

Thoughts on Education and The Nuclear Renaissance: What Have We Learned That Will Be Important This Time ?

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Outline

- Curriculum Topics
- Vanderbilt Trans-Disciplinary Initiative on Environmental Systems
- Environmental Science Capstone Course: Deep Geologic Disposal of Nuclear Waste
- Cradle to Grave Design

Essential Elements in Any Modern Nuclear Curriculum

- Nuclear Engineering
- Materials Science
- Health Physics
- Earth and Environmental Sciences
- Environmental Engineering
- Risk Analysis
- Risk Communication
- Social, Political, Economic, and Cultural Factors

A Proposal for the Program to Enhance Graduate Education (EGE)

Transdisciplinary Initiative on Environmental Systems (TIES)

*Educating Students for National Leadership in
Critical Environmental Issues of the 21st Century*

Submitted by Calvin Miller (PI) and James Clarke (Co-PI) with Participation by the Faculty of the
Departments of Earth & Environmental Sciences and Civil & Environmental Engineering



With additional collaborators from graduate programs in the:
College of Arts and Science
Peabody College
Law School
Owen School of Management

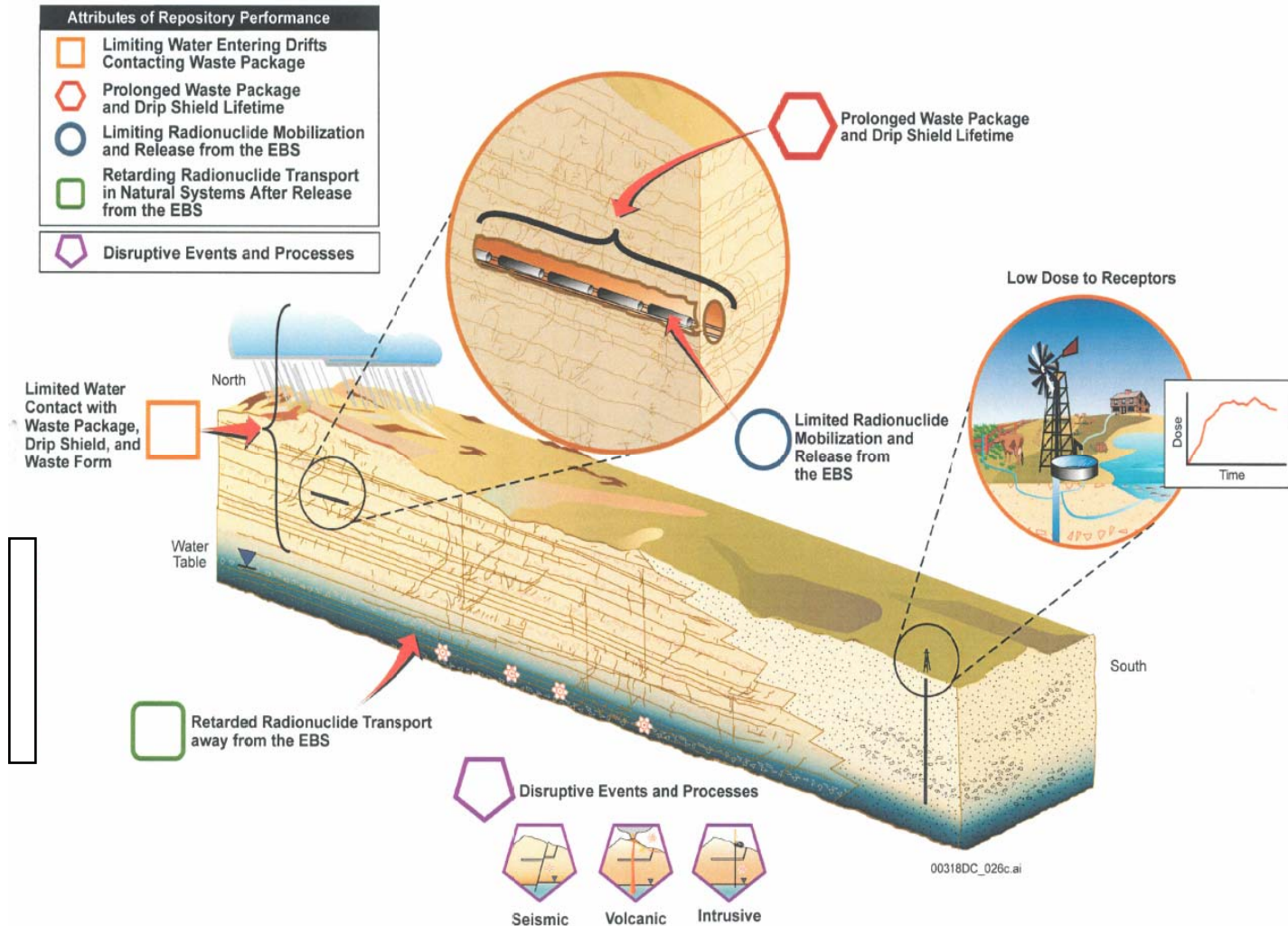
Participating Graduate Programs

- School of Engineering
- College of Arts and Sciences
- School of Law
- Peabody School of Education
- Owen School of Management

Capstone Course on Deep Geologic Disposal of Nuclear Waste

- Curriculum includes lectures from in-house and invited experts on nuclear power, nuclear waste, hydrology and hydrogeology, geology, risk analysis, waste forms, performance assessment, disruptive events, climate change, socio-economic, political and cultural factors and the ethics of nuclear waste management
- Mix of students in environmental science, earth and environmental sciences, environmental engineering, environmental management and sociology
- Field trips to WIPP and Yucca Mountain

Attributes of Repository Performance



“Designing with the End in Mind”

- Decommissioning Lessons Learned
- Prevention of Legacy Sites
- Monitoring to Build Model Confidence