



TRANSURANIC WASTE



DOE-TEMA EM FORUM

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PREPAREDNESS

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Transuranic (TRU) Waste



- U.S. defense program activities
- Clothing, tools, rags, debris, residues, disposable items
- No liquid waste
- Contaminated with radioactive and hazardous elements



Contact-Handled (CH) TRU Waste



- Has a maximum dose rate of 200 mrem/hr at the surface of the inner package
 - Physically handled by operators
- May be mixed with hazardous constituents



Remote-Handled (RH) Waste



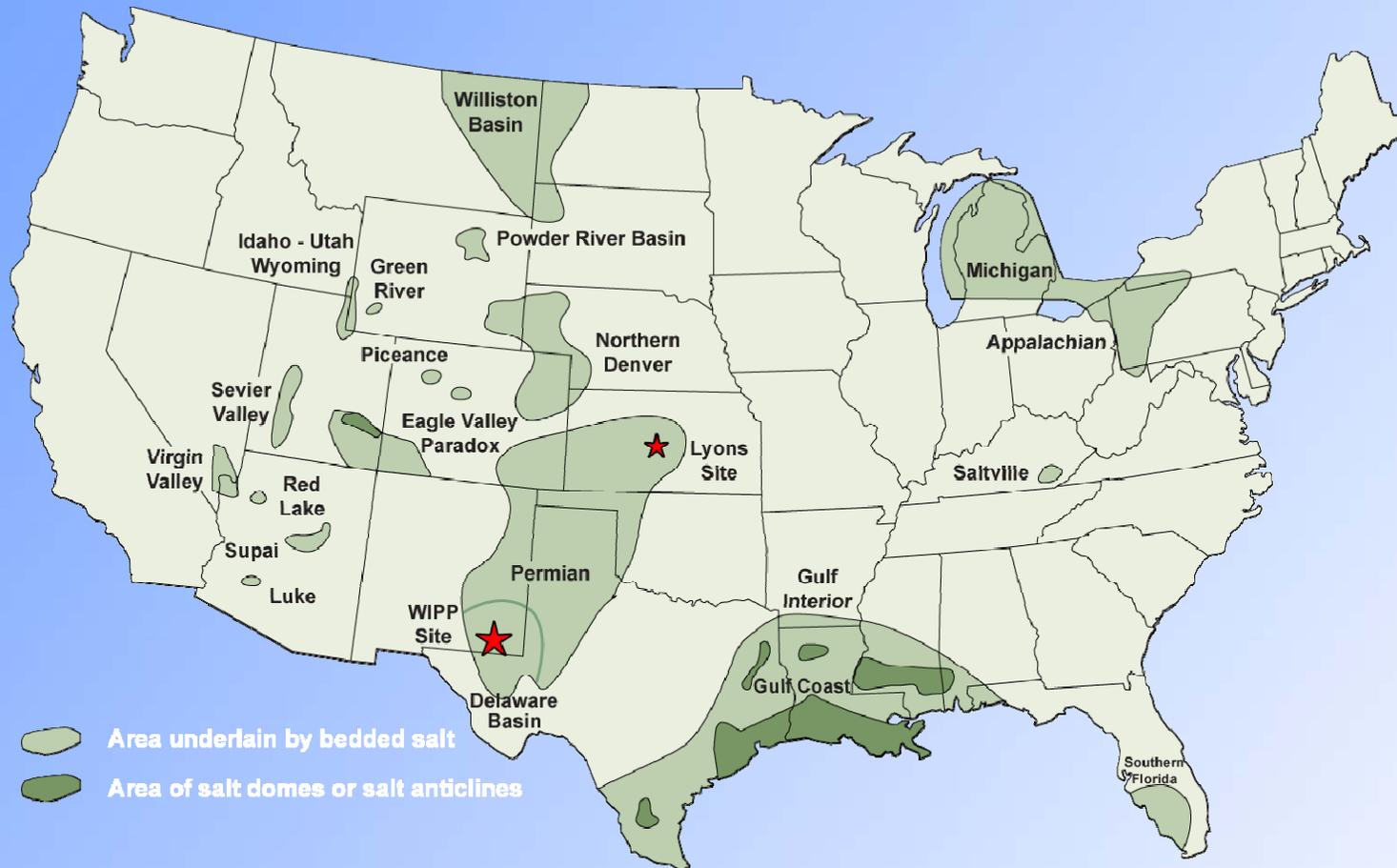
- Dose rate from 200 mrem/hr to 1000 rem/hr at the surface of the inner package
- Robotics and shielding are required
- May be mixed with hazardous constituents



Shipping Corridors

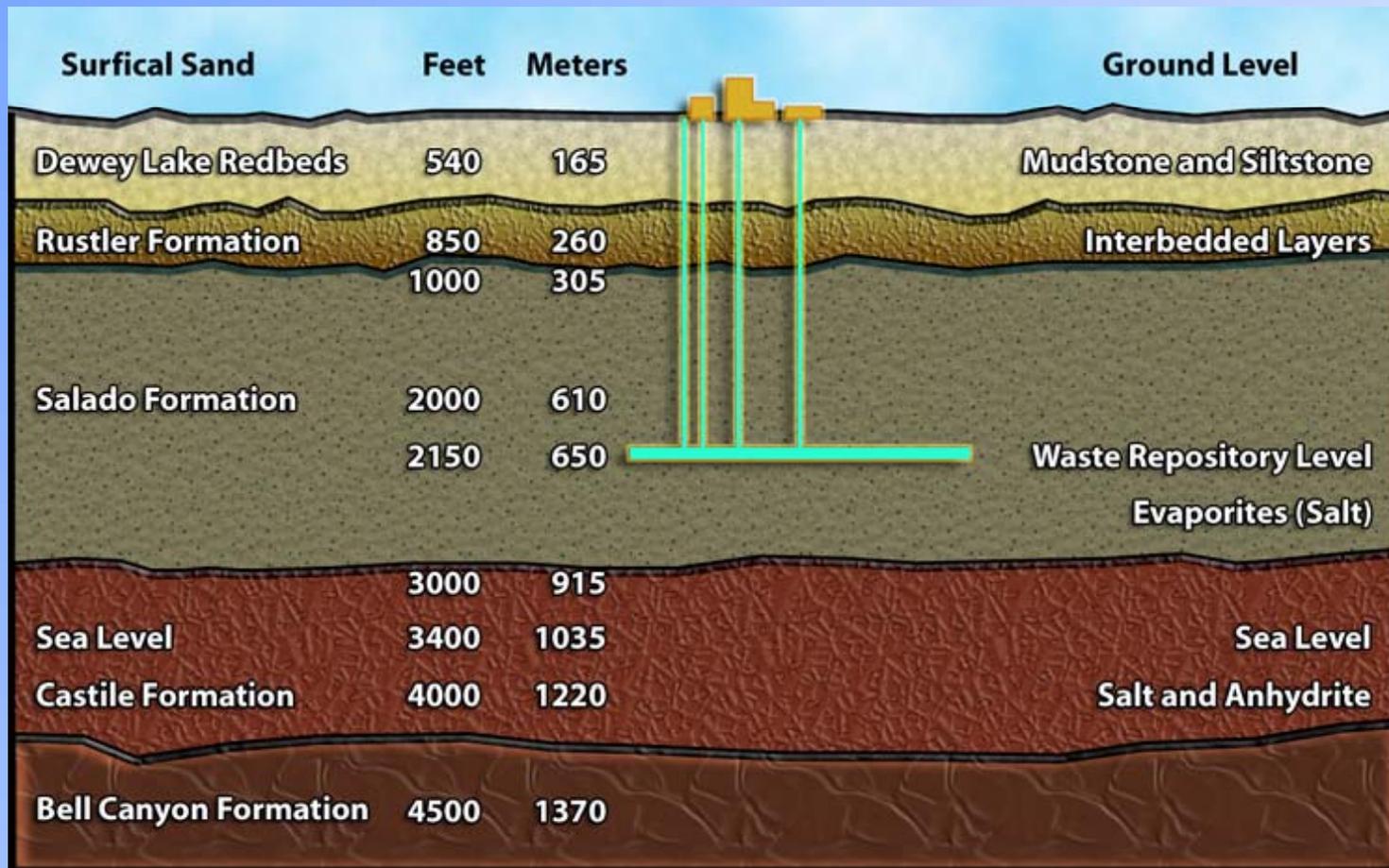


Salt Deposits





Geologic Profile

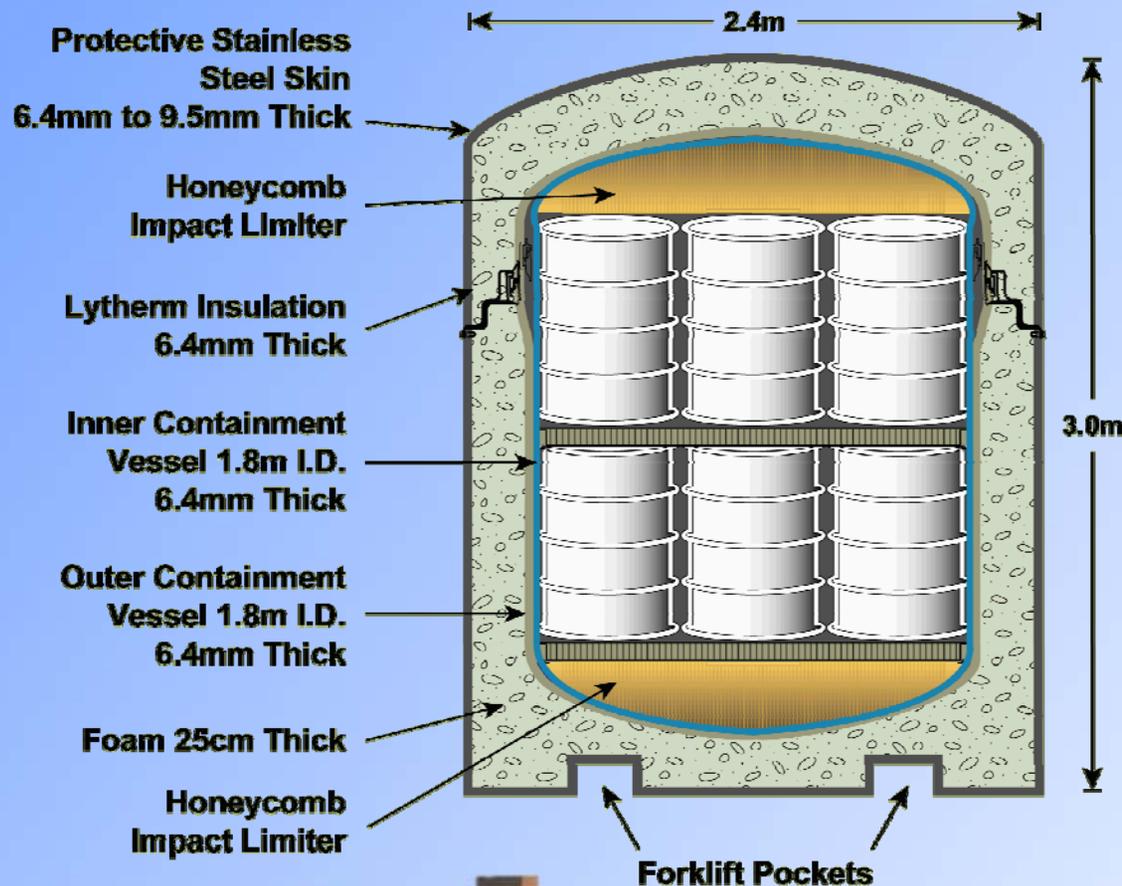




Shipping Containers

TRUPACT-II

TRUPACT-II



Weight

5,762 kg empty

8,731 kg loaded

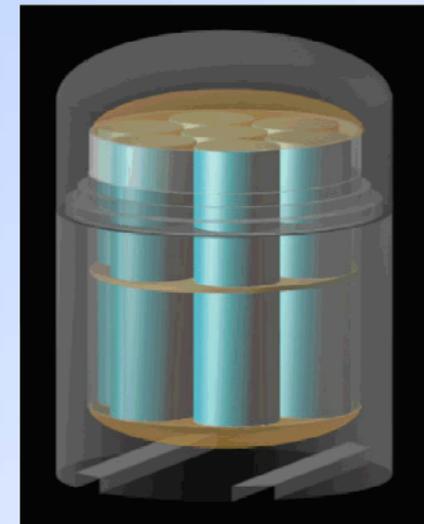
Material

Stainless Steel

Polyurethane Foam

Ceramic Fiber

Insulation





Shipping Containers

TRUPACT-II Testing



- **30-foot drop**
- **1,475-degree fire**
- **Pressure testing equal to 50 feet of water**





Shipping Containers

RH Transportation

RH 72-B



- **Certified by Nuclear Regulatory Commission (NRC)**
- **3-drum capacity (55-gallon)**

CNS 10-160B



- **Certified by NRC**
- **10-drum capacity (55-gallon)**





WIPP Transportation System



"...The (WIPP transportation) system is safer than that employed for any other hazardous material in the U.S...."

National Academy of Sciences, WIPP Panel





WIPP Transportation System

(cont.)

- **Bad weather protocols**
- **Inspections**
- **Safe parking protocols**
- **Constant communications**
 - **Satellite phone**
 - **Cellular phone**
 - **TRANSCOM**
 - **CB radio**



WIPP Transportation System

(cont.)



- **Driver Requirements**

- **325,000 commercial vehicle miles in last five years**
- **100,000 per year for last two years**
- **No chargeable accident or moving violation in commercial vehicle for last five years**
- **Driving record in private vehicle also evaluated**
- **No convictions for DWI or DUI in commercial or private vehicle**





WIPP Transportation System

(cont.)

- **Driver Training**

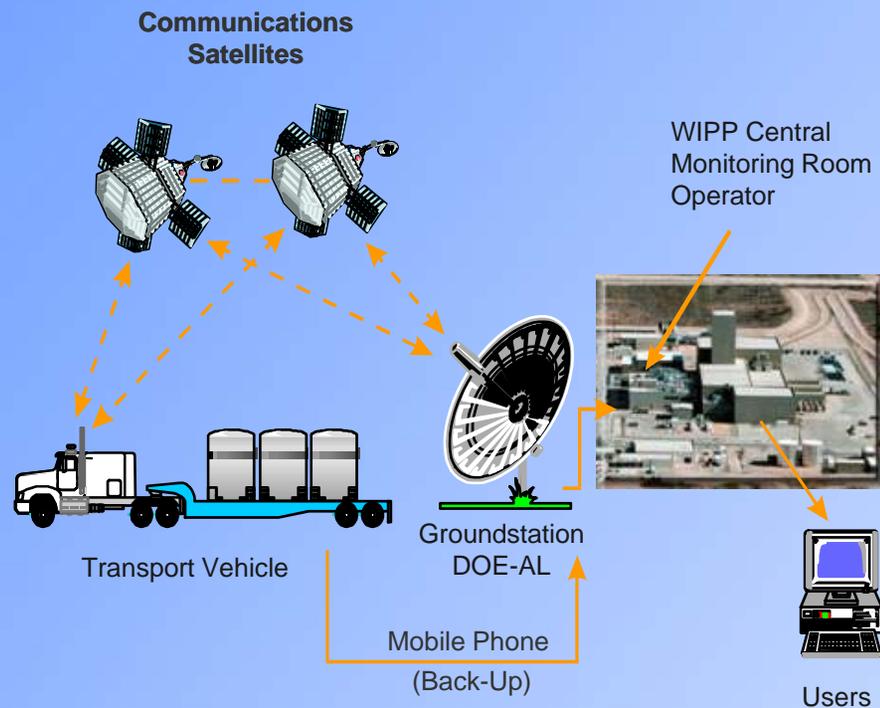
- Upon completion of all required DOT training drivers are also trained in:
- Operation of TRUPACT-II tie-downs
- Use of radiation detection instruments
- WIPP general employee training
- Adverse weather and safe parking protocols
- Public affairs training
- WIPP first responder & incident command training
- Radiation worker training
- Use of TRANSCOM tracking systems
- Generator/shipping site required training





WIPP Transportation System

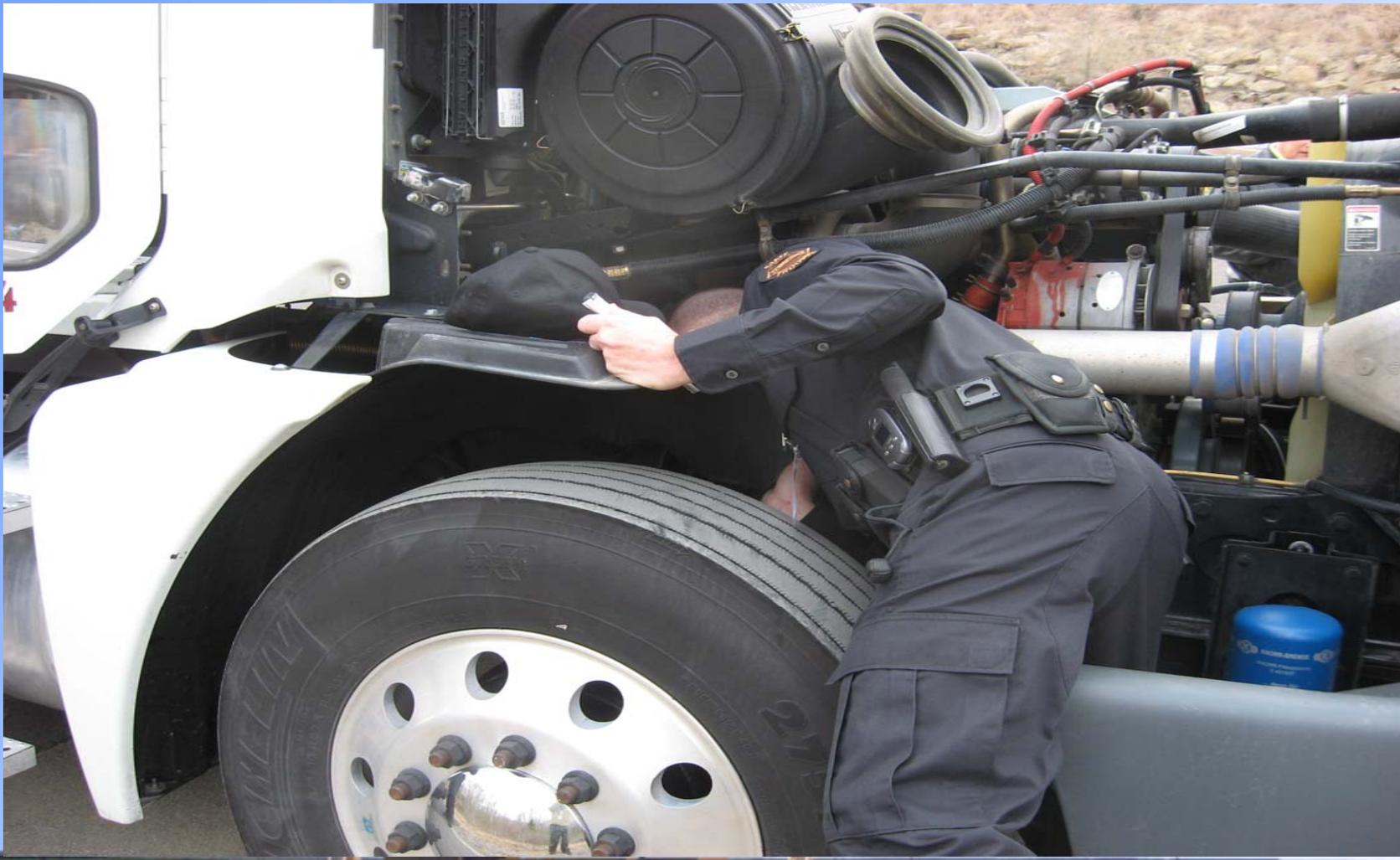
Transcom



- **Satellite tracking**
- **Five-minute updates**
- **Fully automated**
- **States and tribes have access**
- **Password-protected Web site**
- **Drivers in constant communication with Central Monitoring Room**



CVSA Level 6 Inspection



CVSA LEVEL 6 INSPECTION



ESCORT



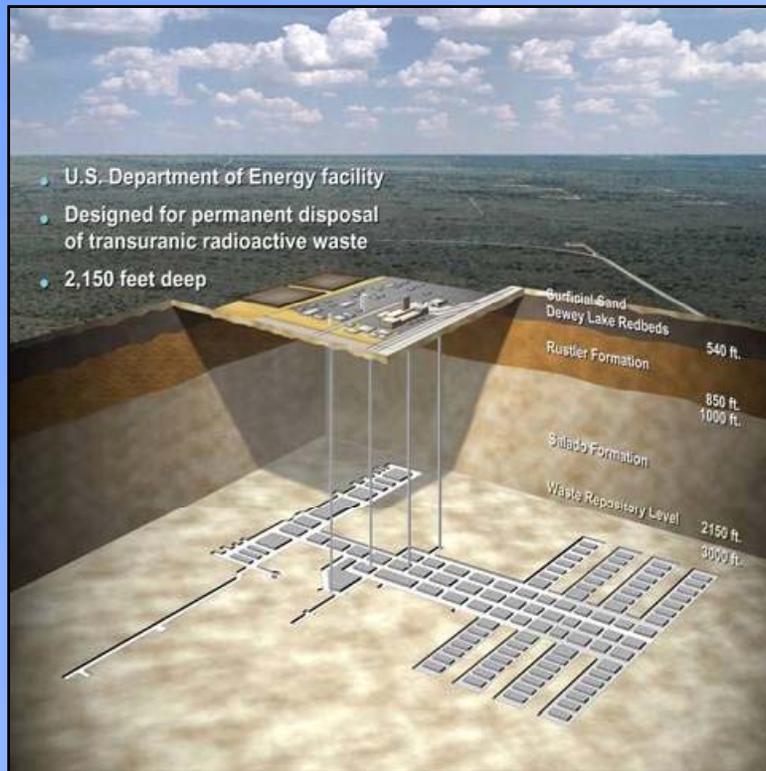
Waste Isolation Pilot Plant

Carlsbad, NM





Underground Facility



- 2,150 feet deep
- 250 million-year-old salt bed
- Remote location
- Stable geology
- 6.2 million cubic feet of disposal area



CH Waste Disposal Process



CH Waste Disposal Process cont.



CH Waste Disposal Process cont.



CH Waste Disposal Process cont.



CH Waste Disposal Process cont.



CH Waste Disposal Process cont.



TRU Waste *(cont.)*



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TRU Waste *(cont.)*





- **Radiological Instruments**



CDV 718



LUDLUM M3 SURVEY METER



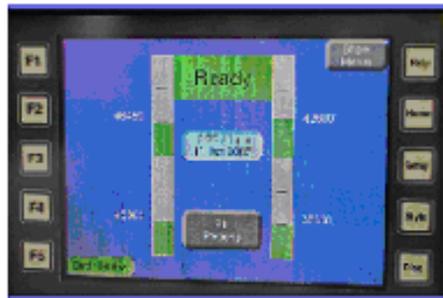
HP Ge-Based Portable Nuclide Identifier



Portable Nuclide Identifier with LaBr Detector



Portable Portal Monitor



**AM-801
PORTABLE PORTAL
MONITOR**



**Electronics
Display**



RAD Truck



RAD Truck





- **OTHER SHIPMENTS**



HIGH FLUX ISOTOPE REACTOR



HIFR Spent Fuel



TEMA

