



U.S. Department of Energy
Office of Civilian Radioactive Waste Management



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Office of Logistics Management Update

Presented to:
Nuclear Waste Technical Review Board

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Portions of this Briefing are Procurement Sensitive

Transportation Topics

- **Describe the Office of Civilian Radioactive Waste Management's (OCRWM) current approach to transportation system development**
- **Discuss the funding needed to develop the transportation system**
- **Report on the status of system development**
- **Present opportunities and timing for interested organizations and stakeholders to be involved in developing transportation system elements and implementation approaches**
- **Discuss perceptions of spent nuclear fuel (SNF) transportation risk**

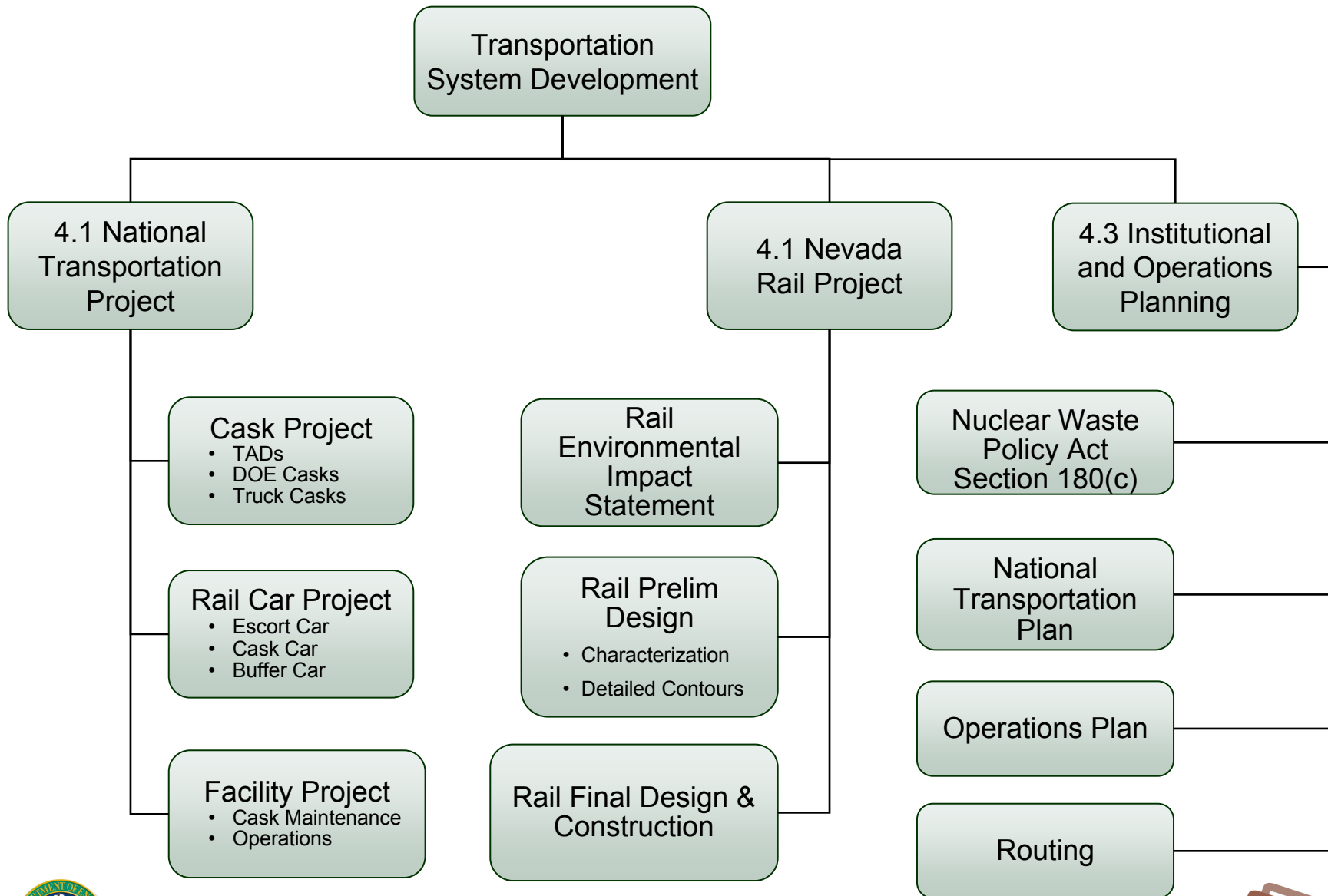


Current Transportation Development Approach

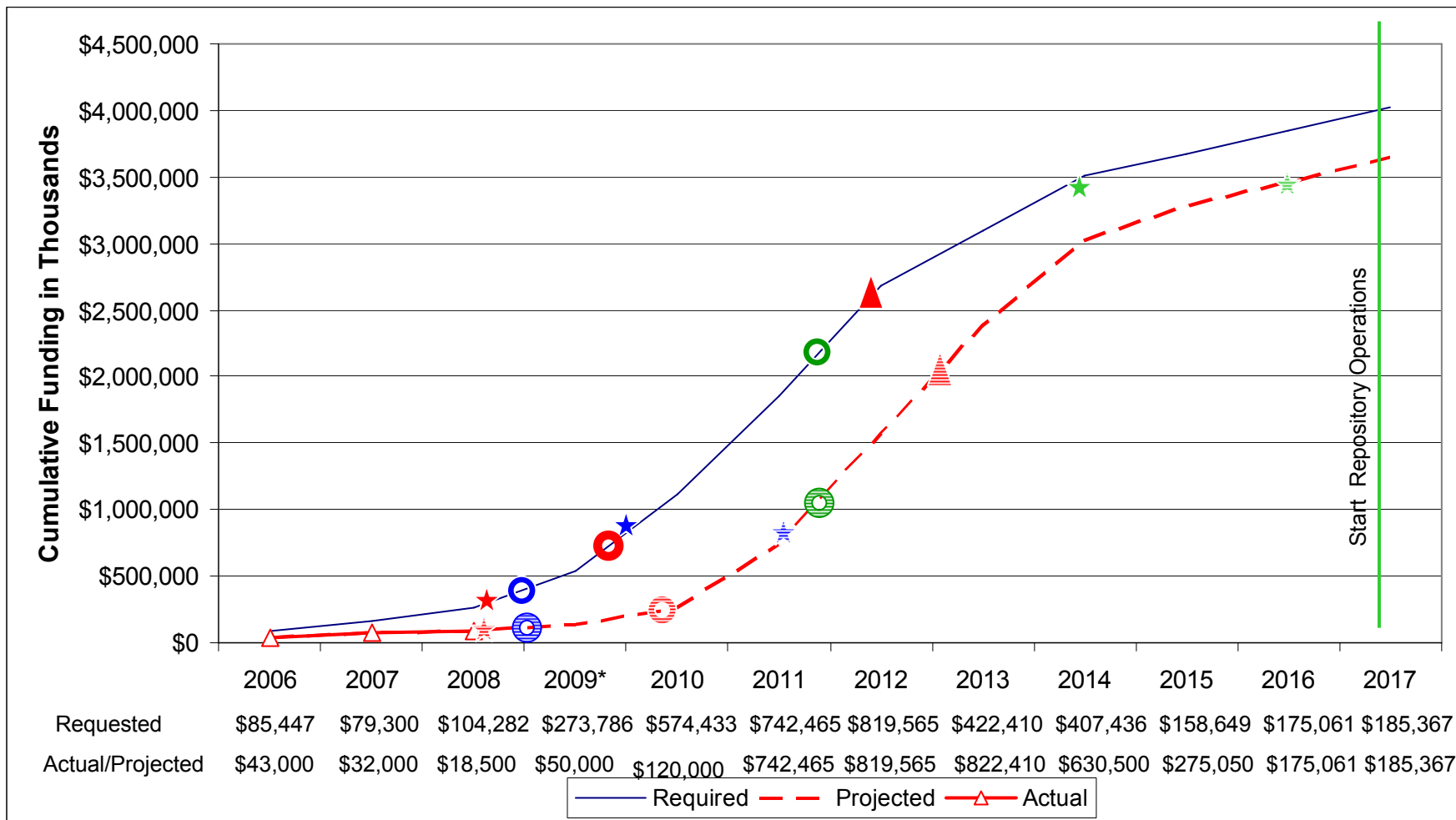
- Office of Logistics Management (OLM) planning is for most of the shipments to be in canistered form. Most commercial shipments will be in transportation, aging and disposal (TAD) canisters. DOE SNF and high-level radioactive waste (HLW) shipments will also be in canisters
- TADs and dual purpose canisters will be shipped by rail
 - Some bare fuel shipments will be made by truck
- Maintenance of the TAD overpacks and other rail transport casks will take place near the repository
- Truck cask maintenance will be procured as a service from the private sector
- Shipment rates to the repository will be phased
 - In the initial year of operations, 400 metric tons of heavy metal (MTHM) will be shipped building up to 3,000 MTHM per year over five years



Transportation System Development



Transportation Costs & Milestones

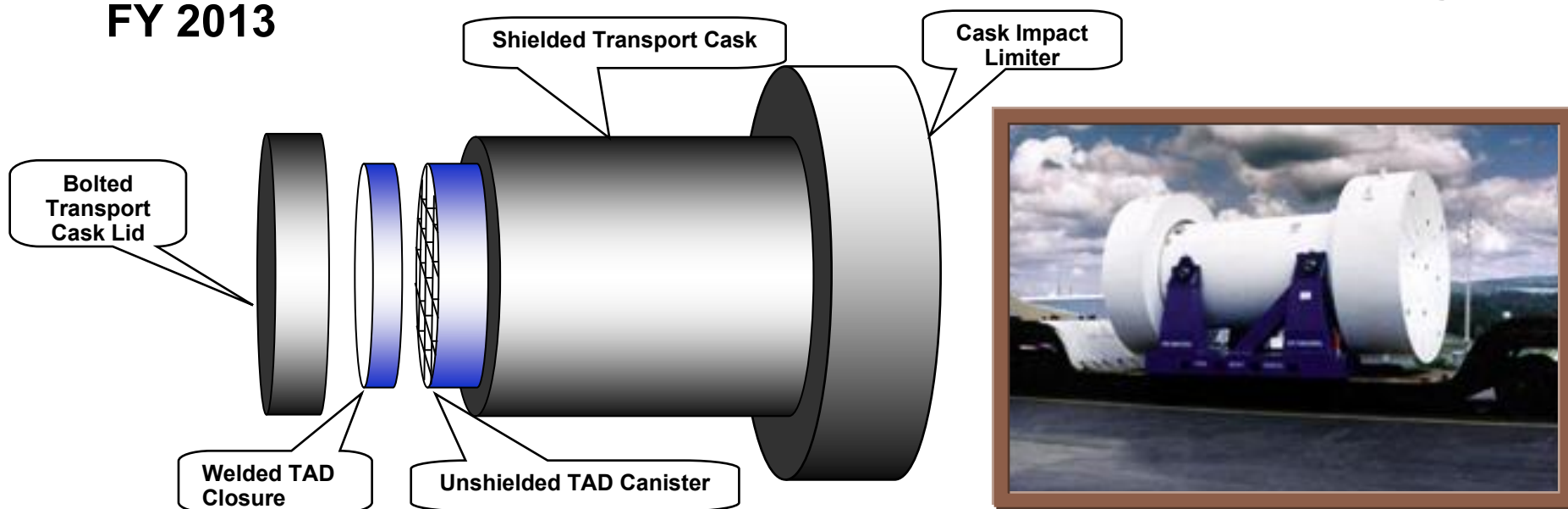


- ★ ▲ Publish RA-EIS (Plan/Actual)
- ★ ▲ Start Rail Construction (Plan/Projected)
- ★ ▲ Start Rail Operations (Plan/Projected)
- ● Procure DOE Cask Designs (Plan/Projected)
- ● Procure Escort Car Design (Plan/Projected)
- ● Begin Cask and Buffer Car Design Procurement (Plan/Projected)
- ▲ ▲ Procure Cask Fabrication (Plan/Projected)



Cask Systems

- **Most commercial SNF shipments will be made in TAD canisters with a TAD transportation overpack certified by the Nuclear Regulatory Commission**
 - **Proposals for TAD designs have been received, and design procurements are pending – hardware procurements will be in 2013**
- **Procurement of transportation cask designs to ship Department of Energy SNF and HLW will be initiated in FY 2010. Procurement of hardware will begin in FY2013**
- **Procurements of commercial SNF truck cask hardware will begin in FY 2013**



Rolling Stock Development Status

- **OCRWM is partnering with DOE's Naval Nuclear Propulsion Program (NNPP) on the development of the security escort rail car that both organizations will use**
 - Design procurement efforts have started, based on NNPP's schedule requirements
- **The schedule for procuring cask and buffer rail car designs is 2011 with fabrication of initial production units beginning in 2013**
- **Consideration is being given to transitioning procurement of the full rail car fleet to the logistics service provider after operations begin**



Support Facility Development

- **The Cask Maintenance Facility (CMF) will be designed to maintain casks that have shipped SNF or HLW in canisters**
 - Current plans are to use commercial facilities to maintain the small number of casks that ship bare fuel
 - Design of the CMF is scheduled to begin in 2010
- **The Operations Facility will be used to dispatch empty casks, track loaded casks in the national transportation system and handle pre-notification activities**
 - Design of the Operations Facility is scheduled to begin in 2010



Status of Nevada Rail Transportation Project

- In fiscal year 2008, the Nevada Rail Project plans to complete:
 - Nevada Rail Corridor Supplemental Environmental Impact Statement
 - Rail Alignment EIS on the construction and operation of a rail line to Yucca Mountain
- OCRWM held eight public hearings in Nevada, California and Washington, D.C.
 - Comment period closed
January 10, 2008
- Final NEPA documents scheduled for completion in June 2008
- Preliminary design and detailed characterization are scheduled to begin in 2009. Rail completion has slipped two years - until 2016 based on current budget profiles



Nevada Rail Line Implementing Alternative

- Preferred alternative starts at Caliente, Nevada, and ends at Yucca Mountain
 - Alternative is made up of six segments
- Proposed rail line could be between 328 to 336 miles long
- Length depends on selected combination of alternative segments
- Construction time depends on funding with a range of 4 – 10 Years



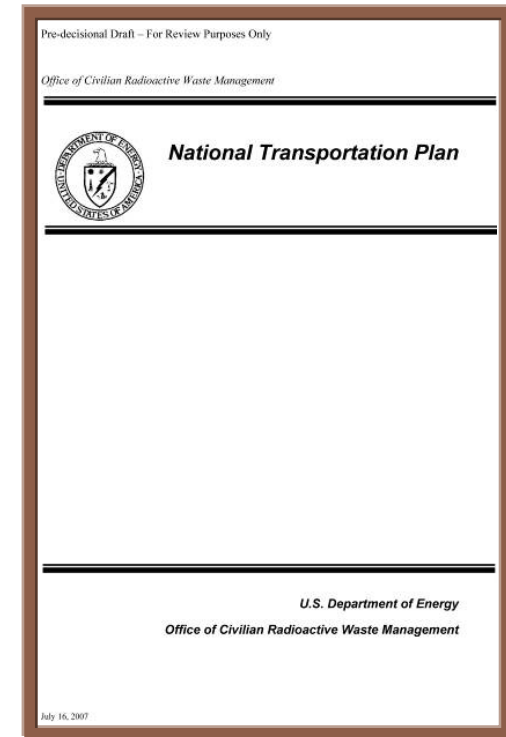
Institutional and Operations Activities

- **Revised proposed Section 180(c) Policy was issued in a July 23, 2007, *Federal Register* Notice**
 - Comment period was extended to January 22, 2008
- **OLM is working with tribes on a supplement to the proposed 180(c) Policy to address their funding allocations**
- **Current operations planning efforts include**
 - Preparation of Transportation Operations Plan and logistics analyses
 - Assessing utility near-site/short-line railroad infrastructure in concert with Federal Railroad Administration



National Transportation Plan Development

- **Developing the National Transportation Plan (NTP) is one of four strategic OCRWM Program objectives**
- **Elements of the plan include**
 - Requirements
 - Infrastructure development
 - Stakeholder involvement
 - Operations planning
- **OCRWM has reached out to state, tribal, and local governments and industry to solicit their comments on the plan's contents**
 - A draft will be released for public comment
 - This will be a living document that is updated as projects and policies evolve



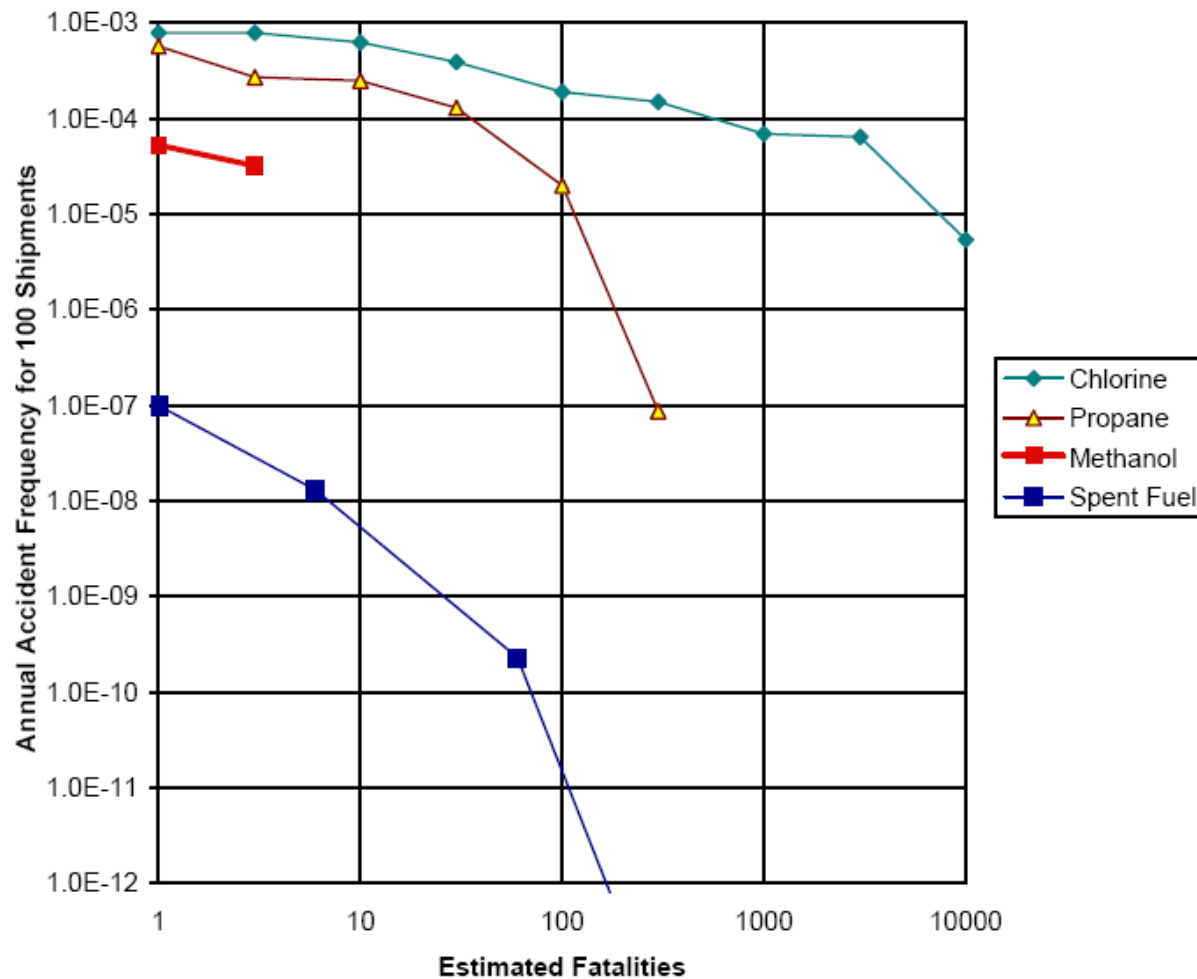
Perceptions of Transportation Risk

- **The National Academies' Committee on Transportation of Radioactive Waste found**
 - No fundamental technical barriers to the safe transport of SNF and HLW in the U.S.
 - U.S. regulations are adequate to ensure package containment effectiveness over a wide range of transport conditions
 - The accident risk associated with SNF shipments is more than three orders of magnitude less than for some other common hazardous materials
- **So what causes perceptions that SNF transportation has a comparatively higher risk?**



Comparative Risk of Hazardous Materials Shipments

- Over 40 years of SNF shipments have been made without a release of contents that has been harmful to the public or the environment

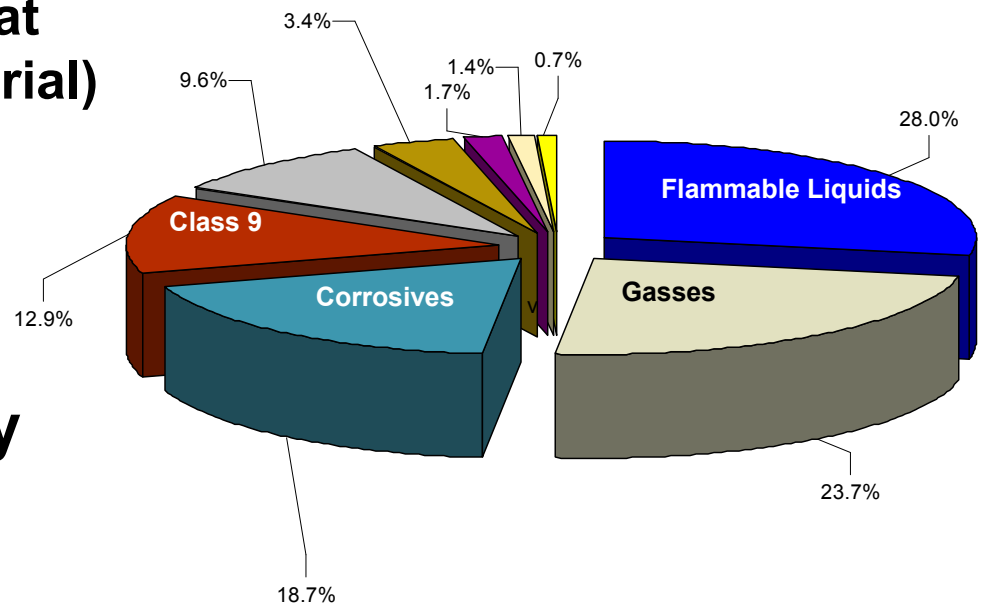


Source: National Academies' *Going the Distance*



Comparative Risks of SNF Transport

- **Most transportation risk comes from potential accidents**
 - Number of accidents is related to the number of shipments
- **125 billion ton miles of hazardous material was shipped in the U.S. in 2005**
 - Less than .7% was hazmat class 7 (radioactive material)
- **Shipment data contributed to the comparative risk assessment provided by the National Academy study**



Perceptions of Transportation Risk (continued)

- **OLM is evaluating mechanisms to inform the public on the safety, security and comparative risk of SNF transportation**
- **Benefits of nuclear energy and the need to dispose of SNF must be effectively communicated to the public**



Benefits of a Repository

- **SNF currently at 121 sites around the country will be consolidated into one location**
- **Many of the existing sites are close to major population centers**
- **The Yucca Mountain repository is in one of the most remote sections of the continental United States**
- **The Nevada Test and Training Range and the Nevada Test Site provide a significant perimeter boundary of physical protection**



Summary

- **The projects required to develop the OCRWM transportation system are well defined**
- **The technology and expertise to conduct these shipments already exists. Shipments have been conducted safely and securely for more than 40 years**
- **There are benefits, as well as risks, associated with the nuclear fuel cycle**
- **While risks associated with transporting SNF are small compared to other hazardous material shipments, there are gaps in public understanding of the comparative risks**
- **The cost of implementing a safe and secure SNF transportation system are not trivial and funding will continue to impact schedules**

