



WATER SECURITY AND ENVIRONMENTAL MANAGEMENT

ENVIRONMENTAL SCIENCES DIVISION
"SCIENCE TO SUSTAIN OUR ENVIRONMENT"

Oak Ridge National Laboratory's Role in Water Security and Environmental Management

KEY RESEARCH AND TECHNOLOGY

- Tools to address water infrastructure interdependencies
- Screening technologies for the identification unknown contaminants
- Methods for detecting and monitoring contaminants in water
- Sensors and early warning systems for water distribution and collection systems
- Models for contaminant transport and distribution systems
- Test and evaluation of sensors and biomonitorers
- Methods to enhance the use of robotics and visualization devices during evaluation of water infrastructure
- Training that enhances preparedness, response, and mitigation to water system threats or attacks

As a lead agency in providing support to the Department of Homeland Security, ORNL plays a critical role in water security and environmental management. ORNL/ESD draws upon its long history of environmental management to develop new tools and technologies that address potential attacks on drinking water and wastewater infrastructure. Much of the work accomplished by ORNL researchers in this area over the past several years includes risk assessment, remedial actions, drinking water standards, wastewater treatment, and water quality monitoring. Thus, ORNL's extensive knowledge base is being applied to water security.

The National Homeland Security Research Center oversees three major re-

search areas: Water Security; Rapid Risk Assessment; and Safe Buildings.

The primary emphasis of Water Security is on water supply, treatment, and distribution infrastructures in the United States. Key research areas are detection and characterization of contaminants, response and mitigation, and prevention and protection.

ORNL is committed to supporting the first area by using a systematic model and analysis of real-time data. The model addresses:

- Source
- Treatment
- Distribution
- Inflow and Discharge

Services Provided by ESD Staff Includes:

- System Performance
- Audit and Assessment
- Technology Development
- Technology Evaluation



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IMPORTANCE OF WATER SECURITY

"Water—every drop of it—is a precious natural resource that Americans once enjoyed with little thought to potential tampering by terrorists or others. Today, however, U.S. citizens are increasingly aware of threats of harm to our

homeland. The terrorist attacks of September 11, 2001, have taught us to anticipate that other such threats are possible. (EPA August 2004)

We are.....taking significant steps to strengthen our

homeland protections—securing cockpits, tightening our borders, stockpiling vaccines, increasing security at water treatment and nuclear power plant. (President George Bush, June 6, 2002)"