EPA
United States
Environmental Protection
Agency

NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

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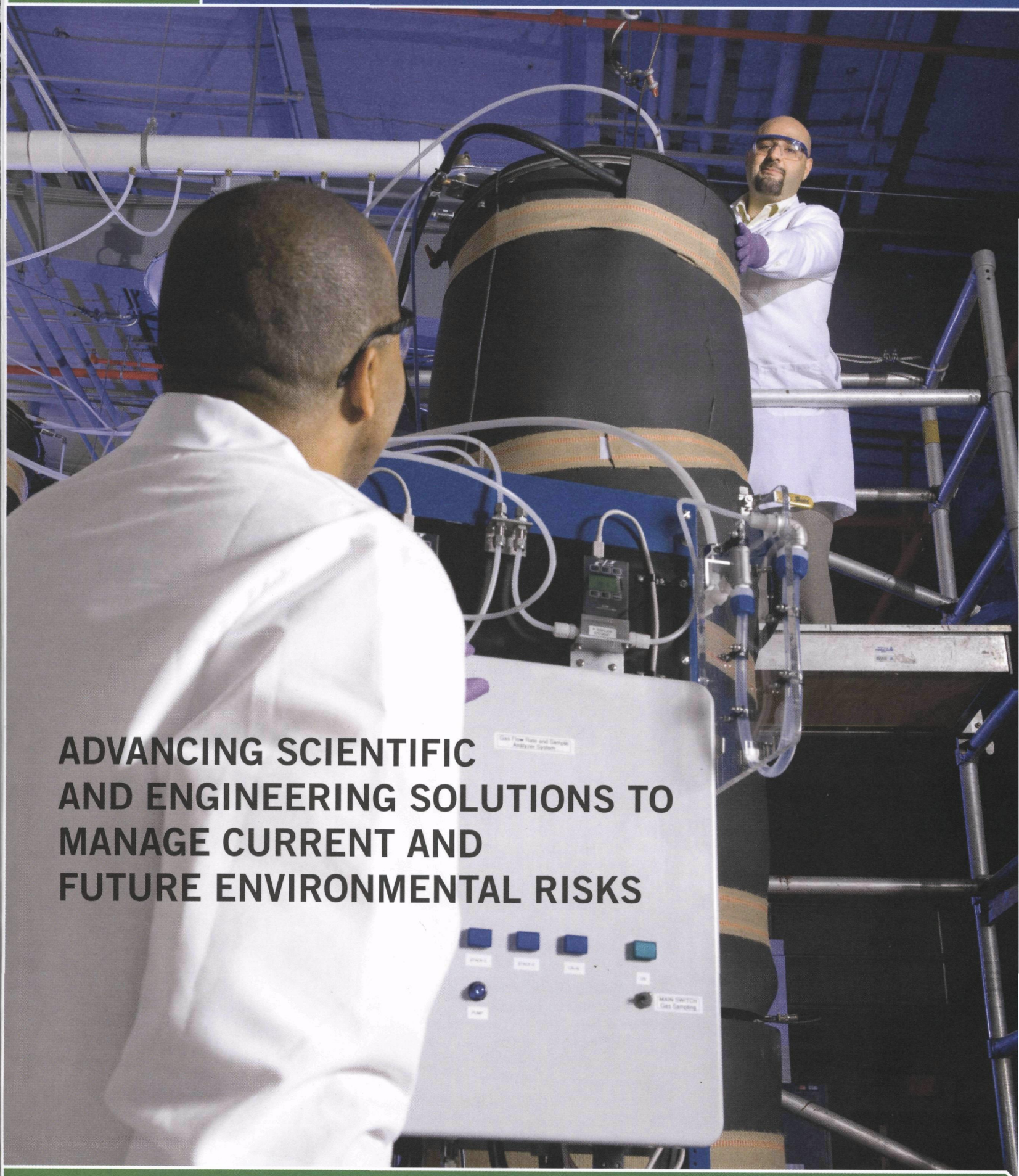

ADVANCING SCIENTIFIC AND ENGINEERING SOLUTIONS TO MANAGE CURRENT AND FUTURE ENVIRONMENTAL RISKS

NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

Brief History

In 1995, the Environmental Protection Agency (EPA) created the National Risk Management Research Laboratory (NRMRL) from several former Office of Research and Development (ORD) organizations. The purpose was to build an organization capable of developing and identifying the engineering and scientific solutions necessary to support EPA's mission to protect human health and the environment. Today, NRMRL is the authority for environmental risk management research for ORD and EPA. Its scientists and engineers identify, develop and test innovative tools, methods, and technologies used to solve and prevent complex environmental problems facing the nation. NRMRL's work benefits EPA program offices, regions and other federal agencies, state and local governments, and industry in developing and implementing environmental standards. Recognized as a national leader in scientific and engineering expertise and capability, NRMRL's environmental solutions have enabled EPA to make sound decisions and achieve great success in performing its mission.

Organization

NRMRL is divided into divisions and staff organizations that directly support EPA's goals to protect human health and the environment.

Air Pollution Prevention and Control (Research Triangle Park, North Carolina)
Responsible for research, development, and evaluation of air pollution control technologies. Conducts research, develops and demonstrates air pollution prevention and control technologies for key industries, electric power plants, incinerators, indoor environments and sources of greenhouse gases.

Ground Water and Ecosystems Restoration (Ada, Oklahoma)
Conducts research and engages in technical assistance and technology transfer on the chemical, physical and biological structure and processes of the subsurface environment, the biogeochemical interactions in that environment and fluxes to other environmental media.

Land Remediation and Pollution Control (Cincinnati, Ohio)
Conducts research at the basic level as well as bench- and pilot-scale to explore innovative solutions to current and future land pollution problems.

Sustainable Technology (Cincinnati, Ohio)
Advances the scientific understanding, development and application of technologies and methods for prevention, removal and control of environmental risks to human health and ecology.

Water Supply and Water Resources (Cincinnati, Ohio and Edison, New Jersey)
Conducts research to help prepare the primary and secondary regulations for drinking water and to develop technologies and strategies for controlling waterborne contaminants.

Environmental Technology Assessment, Verification and Outcomes (Cincinnati, Ohio)
Serves as a focal point for EPA state-of-the-art technology assessment and verification; coordinates EPA and others in the private sector to develop, test, and implement technologies to protect the environment and human health.

Recognized as a national leader in scientific and engineering expertise and capability, NRMRL's research directly supports national priorities to reduce greenhouse gas emissions, improve air quality, manage chemical risks, clean up hazardous waste sites, and protect America's water.

NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

Research Successes

NRMRL scientists and engineers are protecting the environment by...

...verifying innovative diesel upgrade technologies designed to reduce pollutants in diesel engine exhaust improving air quality, lowering ozone levels, and potential respiratory diseases.

...comparing emissions between biofuels and fossil fuels used in small industrial and commercial boilers and providing decision makers confirmation of reduced CO_2 emissions from biofuel use.

...partnering with stakeholders to evaluate and demonstrate innovative technologies and improve the cost-effectiveness of operation, maintenance, and replacement of the nation's aging and failing water infrastructure.

...creating water distribution system simulators to evaluate and study the physical, chemical, and biological reactions that occur inside drinking water pipelines to maintain a high level of water quality.

...developing an advanced technology and process for improving bioremediation to clean up contaminated soil and groundwater eliminating the need for costly excavation.

...advancing cost-effective permeable reactive barrier technologies to filter out and treat hazardous materials during remediation of contaminated groundwater making hazardous cleanup easier and more effective.

...testing and validating cost-effective "green" methods, like rain barrels and rain gardens that communities can use to manage excess storm water runoff and prevent contaminants from entering streams and water supplies.

Strengths

NRMRL possesses unique strengths and capabilities and is dedicated to providing credible technological information and scientific solutions that support national priorities and protect human health and the environment. NRMRL's strengths are:

- World-Class Scientists and Engineers
- Sound Science and Engineering Expertise
- State-of-the-Science Facilities
- Global Collaboration and Partnerships
- Innovative Technology Development and Testing
- Visionary and Forward-Looking Leadership
- Integrated, Multidisciplinary Research Focus

NRMRL's mission intersects with some of the most pressing environmental issues facing the nation and world today. NRMRL's scientists, engineers, and employees play a vital role in developing sustainable scientific and engineering solutions to these issues to protect human health and the environment.

Environmental risk management seeks to determine what environmental risks exist and then determine how to manage, reduce or eliminate those risks in a way best suited to protect human health and the environment.

FOR MORE INFORMATION CONTACT:

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NATIONAL RISK MANAGEMENT RESEARCH LABORATORY

NRMRL is focused on integrated, multidisciplinary research that reflects national priorities, scientific requirements, and implementation realities. NRMRL's research areas are directly linked to EPA's mission, goals, and priorities in order to provide effective environmental solutions for the nation and world.

NRMRL Research Areas	EPA Goals
■ National Ambient Air Quality Standards ■ Indoor and ambient hazardous air pollutants ■ Climate change adaptation ■ Technology assessment and scenarios for implementation	■ Clean Air and Global Climate Change
■ Regulated and unregulated drinking water contaminants ■ Water infrastructure, water distribution, and source water protection ■ Water quality restoration and protection, integrated watershed management, nutrient trading	■ Clean and Safe Water
■ Site cleanup, land revitalization ■ Hazardous wastes, resource management	■ Land Preservation and Restoration
■ Toxic substances ■ Ecosystem restoration ■ Biotechnology, global climate change ■ Endocrine disruptors ■ Indoor contaminants control and characterization	■ Healthy Communities and Ecosystems
■ Environmental technology and chemistry ■ Sustainable systems management, sustainability metrics ■ Decision support tools, models, and methodologies	■ Compliance and Environmental Stewardship

Emerging Areas of Research

- Global Climate Change
- Green Infrastructure
- Environmental Sustainability of Urban, Industrial, and Ecological Systems
- Endocrine Disrupting Chemical Management
- Environmental Decision Support Systems
- Risk Management of Nanomaterials

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Collaboration and Partnership Opportunities

EPA's scientists and engineers partner with federal agencies, states, academic institutions, non-governmental and other organizations by using NRMRL facilities to jointly develop the best possible scientific tools and information for solving complex environmental challenges. Visit www.epa.gov/nrmrl/facilities.html for more information on these opportunities.

Facilities

Andrew W. Breidenbach Environmental Research Center (AWBERC)
Cincinnati, Ohio

Scientists and engineers use the AWBERC facility for research on water quality, drinking water, land remediation, pollution control, and sustainability. This research facility is internationally recognized for its water research and is a leader in the areas of bioremediation and pollution prevention.

Center Hill Facility
Cincinnati, Ohio

Scientists at Center Hill research sediment and soil contaminant interaction, form and transport of contaminants in the environment, bioavailability, waste containment and disposal, landfill bioreactors, and waste material leaching. The 21,000-square-foot facility has 10 laboratories for bench- and pilot-scale research projects, a high-bay research area, a machine shop, and specialized analytical equipment.

Test and Evaluation Facility (T&E)
Cincinnati, Ohio

Located on the grounds of Cincinnati's Mill Creek wastewater treatment plant, researchers conduct studies on new treatment technologies for contaminants in water and wastewater. They conceive, design, fabricate, and evaluate a variety of innovative water, wastewater, and soil/sediment treatment technologies and environmental monitoring and control systems. T&E's unique high-bay area allows for bench-, pilot-, and full-scale research.

Experimental Stream Facility (ESF)
Clermont County, Ohio

Supporting EPA's watershed approach, ESF research provides a balance between controlled laboratory conditions and the variability of the natural environment necessary to sustain native communities. Scientists conduct studies to understand the relationship dynamics between the plant and animal life in the laboratory and those in streams and rivers. ESF is a leader in chemical dosing precision and failsafe design in its experimental setup.

Research Triangle Park (RTP)
Research Triangle Park, North Carolina

Researchers characterize natural and human-made sources of emissions, and develop and demonstrate air pollution prevention control technologies at the RTP facility. Modelers, industry, and decision makers use RTP technological products to make indoor environments cleaner and to reduce emissions from pollutants and greenhouse gases.

Robert S. Kerr Environmental Research Center
Ada, Oklahoma

Researchers at the Kerr Center develop strategies and technologies to protect and restore ground water, surface water, and ecosystems affected by human-made and natural events. The center contains state-of-the-science analytical equipment to study the transport and transformation of contaminants in soil and ground water.

Urban Watershed Research Facility
Edison, New Jersey

Scientists at the Edison facility investigate alternative approaches to managing wet-weather runoff in urban settings. Storm water in urban settings is rapidly and purposefully transported from rooftops, parking lots, and streets--where it has collected pollutants--to sewers. This rapid runoff can degrade receiving water and exceed treatment capacity. Edison scientists develop innovative solutions to these complex flow problems.

NRMRL scientists and engineers provide the tools and expertise to manage risks and solve complex environmental problems.

Printed with vegetable-based ink on paper that contains a minimum of 50% post-consumer fiber content and processed chlorine free.

Learn more at www.epa.gov/nrmrl/

Now, more than ever, EPA must be innovative and forward looking because the environmental challenges faced by Americans all across our country are unprecedented. - **Administrator Lisa P. Jackson**