

Naval Spent Fuel Transportation

- *Total of 727 container shipments since 1957*
- Shipments made by rail
- Shipments are safe
 - robust shipping containers
 - rugged fuel
 - proven practices

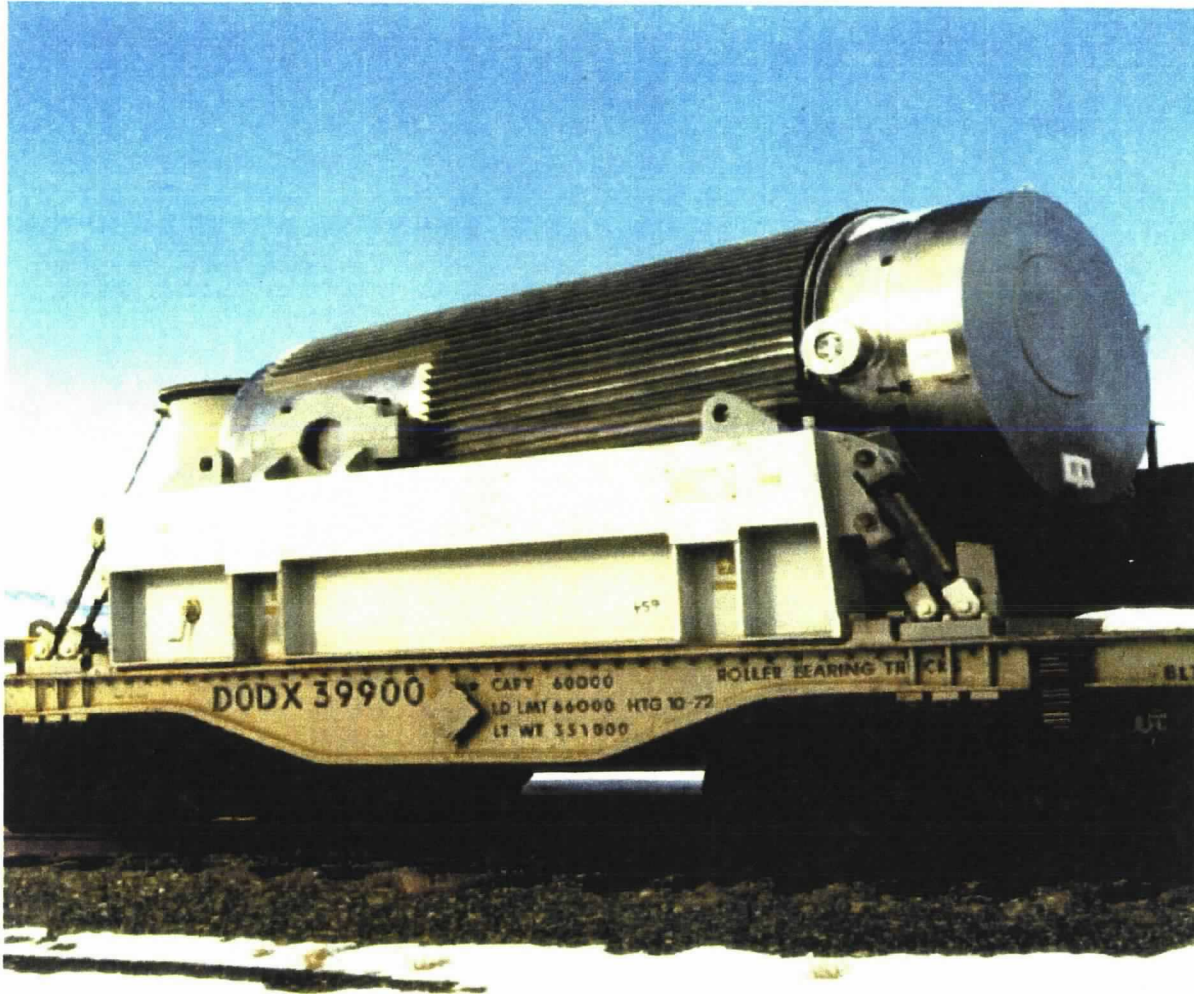
Naval Spent Fuel Shipping Containers

- Type B containers certified to Naval Reactors and NRC standards
- Containers designed, analyzed, and tested to withstand severe accidents
 - equivalent of at least 60 foot drop onto reinforced concrete surface
 - 1475 degree fire
 - other accidents including immersion in water, drop onto protruding surface (puncture)

M-140 Transportation Cask

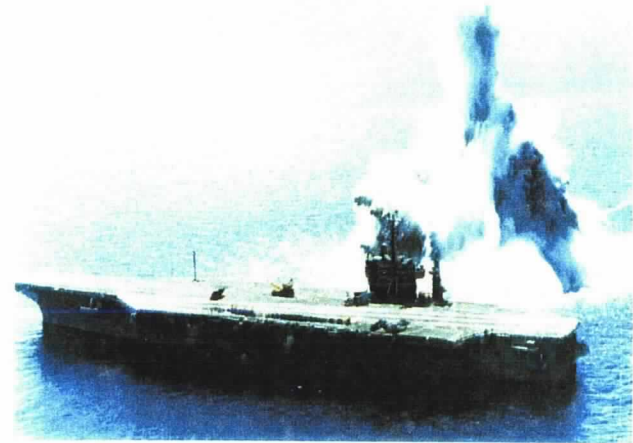


M-160 Cask



Naval Fuel Characteristics

- Solid metallic form - not flammable, not explosive
- Built for combat - battle shock
 - well over 50 g's
- Contains fully all fission products
- Operates over 20 years
 - safe to store shut-down for far longer periods
- Safe to operate in close proximity to sailors on warships
 - exceptionally well-suited for safe transport, storage, disposal



Naval Spent Fuel Shipping Practices

- Escorted by specially-trained Navy couriers
 - on-board traffic managers
 - on-board first responders
- Use government-owned railcars - inspected before and after each use
- Advance arrangements with rail carriers
- Do not require special trains
- Routes selected by railroads

Common Naval Spent Fuel Shipping Routes



Naval Spent Fuel Shipping Practices (cont.)

- Location and status monitored constantly - SECOM satellite tracking
- Classified shipments - no pre-notification provided
- State law enforcement and emergency response officials briefed periodically
- Periodic shipment emergency exercises

Naval Spent Fuel Shipments



Transportation Safety Analysis

- Full analysis in DOE/Navy EISs
- Analysis covers incident-free shipment and potential serious accidents including terrorist attack
- Analysis uses state of the art computer models adapted to naval spent fuel
- Analysis covered past and projected future naval spent fuel shipments:
 - approximately 500 between 1995 and 2035 to INEEL
 - about 300 from INEEL to repository or interim storage site outside of Idaho

Summary of Transportation Analysis Results

(Shipments to INEEL)

- Incident free:
 - over forty year period, among about 8,000,000 people along transportation corridor, analysis says one chance in 1,000 of a single latent cancer fatality
 - average annual risk per person: one chance in 320,000,000,000
- Severe accident:
 - over forty year period, among about 8,000,000 people along transportation corridor, analysis says one chance in 25,000 of a single latent cancer fatality
 - average annual risk per person: one chance in 8,000,000,000,000

Summary of Transportation Analysis Results

(Shipments from INEEL)

- Incident free:
 - over 25 year shipping period, among over 100,000 people along transportation corridor, analysis says less than one chance in 100 of a single latent cancer fatality
 - average annual risk per person: less than one chance in 250,000,000
- Severe accident:
 - over 25 year shipping period, among over 100,000 people along transportation corridor, analysis says about one chance in 300,000 of a single latent cancer fatality
 - average annual risk per person: less than one chance in 750,000,000,000

Comparison of Risks

- Average radiological risks associated with naval spent fuel shipments are thus well below one chance in 1,000,000,000
- For comparison, annual risks for other events are shown below:
 - dying from cancer from all causes:
one chance in 350
 - dying from automobile accident:
one chance in 1,000
 - dying in a fire:
one chance in 40,000
 - dying from meteor striking earth:
one chance in 100,000,000