



National Risk Management
Research Laboratory

www.epa.gov/nrmrl/

Water Quality Research Program

Robert S. Kerr Environmental Research Center, Ada, OK

Providing Research Solutions to Manage Water Quality

Introduction

The Kerr Center, situated on 16 acres three miles south of Ada, Oklahoma, houses the Ground Water and Ecosystems Restoration Division (GWERD) of the National Risk Management Research Laboratory (NRMRL). The division develops strategies and technologies to protect and restore ground water, surface water, and ecosystems impacted by human-made and natural events. The center, which includes the Gaar Corner field site, contains state-of-the-science analytical chemistry equipment, specialized instrumentation, and field equipment to study the transport and transformation of contaminants in soil and ground water.

Completed in 1966, the three-story Kerr Center provides 50,000 square feet of laboratory and office space. An addition to the facility in 1993 provides another 20,000 square feet for the library, computer support services, and a conference center. The nearby 10,000-square-foot annex contains a machine shop and storage facilities for field equipment and supplies. Separate facilities have been constructed for storing bulk chemicals, compressed gases, and hazardous waste.

Research

GWERD addresses areas of research that are part of ORD's strategic plan and NRMRL's mission. The division is EPA's center of expertise for investigation of the soil and subsurface environment, and ecosystem restoration nationwide. Topics of research at the Kerr Center include:

- The potential use of in situ bioremediation as a method of restoring contaminated ground water
- The existence and implications of nonaqueous phase liquids (NAPLs) and ways to clean them up
- The use of permeable reactive barriers to remediate contamination from metals and chlorinated solvents
- Site-specific technical support for over 300 Superfund, Resource Conservation and Recovery Act, and brownfield sites
- Evaluation of the effectiveness of ecosystem restoration efforts on streams in several different states across the country

Besides the Kerr Center, GWERD researchers use the 110-acre Gaar Corner field site to conduct research. Garr Corner is located nine miles west of Ada and is the setting for both in-house research and collaborative efforts with academic and commercial partners and private companies.

The site encompasses a mixture of woodlands, open fields, and ponds. It was built to assist researchers in their efforts to safeguard underground supplies of drinking water from contamination by pollutants introduced to the subsurface via injection wells. It offers several types of underground injection wells for evaluating mechanical integrity:

- Three logging wells
- A calibration well
- A leak-test well
- Three monitoring wells

Gaar Corner is also used for ecosystem research studies. With its sixteen 40-square-foot enclosures, the site supports research on interactions among primary consumers, plants, microbes, detritivores, and soil chemistry. Research also focuses on the ecosystem's susceptibility to nitrogen deposition and the development of novel management interventions for improving nitrogen-use efficiency in watersheds. In addition to the enclosures, researchers at Gaar Corner use a 2,000-square-foot laboratory with computer facilities, a 1,000-square-foot shop and storage building, and a weather station.

Information transfer materials and activities (e.g., handbooks, journal articles, reports, research briefs, issue papers, workshops, and symposia) assist EPA in protecting and restoring public health and the environment. GWERD's Center for Subsurface Modeling Support (CSMoS) provides public domain ground water and vadose zone modeling software and services along with direct technical support to EPA and state decision makers.

History

In 1961, amendments to the Federal Water Pollution Control Act of 1956 directed the federal government to establish field laboratories in various parts of the United States as research facilities to combat increasing national water pollution problems. One of these field laboratories was established in Ada, Oklahoma. It was named for Robert S. Kerr, a long-time U.S. senator from Oklahoma.

With its beginnings as a regional U.S. Public Health Service laboratory under the U.S. Department of Interior, the Kerr Center provided technical assistance and training, and conducted research to solve water pollution problems in Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.



In 1970, the Kerr Center became one of fifteen research laboratories administered by the newly created EPA through its Office of Research and Development (ORD). Between 1970 and 1980, research at the Kerr Center included investigations on water quality, land treatment, and ground water; and the environmental effects of mining, irrigation, petroleum and petroleum-related activities, and animal wastes.

ORD was realigned in 1995 and EPA's 15 research laboratories were consolidated into three national laboratories and two centers. As a result, the Subsurface Protection and Remediation Division of NRMRL was formed. From 1995 until 1997 the division's mission was to conduct research to support EPA efforts to protect and remediate the subsurface environment. In 1997, the mission was expanded to include research on ecosystem restoration. In 2002, the division's name was changed to the Ground Water and Ecosystems Restoration Division to reflect the change in its mission.

To reduce its environmental footprint, the center became EPA's first carbon-neutral laboratory. This means the center reduces energy use whenever possible and implements carbon offsets to mitigate any remaining greenhouse gas emissions caused by using energy. The result is net zero emissions.

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SEE ALSO

Center for Subsurface Modeling Support (CSMoS)
<http://www.epa.gov/ada/csmos.html>



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