

RIC 2003
**Spent Fuel Storage,
Transportation, and Disposal**
Session T4

Yucca Mountain Transportation Issues

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Yucca Mountain Transportation Concerns

- Shipment Modes, Numbers & Routes
- Radiological Characteristics of Spent Fuel
- Incident-Free Exposures
- Expected Accidents
- Very Severe Accidents
- Terrorism/Sabotage

Regulatory Concerns

- Nevada Petition for Rulemaking on Terrorism/Sabotage Risks (PRM 73-10)
- NRC Regulation of Yucca Mountain Transportation System (Meserve to Durbin, May 10, 2002)
- Full-Scale Regulatory Testing of Spent Fuel Shipping Casks, and Testing to Failure

Stakeholder Participation Concerns

- Reexamination of Transportation Risks (NUREG/CR-6672)
- Baltimore Rail Tunnel Fire Analysis (NUREG/CR-6793)
- Draft Package Performance Study Test Protocols (NUREG-1768)

Nevada Recommendations

Comprehensive Risk Management

- Comprehensive risk assessment (CRA) should cover all transportation system phases, events, and consequences (Golding and White, 1990)
- CRA calculates probabilities only where existing data, theories, and models are sufficient to support use of rigorous quantitative methods, and uses sensitivity analysis to illustrate impact of differing assumptions and variations in quality of data
- CRA should be used as working risk management tool throughout life of project, with ongoing public participation
- CRA should be basis of risk communication throughout life of the project

Nevada Recommendations

Preferred Transportation System

- Dual purpose casks for at-reactor storage and transport
- Ship oldest fuel first (at least 20 years at-reactor cooling)
- Maximum use of rail (mode of choice)
- Mandatory use of dedicated trains, special safety protocols, and special car designs as recommended by AAR
- Early DOE and carrier identification of preferred cross-country mainline routes in consultation with stakeholders
- Early involvement of corridor states and Indian Tribes, including financial assistance under Section 180(c)

Nevada Recommendations

Full-Scale Physical Testing of Casks

- Meaningful stakeholder role in development of testing protocols & selection of test facilities and personnel
- Full-scale physical testing (sequential drop, puncture, fire, and immersion) prior to NRC certification
- Additional testing (casks, components, models) and computer simulations to determine performance in extra-regulatory accidents and to determine failure thresholds
- Reevaluate Modal Study findings , and if appropriate, revise NRC cask performance standards
- Evaluate costs and benefits of destructive testing of a randomly-selected production model cask

Nevada Recommendations

Accident Prevention & Emergency Response

- Maximize use of regional organizations such as Western Governors Association (WGA) and Western Interstate Energy Board (WIEB) for planning, implementation, and program evaluation
- Coordinate with Indian Tribes and local governments
- Develop comprehensive safety program modeled after WGA-State-DOE WIPP Transportation Program
- Adopt WIEB Sept., 1994 proposal for evaluation and final designation of preferred shipping routes
- Implement Section 180(c) Financial Assistance to State, local, & tribal governments through rulemaking
- Revise DOE Plan for Privatization of Transportation Services to emphasize safety and public acceptance