegetation to grow through the concrete.

One of the other uses of the ROWPU site at Buzzard's Roost Pond is for nuclear, biological, and chemical (NBC) decontamination training. Soldiers are trained on how to decontaminate personnel and equipment after a nuclear, biological, or chemical attack. They follow instructional signs located around the pond that lead them through the steps of decontaminating protective gear and vehicles. The pond provides the water necessary for the soldiers to decontaminate their vehicles.

Landgraf stated, "It was a good project. By having the advantages of ITAM and environmental input, the site was constructed with a proactive approach. It was identified as a

need, rather than as a repair, and we were able to find out what people really needed before we constructed it. Today, we are able to get so much for so little out of the site." The cost to re-grade and repair this site after every unit leaves would be expensive, but since the site was constructed as a stabilized site, no repairs are required after each use. In fact, the site has needed little maintenance since its completion.

Construction began on the ROWPU site in March 1996 and ended the following month. Landgraf elaborated, "It's a challenge for managers to provide a natural environment that will support multiple training missions without leading to overuse. In these situations, sites are usually rotated, hardened, or stabilized to reduce wear and tear and limit erosion. The combination ROWPU, full closure float bridge, and field NBC decontamination site was stabilized using cable concrete, layered stone roads, and storm water conveyance channels."

The stabilization of the site is one of its most successful aspects, according to Landgraf. Since it was designed from an erosion and sediment control standpoint, it not only benefits training exercises, but it also helps protect the Chesapeake Bay. Buzzard's Roost Pond discharges into a tributary that flows into the Mattaponi River. The Mattaponi River discharges into the York River, which is one of the six major tributaries of the Chesapeake Bay. When heavy-wheeled equipment crosses a stable site versus a non-stable site, it reduces soil erosion sedimentation. By being able to reduce the sediment during training exercises, the soldiers avoid polluting the Chesapeake Bay. Research has shown that suspended sediment is one of the Bay's most significant pollutants.

When the ROWPU site was constructed, the tree root cover was not damaged, and overhead cover was maintained. This might not have been considered if it weren't for the input of the environmental office. Today, the site is used year-round, yet it has plenty of aquatic vegetation in its pond and grasses growing on its shoreline. Due to site stabilization, grasses return within one week after a unit leaves.

According to Terry Banks, Director of the Environmental Division at Fort A.P. Hill, the resources relating to this project that were shared between Fort A.P. Hill's ITAM Program and Environmental Division have proven invaluable. The combination ROWPU site is not only unique due to its multi-purpose uses, but also its approach to protecting the environment. She said that she receives a lot of feedback from the soldiers about how much they enjoy using the ROWPU site. Banks said, "Since all of the ROWPU training occurs in the same location, we have better control over what goes on there. We're especially proud that this site is well controlled environmentally."