



# **TRU Waste Packages for Shipment to WIPP**

## **KHNP Training Program Module 13: Transportation of Nuclear Materials**

**January 22, 2008**

**Dr. Douglas J. Ammerman  
Transportation & Environmental Safety Department  
Sandia National Laboratories**



# Certified Packages

---

- **USA/9218/B(U)F-85 – TRUPACT-II**
  - First package used for WIPP shipments
  - Can carry 14 55-gallon (200-L) drums
  - Three packages are carried on a single trailer
- **USA/9279/B(U)F-85 – HALFPACT**
  - Essentially a half-height version of the TRUPACT-II
  - Can carry 7 55-gallon drums
  - Often carried in combination with TRUPACT-IIs
- **USA/9212/B(M)F-96 – RH-TRU 72-B**
  - For remote handles TRU waste with high radiation
  - Can carry 3 55-gallon drums
  - Single package per trailer



## Shipments to Date (Jan. 21, 2008)

---

Site	Shipments	Loaded Miles
Argonne National Laboratory	14	23,453
Idaho National Laboratory	2,655	3,694,368
Los Alamos National Laboratory	362	123,804
Lawrence Livermore National Lab	18	24,804
Nevada Test Site	48	57,312
Rocky Flats Site	2,045	1,446,444
Hanford Site	384	694,272
Savannah River Site	861	1,325,940
<b>Total to WIPP</b>	<b>6,387</b>	<b>7,390,397</b>

# TRUPACT-II



# TRUPACT-II

Protective Stainless  
Steel Skin  
1/4" to 3/8" Thick

Honeycomb  
Impact Limiter

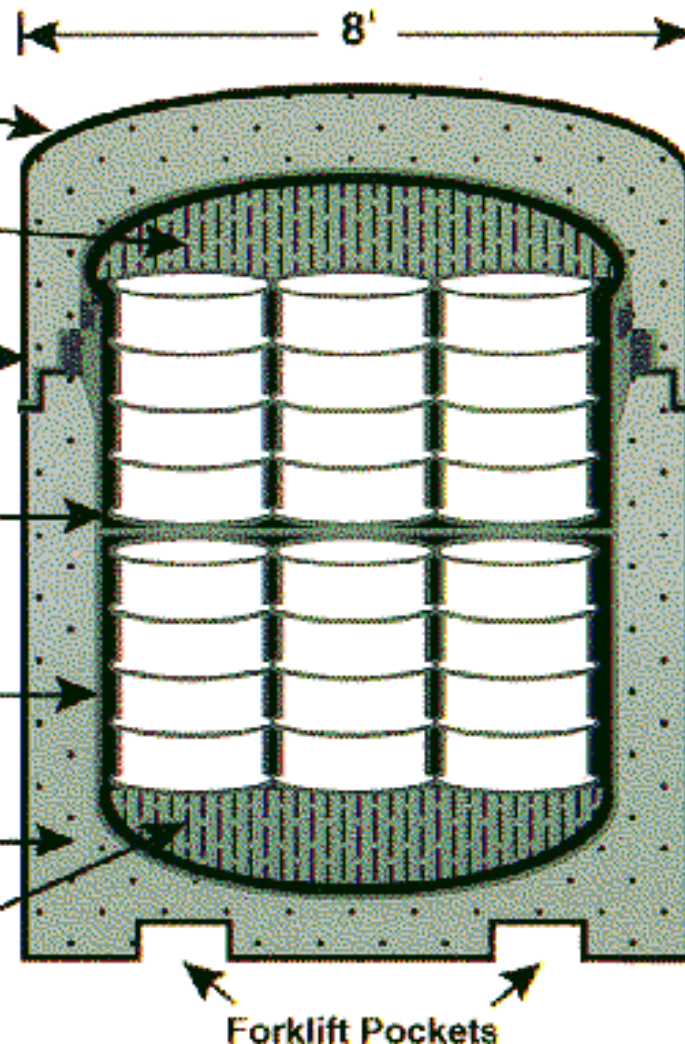
Lytherm Insulation  
1/4" Thick

Inner Containment  
Vessel 72.6" I.D.  
1/4" Thick

Outer Containment  
Vessel 73.6" O.D.  
1/4" Thick

Foam 10" Thick

Honeycomb  
Impact Limiter



## Weight

12,705 lbs. empty  
19,250 lbs. loaded

## Material

Stainless Steel  
Polyurethane Foam  
Ceramic Fiber  
Insulation

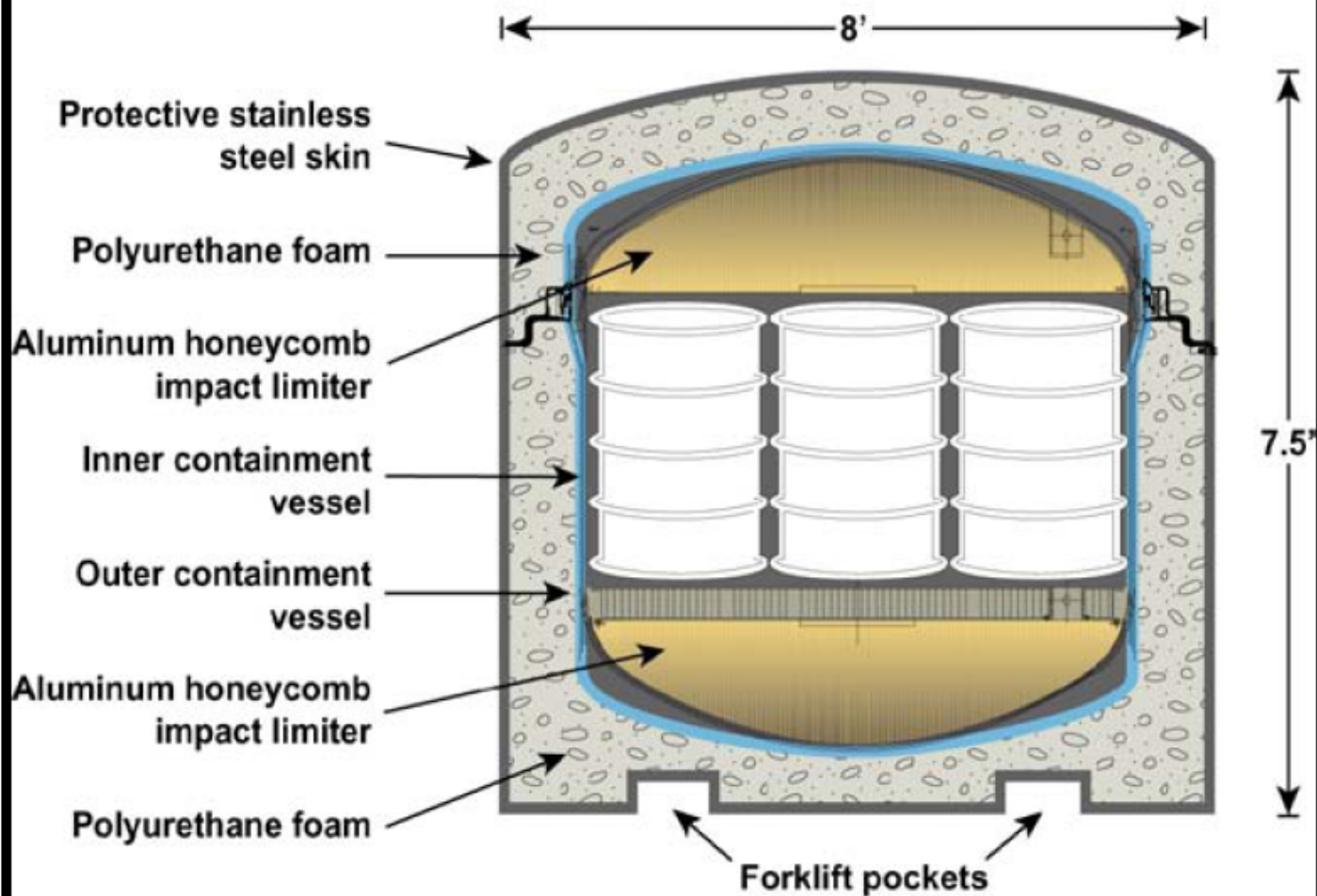


# TRUPACT-II Testing

---



# HalfPACT



*The HalfPACT holds seven drums, each weighing approximately 1,000 pounds*

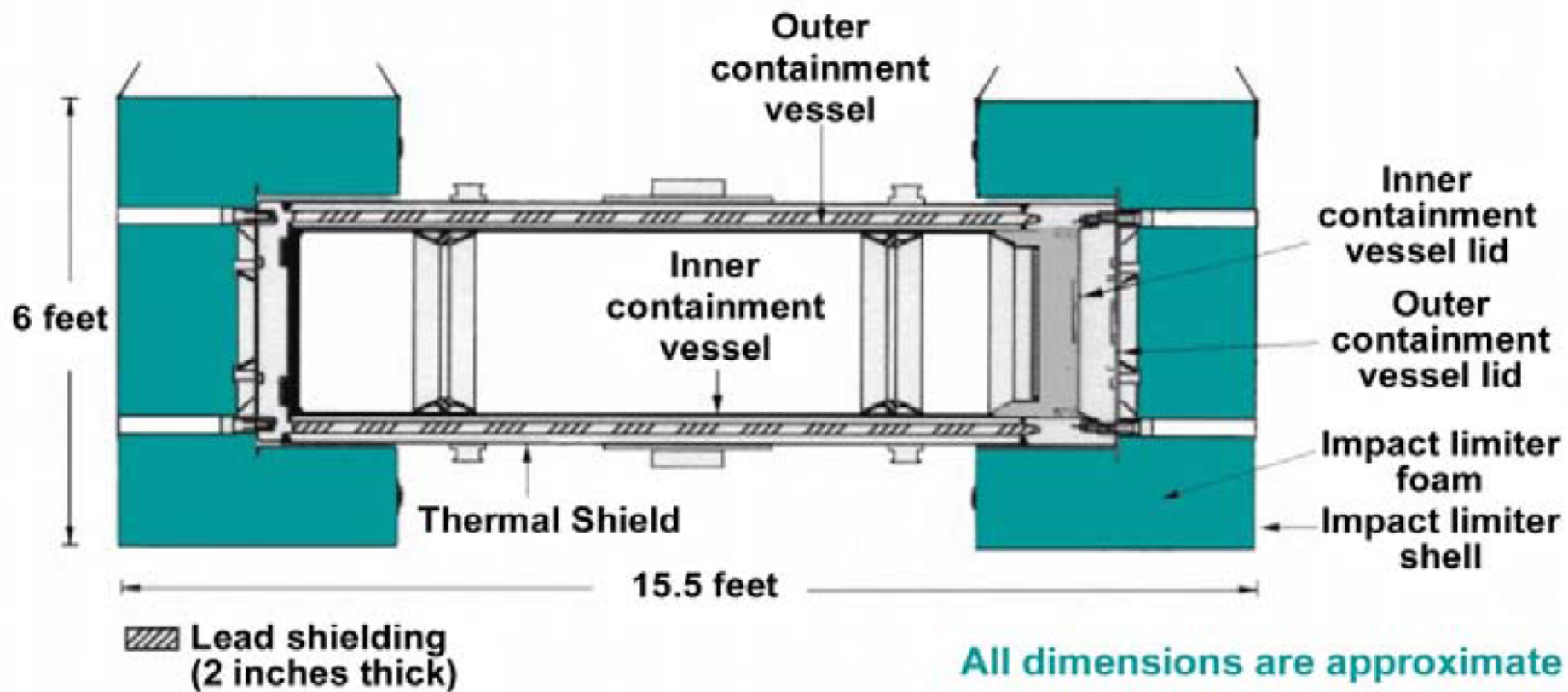


Sandia  
National  
Laboratories

# RH-TRU 72B



# RH-TRU 72B





# Shipment Types

---

- **Of the 6,387 shipment made ~100 of them have been RH-TRU, the rest are CH-TRU**
- **52,892 cubic meters of CH-TRU have been emplaced at WIPP**
- **37 cubic meters of RH-TRU have been emplaced at WIPP, all in the past year**



# Shipment of Large Objects

---

- **None of the existing packages can transport the large size of standard waste box**
- **DOE has developed TRUPACT-III to meet this need**
- **This package is currently going through the certification process**