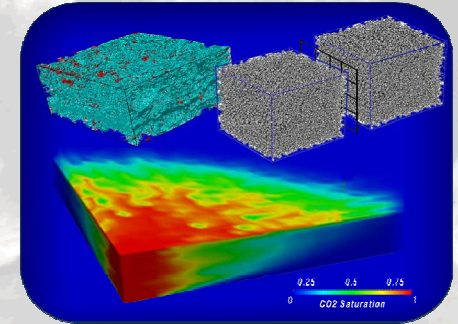
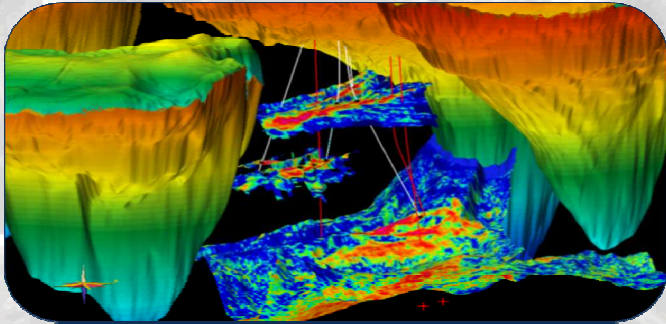


Exceptional service in the national interest



External Review Panel for Geoscience Research Foundation

Frank Hansen Ph.D.

August 20, 2013

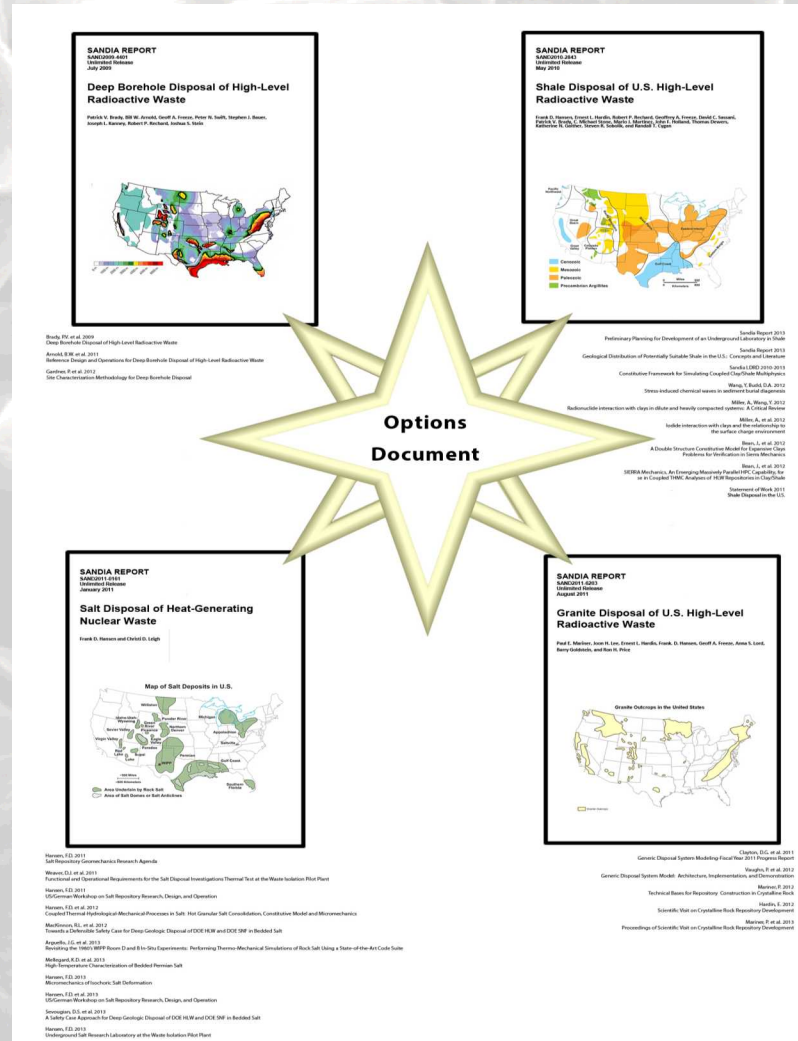


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Partnerships and Outreach

- **Sandia ownership of repository science**
- **International partnerships**
 - **US/German workshops on salt repository research, design and operations,**
 - **Joint Project on constitutive model benchmarking**
 - **International Atomic Energy Agency**
 - **European Commission**
- **Association of American State Geologists**
- **Underground Research Laboratory at WIPP**

Sandia ownership of repository science



International Partnerships

- US/German workshops on salt repository research, design and operations
- Joint Project on constitutive model benchmarking
- International Atomic Energy Agency
 - Training Courses on *All Things Repository*
- European Commission Research Directorate
 - MoDeRn—Monitoring Developments for Safe Repository Operation and Stage Closure—*Performance Confirmation*
 - Post-MoDeRn

US/German Workshops

Key Technical Issues:

- Safety case for Salt repositories
- Plugging and sealing
- Salt constitutive modeling

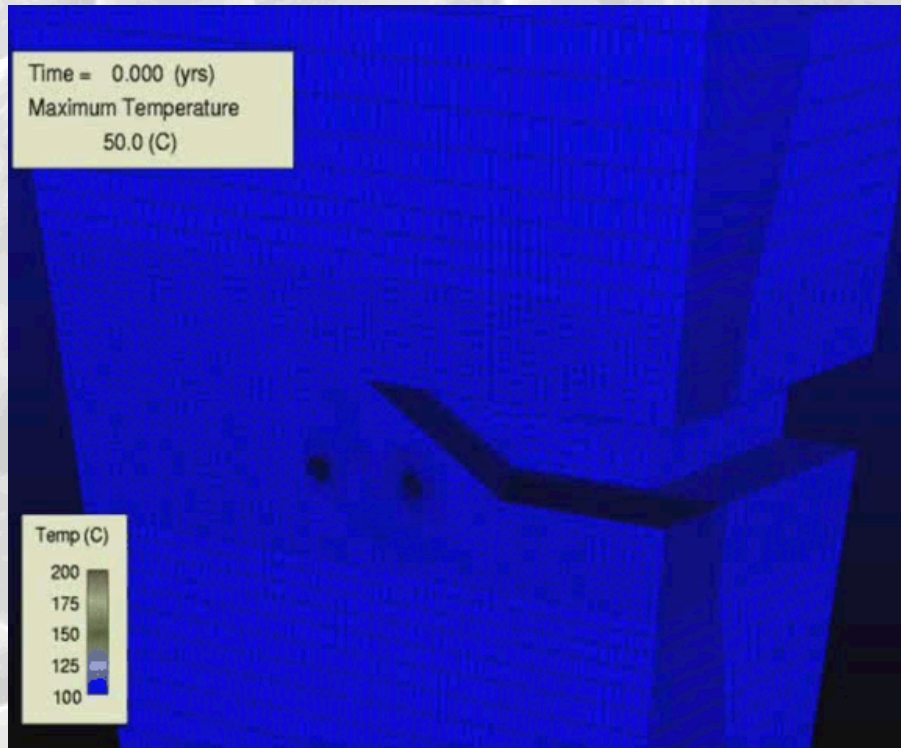


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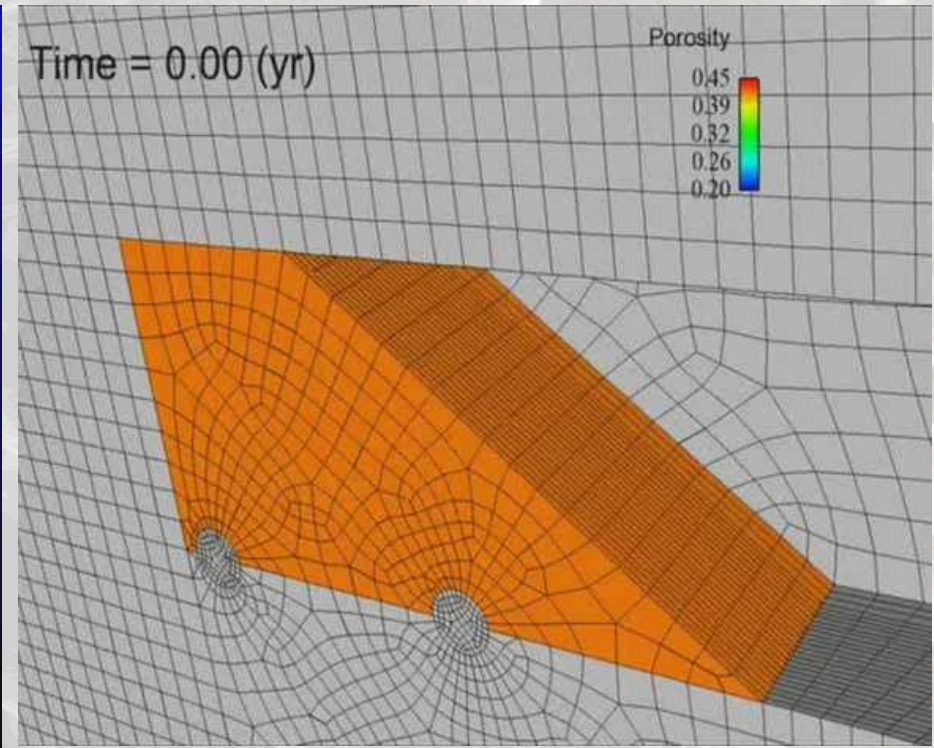


Joint Project on Salt Model Benchmarking

Temperature Contour



Coupled Salt Consolidation



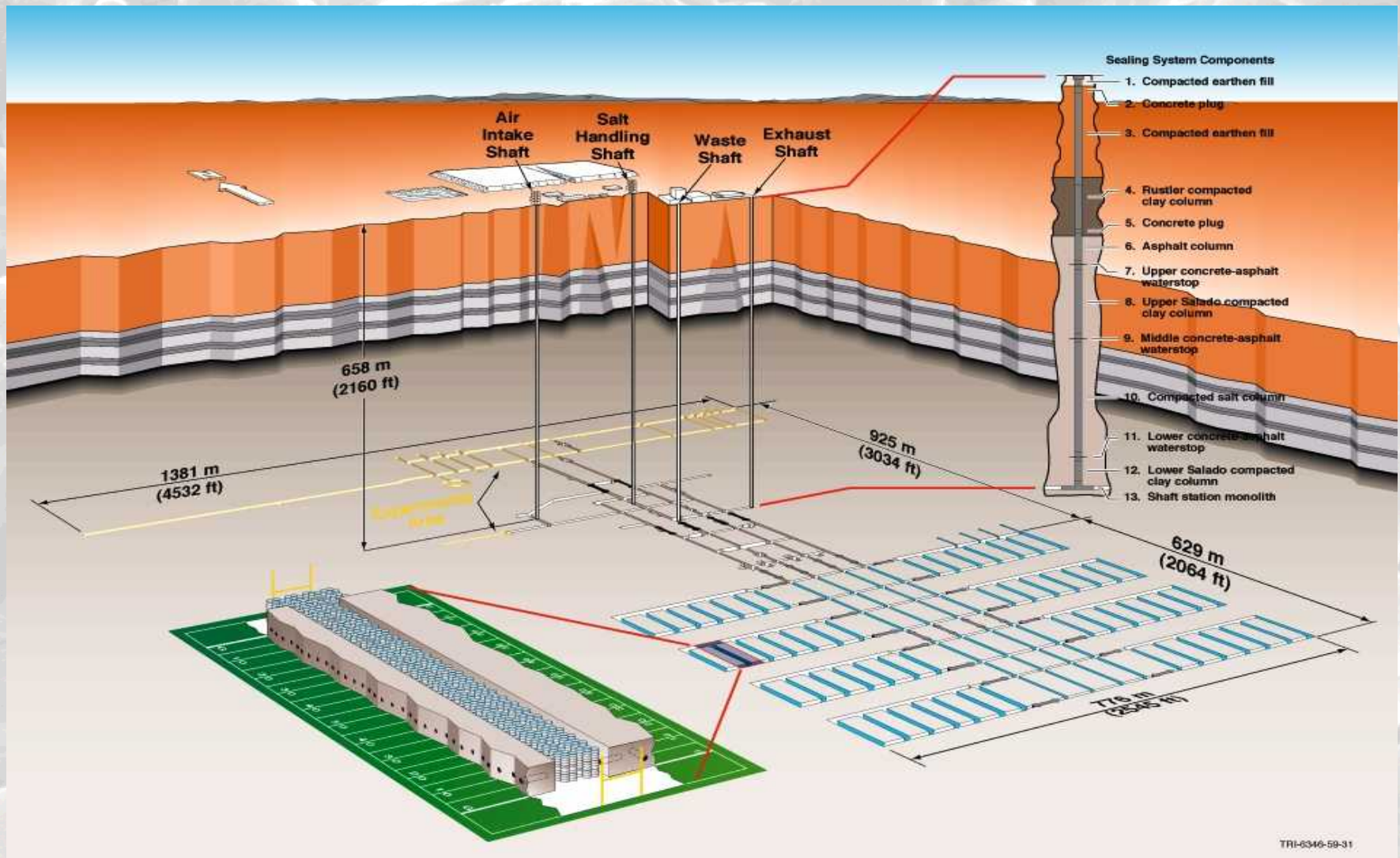
Association of American State Geologists

Dr. Tinker's idea to involve AASG

Presentation on America's Repository Options June 9, 2013 Annual Meeting

- Overview:** Well attended plenary session
Very receptive to the issue
Geoscience proxy for state governor
- Response:** AASG to be proactive Executive Committee
Establish AASG policy
Engage in dialogue in D.C. September 16-18, 2013
- AASG Action:** Establish geologic siting guidelines
State volunteer process
Hold public meetings
- Sandia Action:** Host repository workshop for AASG
Tour WIPP
Coordinate through Jay Jones DOE NE

Underground Research Lab at WIPP



TRI-8346-59-31

Underground Research Lab at WIPP

- Salt Defense Disposal Investigations (SDDI)
- Salt Disposal Investigations (SDI)
- Large-Scale Seal Demonstration
- Mining Research
- Wedge Pillar Test
- Mine-By DRZ Measurement
- Single Heater Test
- In Situ Consolidation
- International Test Bed

Partnership and Outreach Summary

- Central role in repository science involves many partnerships
- Almost all international collaboration is *Quid pro Quo*
- German testing of WIPP salt represents huge return on investment from benchmark exercise
- Sandia could assume a leadership role in national repository volunteer program through AASG
- The Underground Research Laboratory future will require a Research Strategy
- Sandia contributions to these various efforts are funded by Nuclear Energy and Environmental Management offices of DOE