

ALM

Countering the Fear Campaign -- Transportation Specifics



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Overview

- Putting Used Fuel Transport into Perspective
- Transportation Security
- Severe Accident Conditions
- Emergency Response
- Nevada's Fear Campaign & Common "Myths"

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Putting Used Fuel Transport into Perspective

- Annually, more than 300 million packages of hazardous materials are shipped in U.S.
- 1% of these are radioactive materials, or 3 million packages.
- Majority are radiopharmaceuticals or radioisotopes used in medical applications
- 250,000 contain radioactive materials from nuclear power plant operation (primarily LLW)

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Used Fuel Transport

- More than 3,000 used fuel containers shipped in U.S. over past 40 years
- More than 21,000 used fuel containers shipped internationally over past 40 years
- Expect 300 to 500 containers of commercial used fuel to be shipped annually to a repository
- Less than 200 shipments per year (assuming 3 containers per train)

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Used Fuel Transport Security

- Robust transport container design provides first level of security
- NRC approved route and security plan
- Advance notification to Governors prior to shipments
- Dates of shipments not publicized
- Satellite tracking; use of communications equipment
- Periodic update of route conditions
- Armed escorts in urban areas; elsewhere as required by State
- Locking devices on trucks preventing unauthorized movement

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Used Fuel Transport Security

- A system of safeguards exists to ensure safety during used fuel transportation
- NRC and DOE have performed studies and tests to assess the risks of sabotage to used fuel transportation
- NRC periodically reviews potential threats with law enforcement agencies
- NRC reexamines safeguards and security for used fuel transport as necessary

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Used Fuel Transport Safety

- Accidents can happen.
- That is why used fuel shipping containers are designed to withstand severe accidents
- There have been 8 transport accidents involving used fuel containers in the U.S.
 - There has NEVER been a release of the radioactive contents.
 - Four of the accidents involved empty containers

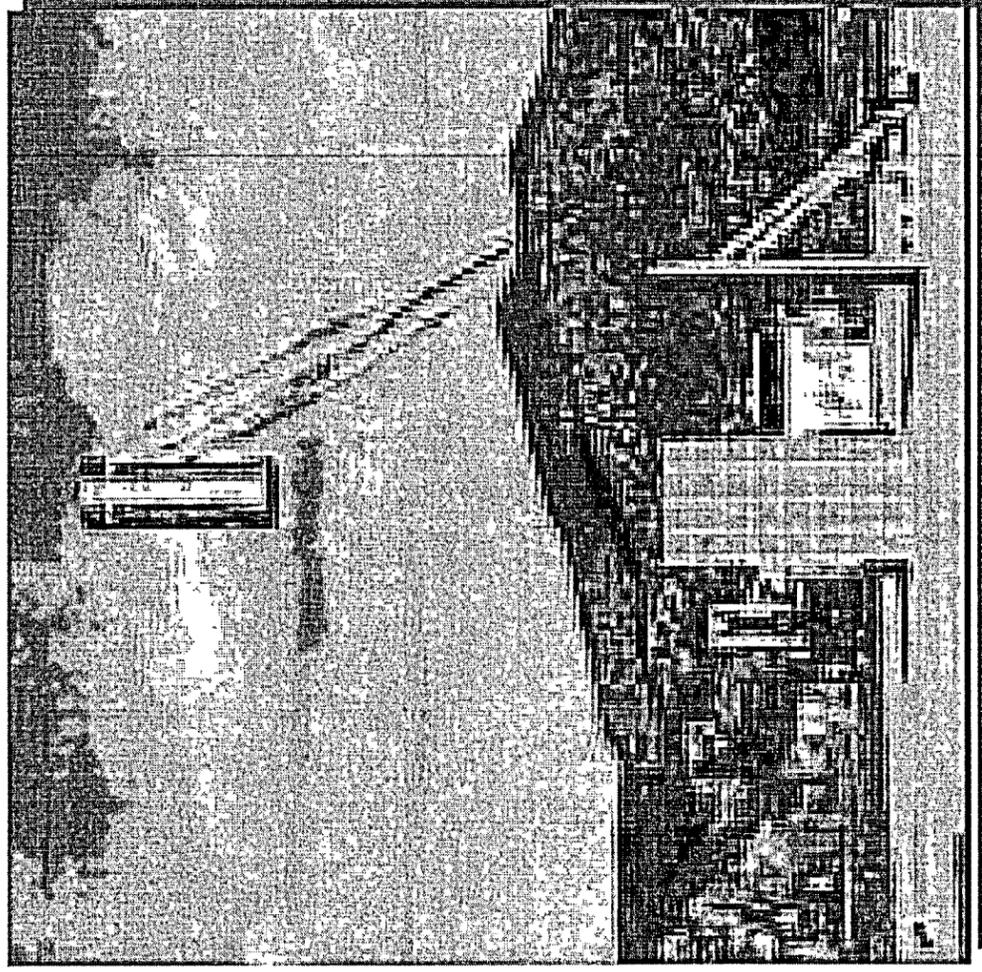
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Regulatory Accident Conditions

- Prior to certification by the NRC, used fuel transport casks must be shown to meet a series of hypothetical accident conditions
 - Drop, Puncture, Thermal (fire), Water Submersion
- These can be done through physical testing and through the use of computer modeling

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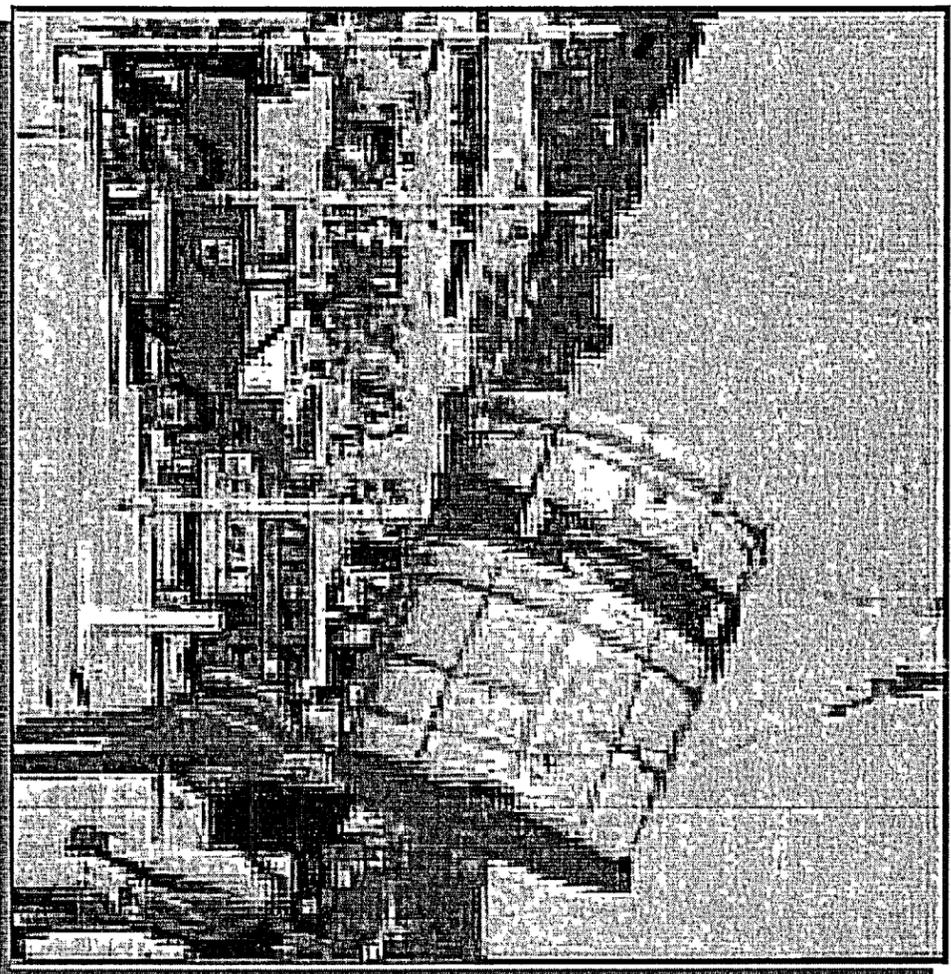
30-Foot Drop Onto Unyielding Surface



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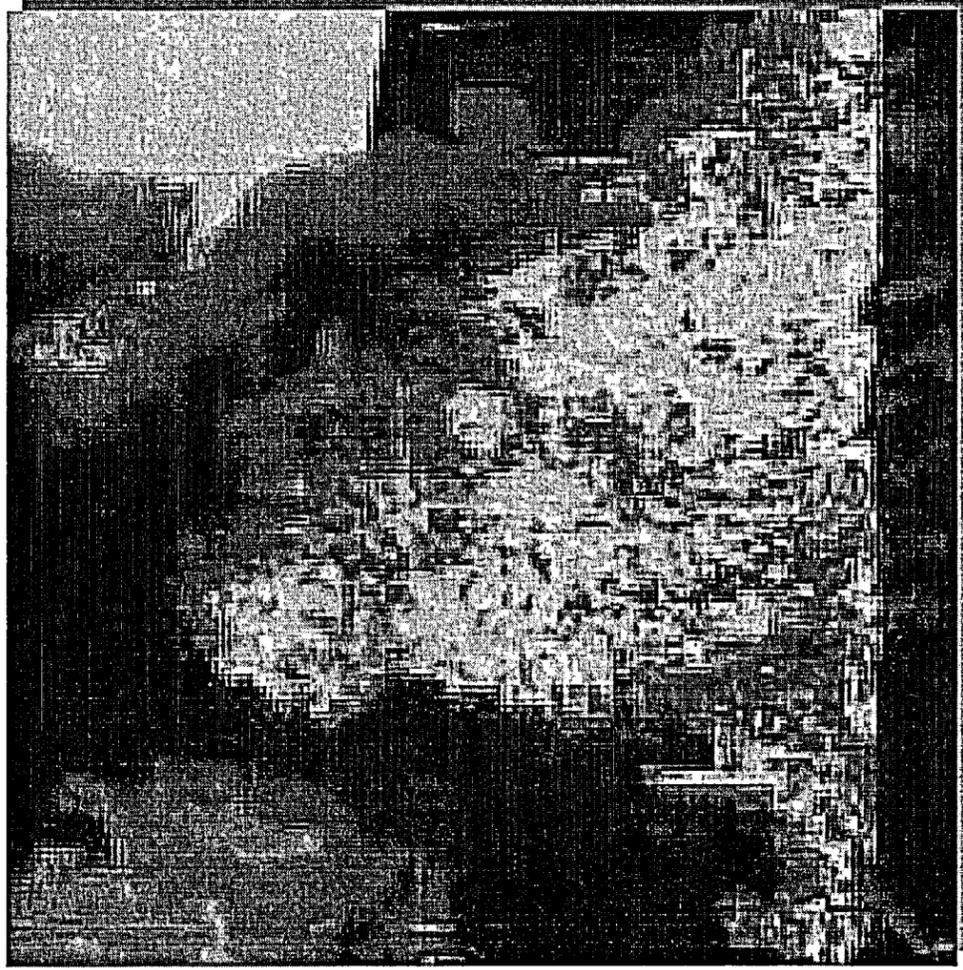
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Puncture - Drop Onto Steel Spike



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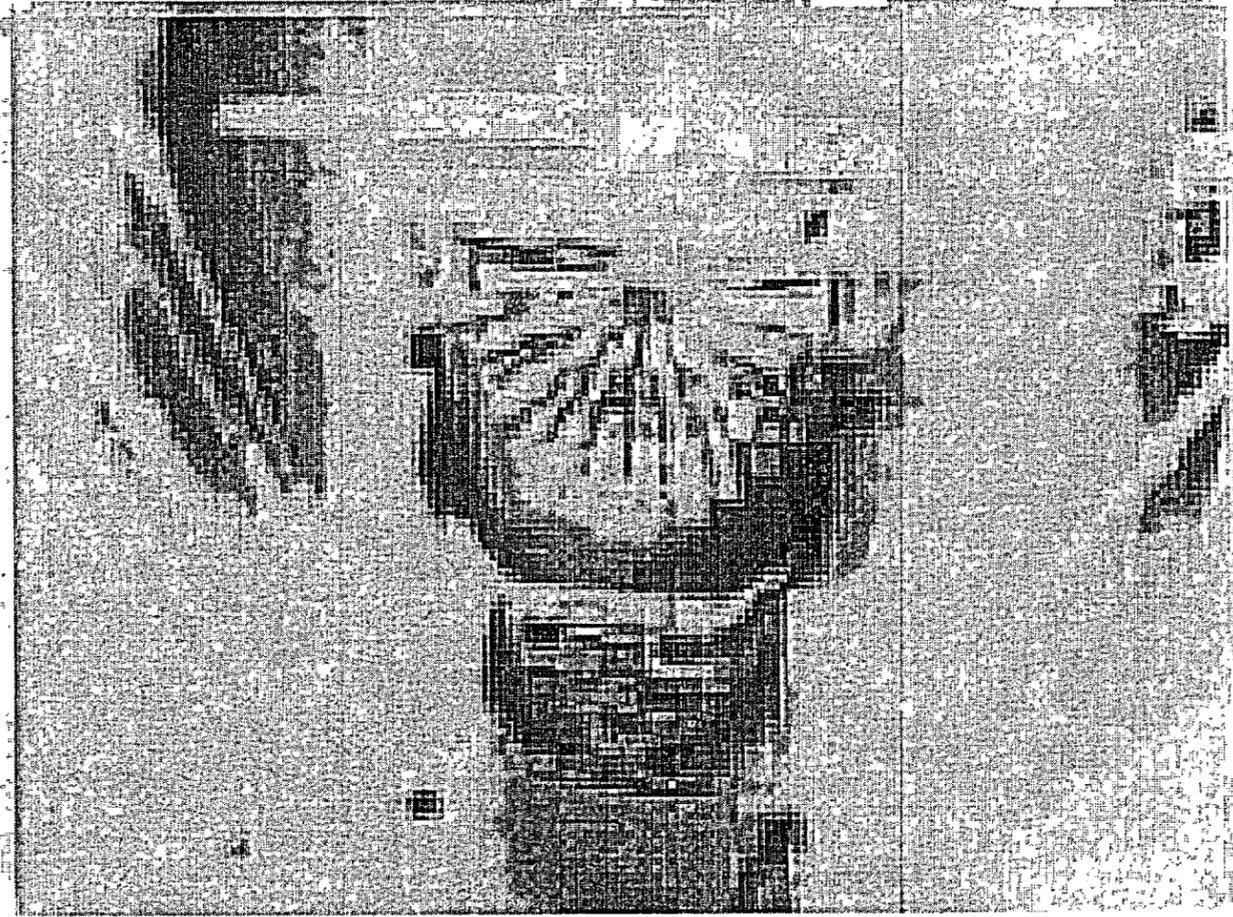
Thermal Test -- 1475° F Engulfing Fire



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Submersion - 3 ft. of Water For 8 hours



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Baltimore Tunnel Fire - July 2001

- Nevada has sponsored analysis of the tunnel fire assuming used fuel containers involved
- The analysis is premature:
 - The fire duration and temperature are not known; relied on “media” reports
- Preliminary NRC review of same incident showed that containers and fuel remain intact

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NRC Reexamination of Transport Risk

- Reexamination of Spent Fuel Shipment Risk Estimates, NUREG/CR-6672, April 2000
- Assesses anticipated large scale shipping campaigns using new cask designs
- Utilizes new analytical methods
- Risks calculated by Reexamination are LOWER than previous risk estimates

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NRC Package Performance Study

- NRC plans to revisit the conclusions of the 1987 “Modal Study”, cask response to severe transportation accidents
- Study will consider
 - Use of physical tests of spent fuel packages
 - Use of current analytical capabilities
 - New information on accident rates, fuel characteristics, etc.
- Issues and Resolutions Options Report, Summer 2000

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Emergency Response

- Local & State authorities have role as “first responders”
- DOE will provide technical assistance and funding to States and tribes for emergency response training
- Upon request, Federal agency assistance is available: FEMA, DOE, DOT, NRC

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Nevada Fear Campaign

- Where?
 - Cities and states along transport corridor.
 - Towns near plants.
- What?
 - Cask safety issues, cask testing
 - Number of shipments
 - Security
 - Emergency response

Nevada Fear Campaign

April 10, 2002 Washington Post

**They want to ship
HIGHLY RADIOACTIVE
NUCLEAR WASTE
to Nevada, which puts
Alabama
Arizona
... (a total of 43 states)
and Wyoming
IN GRAVE DANGER**

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Common “Myths”

- Myth: *Used fuel containers haven’t been “tested” using full scale tests and therefore are not “safe”*
- Fact:
 - Containers undergo a series of scale model tests and computer simulation to ensure that safety requirements are met
 - Computer models were validated using physical tests of full scale casks and scale model casks
 - The use of scale model tests is accepted engineering practice

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Common “Myths”

- Myth: *The routes for shipping used fuel must be determined before a decision on Yucca Mountain*
- Fact: It would be premature to choose routes for shipment more than ten years in advance. At the appropriate time, routing studies will be completed with input from States and stakeholders.

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Common “Myths”

- Myth: *There will be more than 100,000 shipments of used nuclear fuel over next 30 years*
- Fact:
 - The majority of shipments will be by rail
 - There will be between 15,000 and 20,000 containers shipped over 30 to 40 years
 - This is approximately 300 to 500 containers of commercial used fuel per year
 - Rail shipments will have multiple containers. This equates to two trains carrying used fuel per week

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Common “Myths”

- Myth: *The number of used fuel shipments associated with transport to a Federal facility would be unprecedented*
- Fact: The precedent for used fuel shipments has been established in Europe ~ 300 to 500 containers shipped per year. This is what is planned in the U.S.