

Water Every Where

During conflict, a poor water supply can cause even more casualties than the enemy and there are examples where soldiers have died in the thousands due to unsanitary camp conditions and from drinking contaminated water. Good quality drinking water is one of the basic necessities that is critical to humanitarian



operations. The task of providing potable water falls to the Military Engineers. The treatment of raw water used to be based on the processes of coagulation and settlement. This technology, however, fails to produce water of acceptable quality from the highly contaminated water sources found in most of the locations where the Canadian Forces deploy. A new high tech solution to the water problem was required.

Zenon Environmental Systems Inc. responded to the Military Engineers' requirement by developing the Reverse Osmosis Water Purification Unit (ROWPU). The ROWPU is an advanced water treatment system that is capable of purifying any water source. The functioning of this system is based on the reverse osmosis principal. It can be used to treat water contaminated by nuclear-biological-chemical warfare agents, as well as fresh, brackish and seawater.

Reverse Osmosis is a pressure-driven process that uses a membrane to separate dissolved and suspended substances from water. The membrane is fabricated with micro-pores that allow fresh water to pass through while blocking the larger impurities. This system produces the highest quality water possible short of distillation. The technology is ideally suited for field deployment since it is energy efficient and is rugged and reliable.

The ROWPU is a fully integrated self-contained system with its own diesel power generator, automatic control system, and a reverse osmosis water purification system. Setup takes about 20 minutes. The system is contained in a palletized enclosure that is transportable by road, air, sea or rail. The ROWPU will fit into a 20-foot ISO container for worldwide handling - a prerequisite for overseas operations. The ROWPU is capable of producing 2,400 litres per hour under the most severe conditions. The ROWPU equipment has been successfully used in field deployments as well as in many parts of the world, including Ethiopia, Somalia, East Timor, Haiti, and Croatia. While the water can be delivered in bulk, a small bagging machine (similar to the way milk is packaged for sale) is more suitable for humanitarian and disaster relief operations. The 1300 mL bags are then distributed to the soldier or refugee without concern over the need for returning and recycling large containers.

The ROWPU is considered to be one of the best deployable water purification systems in the world and is an example of the Canadian Military Engineers' application of new technology.