



Regulations for Geological Disposal

Presentation on September 1, 2010 to
Blue Ribbon Commission on America's Nuclear Future
(Disposal Subcommittee)

Tim McCartin
Division of High Level Waste Repository Safety
U.S. Nuclear Regulatory Commission

Roles and Responsibilities

- **Environmental Protection Agency**
 - sets standards for protection of general environment from off-site radioactive releases
- **Department of Energy**
 - designs, constructs, operates repository (if approved)
 - has burden to show compliance
- **Nuclear Regulatory Commission (NRC)**
 - independent regulatory agency
 - sets regulations
 - makes licensing decision based on application
 - inspection and oversight responsibilities

NRC's Generic Regulations

(10 CFR Part 60)

- Phased approach (construction, operation, closure)
- Multiple barriers (quantitative subsystem requirements)
- Performance confirmation program
- Retrievability requirement
- Program for oversight after permanent closure
- Post-closure compliance period of 10,000 years
- EPA's post-closure standards (40 CFR 191)

NRC's Regulations for Yucca Mountain

(10 CFR Part 63)

- Requirements for performance assessments
- Characteristics of the biosphere
- Specification of scenario for human intrusion
- Multiple barriers demonstrated through performance assessment (no quantitative subsystem requirements)
- EPA's post-closure standards (dose limit for individual protection and human intrusion scenario, and separate limits for protection of ground water)
- Compliance period through period of geologic stability (one-million years) for individual protection

Revisions to NRC's Generic Regulations?

Considerations

- Application of risk-informed, performance-based approach used in Part 63 to assist revisions to Part 60
- Conform Part 60 to current EPA Standards for sites other than Yucca Mountain (40 CFR Part 191)
- EPA's standards for integrated release, individual protection, and ground water represent different risk levels