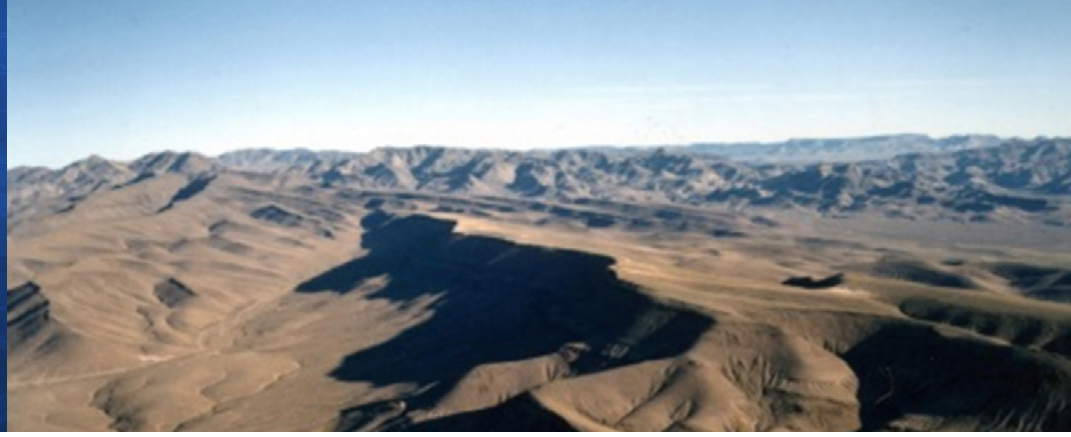
SOUTHWEST RESEARCH INSTITUTE



Radioactive Waste Disposal

The Center for Nuclear Waste Regulatory Analyses (CNWRA®) at Southwest Research Institute® (SwRI®) has comprehensive experience and expertise providing technical assistance to implementers and regulators of radioactive waste disposal, in particular spent nuclear fuel (SNF) and high-level radioactive waste (HLW).

Technical Assistance for Licensing Deep Geologic Disposal at Yucca Mountain

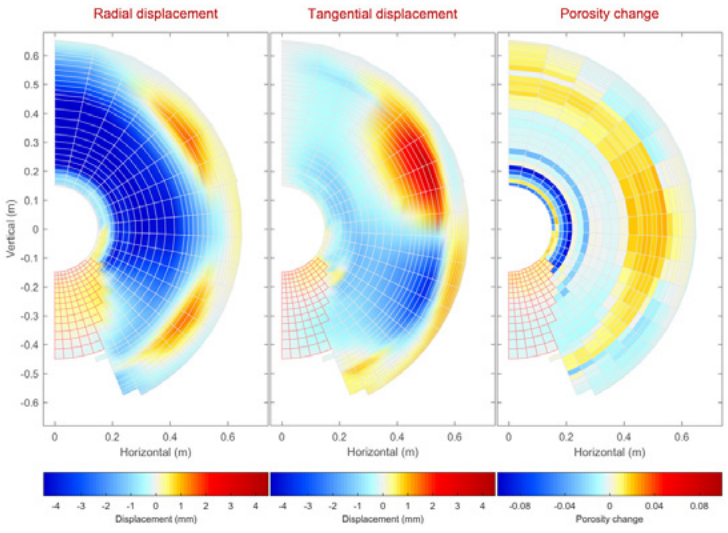
- Independent, risk-focused scientific and engineering analyses during the prelicensing period
  - Detailed process-level models for repository system components
  - Total system performance assessment
  - Pre-closure safety assessment of surface and subsurface facilities
  - Evaluation of the natural system
  - Evaluation of the engineered system
- Support for preparation and publication of essential reports and documents

Generic Deep Geologic Repository (DGR) Studies

- Model coupled thermal-hydrological-mechanical processes in field and laboratory tests; participate in international DECOVALEX project using CNWRA-developed thermohydrologic code xFlo
- Obtain corrosion data from focused experiments on simulated spent fuel and container materials (copper and carbon steel) to address knowledge gaps
- Develop models for salt host rock behavior under thermomechanical loads
- Develop the generic Scoping of Options and Analyzing Risk (SOAR) repository performance assessment code
- Develop a system-level model of the fuel cycle back end for risk insights

Support for Other National Programs

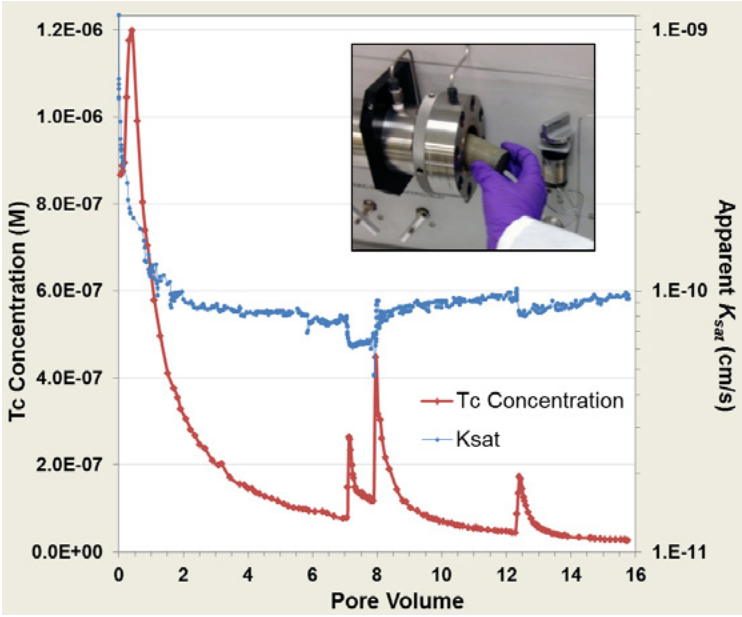
- Conduct multiple technical reviews for Swedish regulator for DGR licensing (performance assessment, flow and transport, rock mechanics, and geochemistry)
- Review the integrity of concrete structures planned for the Swedish DGR for low- and intermediate-level waste
- Develop/review performance assessments of disposal concepts in Sweden, France, Japan, Korea, and the United Kingdom
- Provide safety assessment key consultant for STUK licensing review of Finland's proposed DGR
- Conduct geochemical parameter evaluations and probabilistic radionuclide transport modeling for France's IRSN
- Measure radionuclide sorption behavior for Canadian Nuclear Waste Management Organization
- Peer review of Taiwan's feasibility assessment for spent nuclear fuel final disposal



Modeled clay buffer mechanical responses to heating and moisture redistribution for DECOVALEX program

Technical Assistance for Monitoring of Tank Closure and Disposition of Waste Incidental to Reprocessing (WIR)

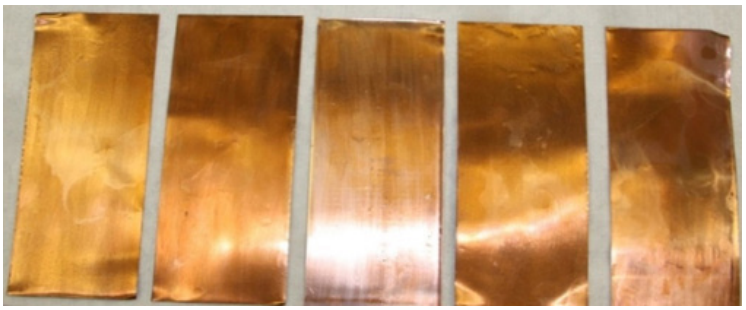
- Inputs to technical review, monitoring, and inspection reports
  - Radionuclide inventory
  - Adequacy of tank cleaning
  - Tank grouting methods
  - Structural stability of grouted tanks
  - Long-term performance assessments of grouted tanks and cement-based radioactive waste disposal
- Independent, risk-significant technical analyses
  - Cracking and water flow in intermediate-scale grout bodies
  - Experiments on water/grout chemical interactions
  - Experiments on technetium release from saltstone waste
  - Enhancment of BDOSE™, a CNWRA dose modeling tool
  - Acoustic emission-based grout crack detection

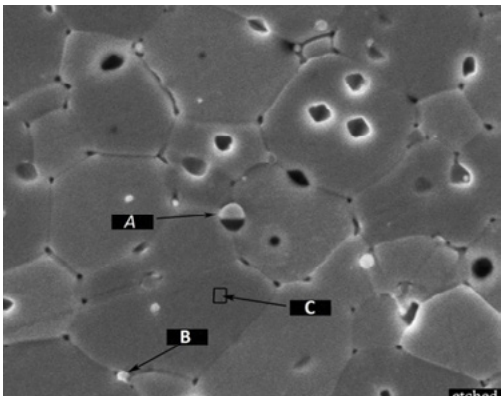


Experimental aqueous technetium release from simulated low-permeability, cement-based saltstone waste

Benefits of CNWRA Support

- Staff members have long-term focus on radioactive waste disposal
- We provide independent support, free from conflict of interest
- Our experience in technical analyses and research provides a solid basis for implementer and regulator support





Experimental corrosion of copper waste package material and simulated spent nuclear fuel

For additional information, please contact:

David Pickett, PhD
Senior Program Manager
Transportation, Storage, Disposal and Fuel Cycle Facilities
210.522.5582
dpickett@swri.org

ged.swri.org

Designed & printed by SwRI MPS 01-0324 JCN 271709 bl