

Technologically enhanced naturally occurring radioactive material (TENORM) is generated by a variety of industrial, mineral extraction, and water treatment processes. Southwest Research Institute® (SwRI®) has an active program developing cost-effective and environmentally responsible approaches for managing TENORM waste.

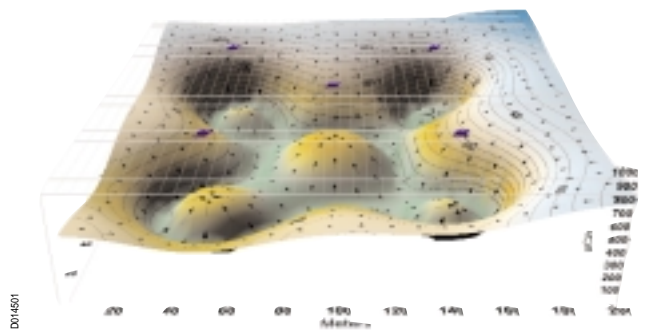
SwRI's TENORM program currently focuses on land disposal of TENORM waste. Investigations examine release of radon gas from land disposal units, such as municipal solid waste landfills that have or may receive radium-bearing TENORM from drinking water treatment, petroleum production, or other activities. Research includes the mobility of naturally occurring radionuclides in soil and their uptake by vegetation.

The TENORM program provides expertise and scientific services in:

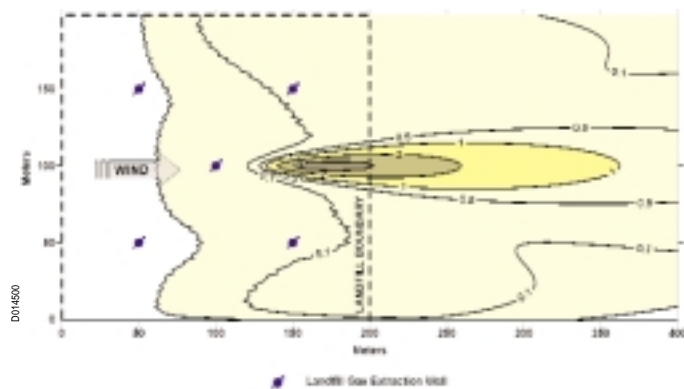
- Radiochemistry
- Environmental process modeling
- Probabilistic risk assessment
- Environmental regulatory compliance

The TENORM program is supported by:

- Advanced laboratory facilities for radiochemical analyses and bench-scale testing of radionuclide transport and stabilization processes
- Public domain and proprietary models for multimedia modeling and probabilistic risk assessment
- Facilities for large-scale pilot testing of environmental technologies on SwRI's 1,200-acre site



Radon flux through the surface of a landfill containing TENORM; simulation based on five landfill gas extraction wells



Atmospheric radon plume resulting from surface radon emissions and emissions from landfill gas venting

Autoradiograph of leaf from *Phacelia robusta* showing preferential uptake of radium from soil affected by uranium deposit





SwRI's radiochemistry laboratory includes facilities for bench-scale testing of environmental samples and remedial technologies

LAND DISPOSAL OF TENORM

*(Technologically Enhanced
Naturally Occurring
Radioactive Material)*



Southwest Research Institute® is an independent, nonprofit, applied engineering and physical sciences research and development organization using multidisciplinary approaches to problem solving. The Institute occupies 1,200 acres in San Antonio, Texas, and provides nearly two million square feet of laboratories, test facilities, workshops, and offices for more than 2,900 employees who perform contract work for industry and government clients.

We welcome your inquiries.
For additional information, please contact:



Gary Walter, PhD
Principal Scientist, Hydrology
(210) 522-3805 • Fax (210) 522-5155
gwalter@swri.org

English Percy, PhD
Manager, Geochemistry
(210) 522-5540 • Fax (210) 522-5155
epearcy@swri.org

Center for Nuclear Waste Regulatory Analyses
Southwest Research Institute
6220 Culebra Road
P.O. Drawer 28510
San Antonio, Texas 78228-0510

www.swri.org

An Equal Opportunity Employer M/F/D/V
Committed to Diversity in the Workplace