

# LA-UR-24-22069

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**Title:** NNSA Model 435-B & 380-B Type B (U) Packaging

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**Intended for:** waste management symposium 2024, 2024-03-10/2024-03-14 (Phoenix, Arizona, United States)  
One document is to have as handouts. This document was previously LAUR 23-28870. We have made modifications by deleting pages/images/text and replacing with new pictures. The other document are pictures that will be displayed on the booth table.

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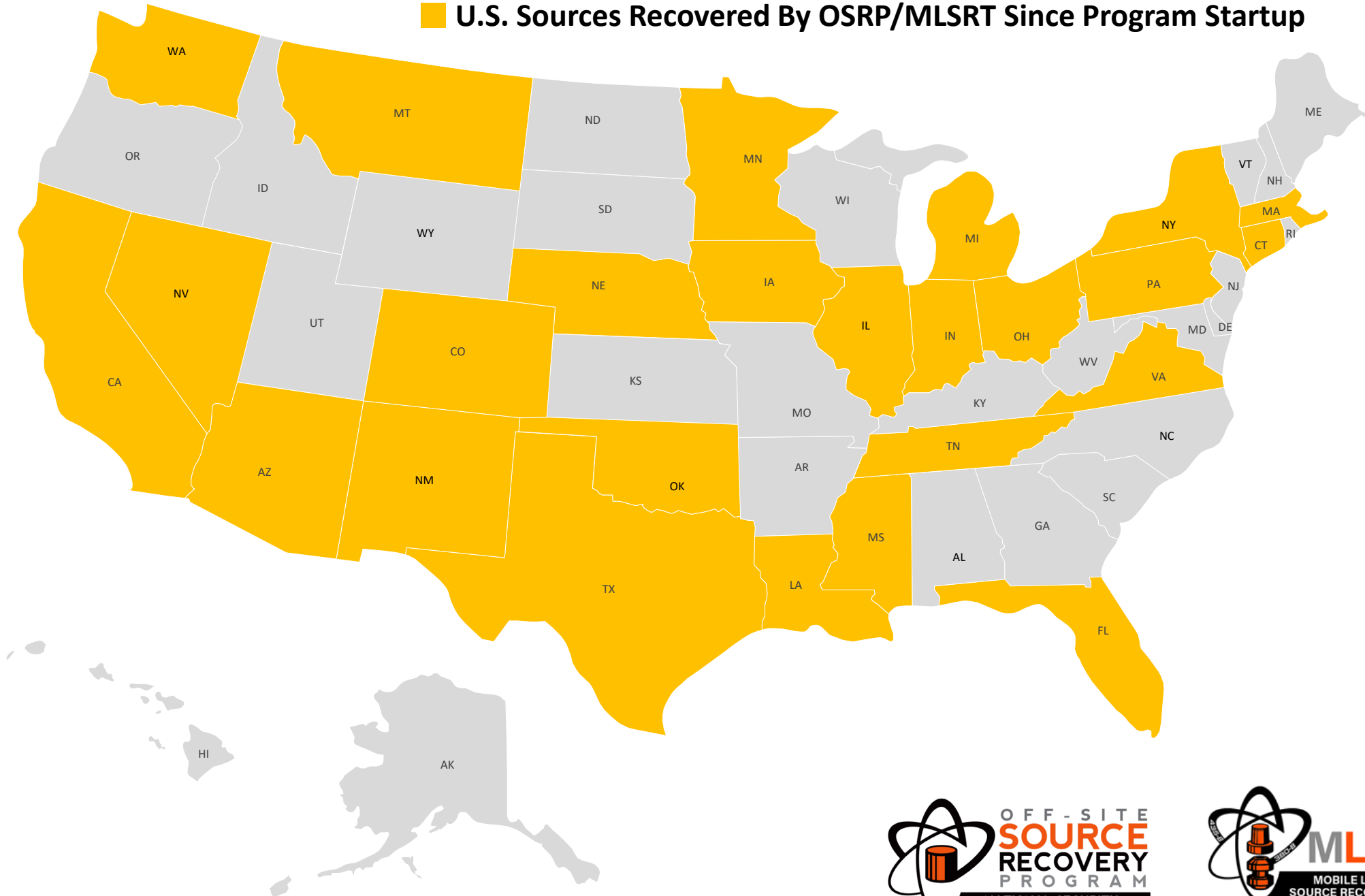
# NNSA Model 435-B & 380-B Type B (U) Packaging



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Los Alamos National Laboratory



## ■ U.S. Sources Recovered By OSRP/MLSRT Since Program Startup





## ◆ **MLSRT Mission**

- Manage operations and shipping of Type B Casks
- Manage Mass Spectrometry & Pressure Change Leak Testing of Type B Casks
- Provide logistics support to customers
- Provide operational engineering support
- Above all, Safe and Secure Type B Operations

## ◆ **380-B and 435-B Type B(U) Packaging**

- Container Specifications
- Safety/Operational Features
- Source/Activity Payload Capabilities
- Versatile Shipping Configurations

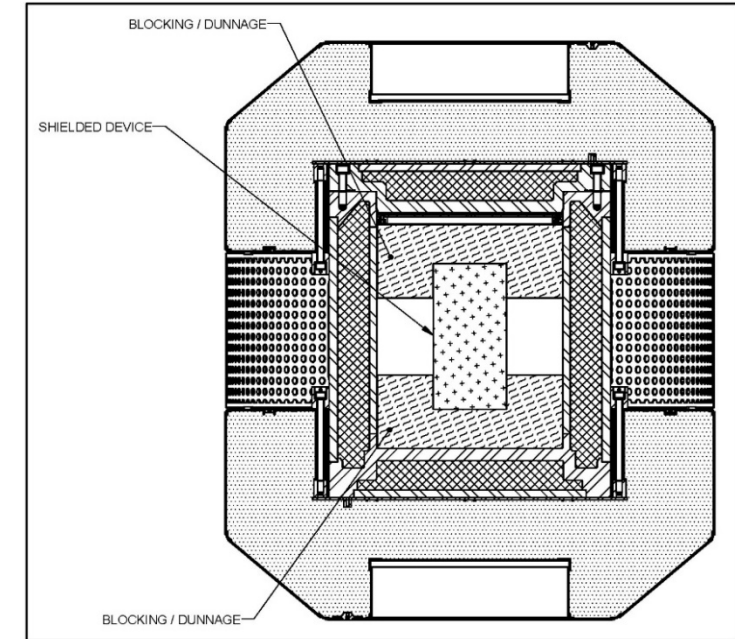
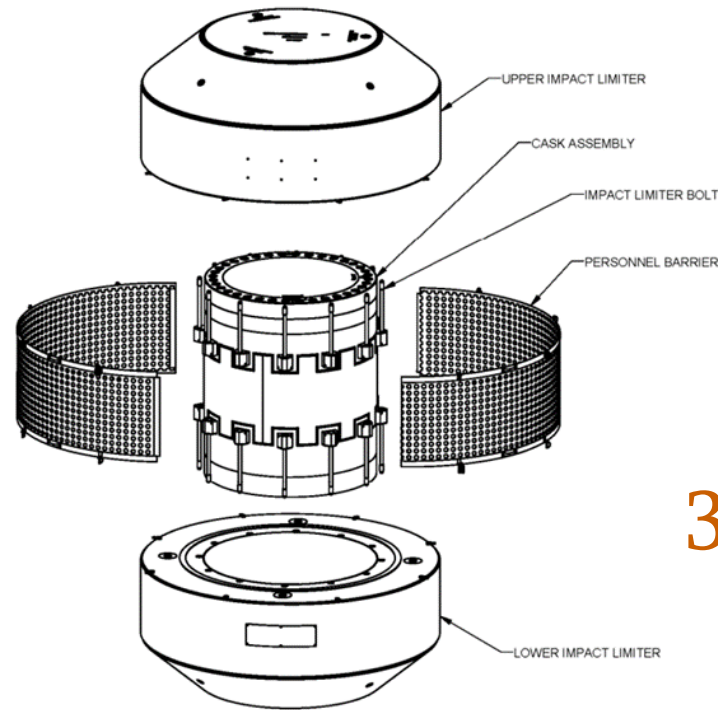


# 380-B Type B(U) Packaging

## ◆ NRC Certificate – USA/9370/B(U)-96

## ◆ Package Specifications

- 118.2” tall, 100” in diameter
- Empty shipping weight: 55,000 lbs.
- Max Payload capacity 12,000 lbs.
- Max total shipping weight: 67,000 lbs.
- Internal Cavity Dimensions:
  - 45-3/4” tall x 38” diameter
- Total Shielding Thickness:
  - Lid: 10” inches
  - Body 9-3/4” inches



## 380-B Components



# 380-B Cask Payload Capabilities

- ◆ Maximum Decay Heat: 205 Watts
- ◆ Shipping Methods:
  - Ground, Air and Water (Vertical on Longitudinal Axis)

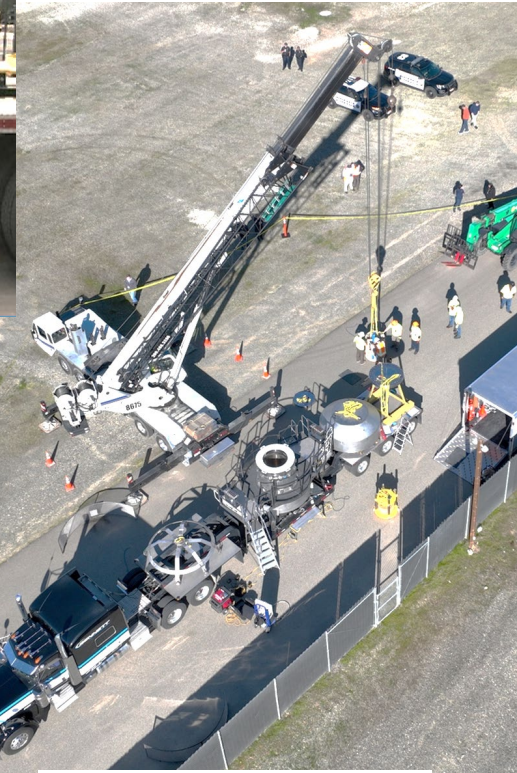


Nuclide	Maximum Activity
Co-60	7,702 Ci
Cs-137	40,675 Ci
Sr-90	30,606 Ci
Ir-192	33,333 Ci
Ra-226 (no Be) <sup>Ⓢ</sup>	1,101 Ci
Ra-226Be <sup>Ⓢ</sup>	4.67 Ci

Payload Source Nuclides



# MLSRT 380-B Recovery Operations





# 435-B Type B(U) Packaging

- ◆ NRC Certificate – USA/9355/B(U)-96
- ◆ Specifications
  - 83” tall, 70” in diameter
  - Max shipping weight: 10,100 lbs.
  - Empty shipping weight: 4,940 lbs.
  - Cavity dimensions:
    - 60.3” tall x 43.5” diameter
- ◆ Payloads
  - Long Term Storage Shield (LTSS), Disposal Canisters, Shielded Devices



# 435-B Cask Payload Capabilities

- ◆ Maximum Decay Heat: 200 Watts
- ◆ Shipping Methods:
  - Ground, Air and Water (Vertical on Longitudinal Axis)



U.S. Air Force photo by Tech. Sgt. Howard Blair - <http://www.af.mil>,  
<https://www.af.mil/News/Photos/igphoto/2000031028/mediaid/50787/>

Nuclide	Maximum Activity, LTSS	Maximum Activity, Disposal Canister
Co-60	12,970 Ci	12,970 Ci
Cs-137	14,000 Ci	27,000 Ci
Sr-90	1,000 Ci	1,000 Ci
Ra-226 (no Be) <sup>⑤</sup>	20 Ci	20 Ci
Ra-226Be <sup>⑤</sup>	1.2 Ci	4.88 Ci
Am-241 (no Be) <sup>⑥</sup>	1,000 Ci	No americium or plutonium allowed
Am-241Be <sup>⑥</sup>	6.6 Ci	
Pu-238 (no Be) <sup>⑦</sup>	75 g Pu	
Pu-239 (no Be) <sup>⑦</sup>	15 g Pu	
Pu-239Be <sup>⑦</sup>	15 g Pu	200 Ci
Ir-192	200 Ci	
Se-75	80 Ci	

LTSS and Disposal Canister Payload Source Nuclides





# MLSRT 435-B Cask Operations





# Contact Us

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