

**Presentation to the  
SRS Citizens Advisory Board  
Waste Management Committee**

# **Transuranic (TRU) Project Update**

**May 4, 2010**

**Bert Crapse  
Deputy Federal Project Director  
TRU Waste Disposition Project  
Department of Energy**

# Acronyms

❖	ARRA	American Recovery and Reinvestment Act
❖	CAB	Citizens Advisory Board
❖	CH	Contact Handle
❖	DOE	Department of Energy
❖	FY	Fiscal year
❖	HA	High activity
❖	NDA	Non-Destructive Assay
❖	NDE	Non-Destructive Examination
❖	NRC	Nuclear Regulatory Commission
❖	PEC	Plutonium Equivalent Concentration
❖	RCRA	Resource Conservation and Recovery Act
❖	RH	Remote Handle
❖	SCDHEC	South Carolina Department of Health and Environmental Control
❖	SRS	Savannah River Site
❖	TRUPACT III	Transuranic waste shipping container III
❖	TRU	Transuranic
❖	V&P	Vent and Purge
❖	WIPP	Waste Isolation Pilot Plant

# Agenda

- ❖ **TRU Waste Inventory Overview**
- ❖ **Progress and Accomplishments**
- ❖ **TRU Pad 1 Waste**
- ❖ **Volume and WIPP Shipping Metrics**
- ❖ **Safety Environment**
- ❖ **Waste Disposition Challenges**
- ❖ **200 cubic meters of Very Difficult Waste**
- ❖ **Summary**

# Overview

## - Background

**Phase I (FY01 – 2Q, FY09):**

**CH Drums (~30,500 drums or ~ 6,000 m<sup>3</sup>)**

**Emptied 7 TRU Pads (Pads 7 -13)**

**Exceeded the original target of 30,000 drums for the TRU Drum Program**

**Lessons learned incorporated into the Phase II Process**



**1<sup>st</sup> TRU Waste Shipment – May, 2001**



**1,000<sup>th</sup> TRU Waste Shipment – June, 2009**

# Overview

## - Remaining Scope

**Phase II (3Q, FY09 – CY12):**

**Disposition of 5,000 m<sup>3</sup> remaining legacy CH- and RH-TRU wastes with significantly higher levels of PEC and/or larger physical sizes including:**

- **Special Case CH Drums**
- **Pad 1 Drums and Boxes**
- **Non-Drum CH Containers**
- **RH Containers**

**\$300 to \$400 Million Project**

**American Recovery and Reinvestment Act of 2009 Funded**

**December 2012 Completion Date**

**200 m<sup>3</sup> of very difficult waste planned post ARRA**

# Field Progress and Highlights

## 1<sup>st</sup> Year under ARRA



**Pad 1 Culvert Excavation**



**Pad 1 Drum Mining**



**WIPP Shipment**



**Mock Up Training for Drum Remediation**



**WIPP Shipment Inspection under "Big Top"**

# Recent Accomplishments

## February through April 2010

### F Canyon

- Started Pad 1 drum remediation
- Dismantled and removed old enclosure from truckwell
- Restarted the F canyon warm crane

### H Canyon

- Started box size reduction (Box #7)
- Completed 9 large boxes (6 repackaging and 3 remediation)

### E Area

- Resumed WIPP shipping on March 19 with 21 planned shipments
- Started final retrieval phase on TRU Pad 1
- Started field assay operation
- Start large box X-ray testing
- Started box repackaging on Pad 6 on March 31

# TRU Pads 1 Activities



**Before Soil Cover  
May 1971**



**With Soil Cover  
June 2005**



**Culvert Excavation  
July 2009**



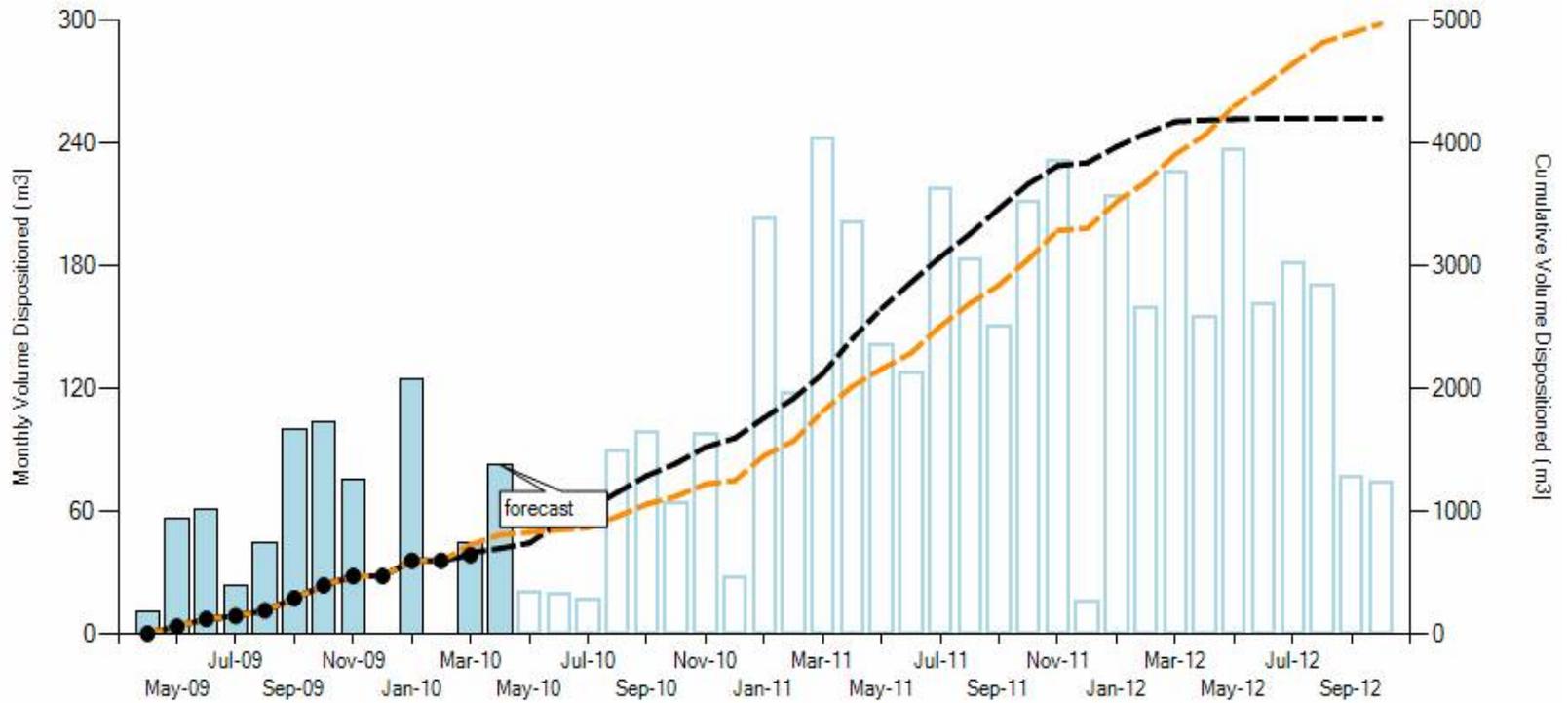
**Drum Mining  
August 2009**

# TRU Pad 1 Contents

- Inner Containers paint/food cans, plastic bags placed in 55 gallon and 30 gallon drums or plywood boxes. Loaded waste into concrete culverts or boxes.
- 83 culverts and 6 concrete boxes from 1970-1972, over 6500 inner containers
- Organic and inorganic debris, resins, equipment, steel, glass, paper, plastic, trash and sweepings
- 11,000 grams (24 lbs) Pu238 total ~265m<sup>3</sup>, 180,000 curies
- Impure Pu238 oxide (~1.2kg) Included

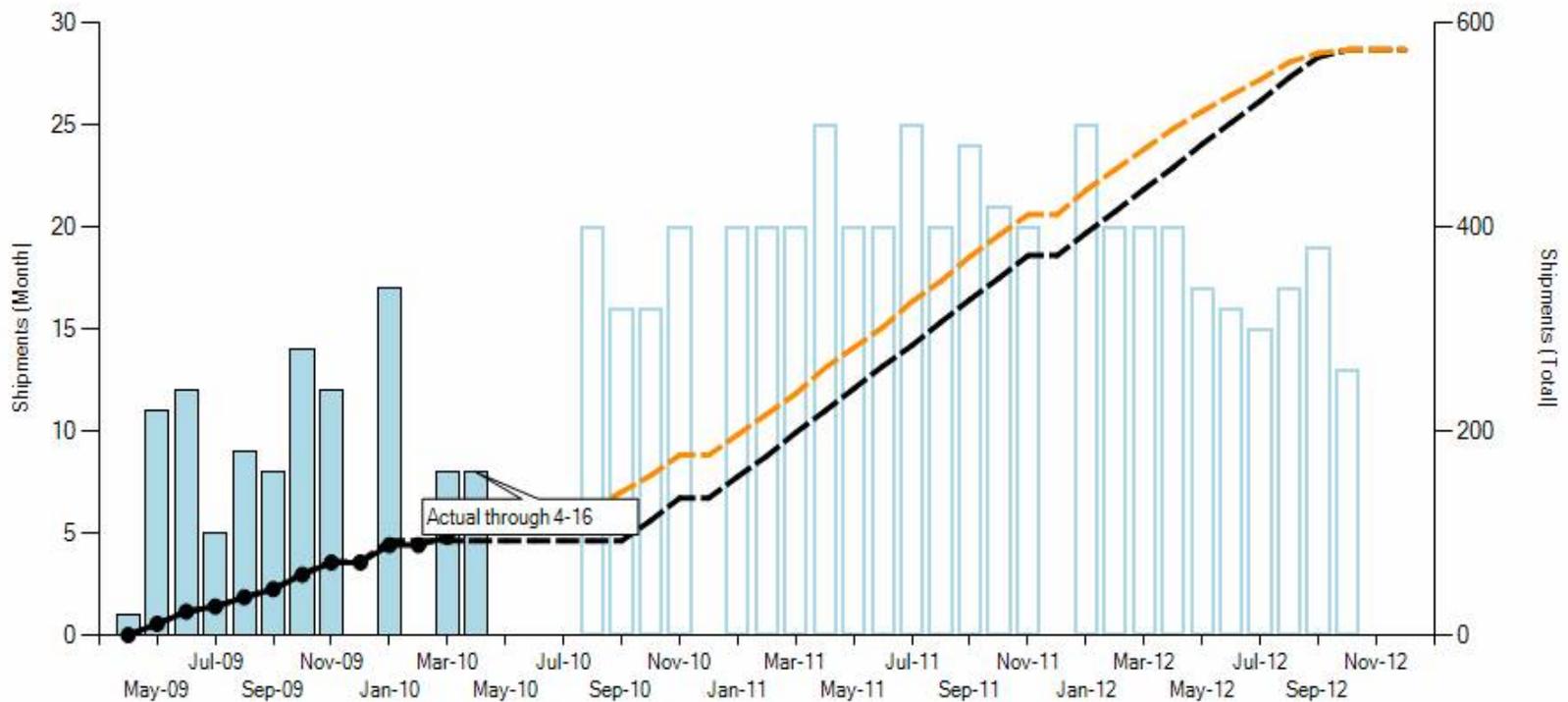
# Overall TRU Waste Volume Disposed

**Total Legacy TRU Program Waste Disposition**  
**TRU Waste**  
 Through April 19, 2010



# WIPP Shipments

## SRS ARRA Legacy TRU Program Shipping TRU Waste Through April 19, 2010



# WIPP Shipping Casks

TRUPACT-II

72-B



TRUPACT-III  
Drop Test

TRUPACT-III  
Under NRC Review



# ARRA – Ongoing/Enhanced Safety Focus

## ❖ **Mandatory Safety Training**

- General Employee Training
- Safety Culture Orientation
- Hazards Recognition

## ❖ **Additional Project/Facility Requirements**

- Rad Worker Training
- Facility Orientation Training
- Procedures Training
- Mockup Training
- Safety Basis Requirements Training
- Local Safety Improvement Teams
- BBS Program

## ❖ **Conduct of Operations Enhancement**

- Mentor Program
- HPI Tools
- Daily Hot Wash
- Housekeeping Routine



## ✓ **ISMS**

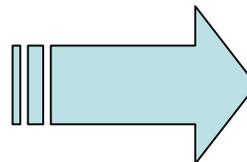
### ✓ **Management Field Presence**

### ✓ **ESH&Q Functional Support**

### ✓ **Independent Oversight**

### ✓ **External Safety Assessment**

### ✓ **Safety Improvement Actions**

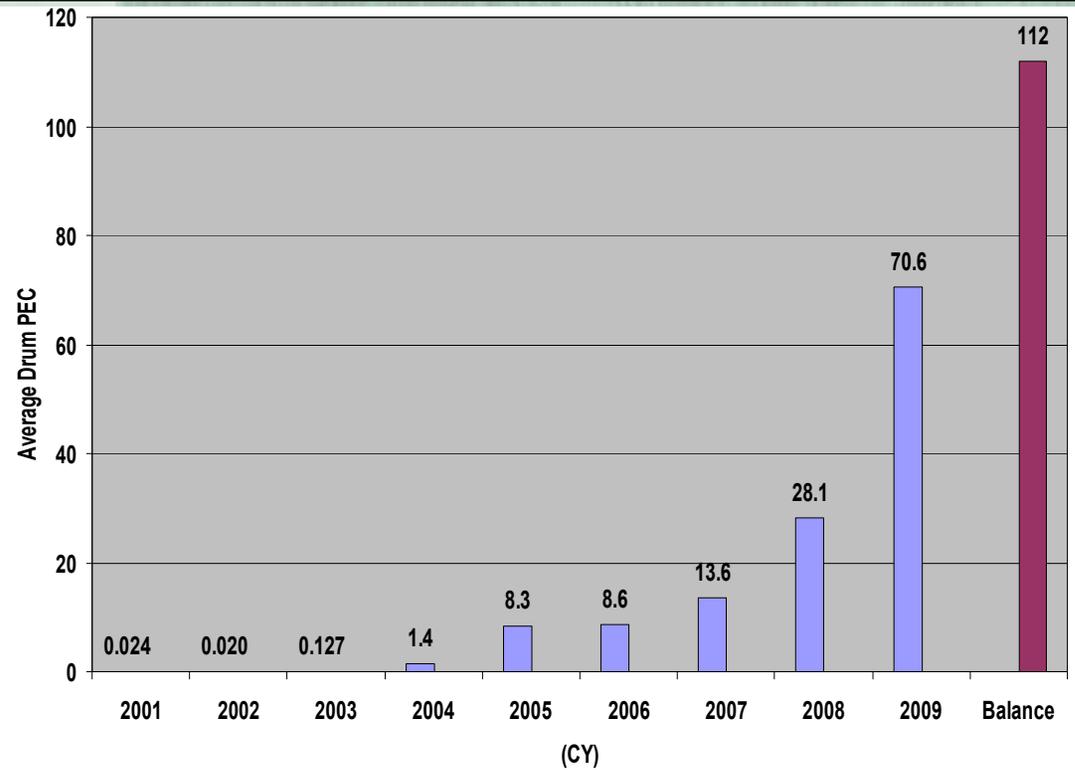


**INCIDENTS**

# High PEC and Pu-238 Challenges

## Total PEC

- Disposed 145,500 PEC
- Remaining 375,100 PEC
  - 63% Pu238
  - 31% Pu239
  - 6% misc.

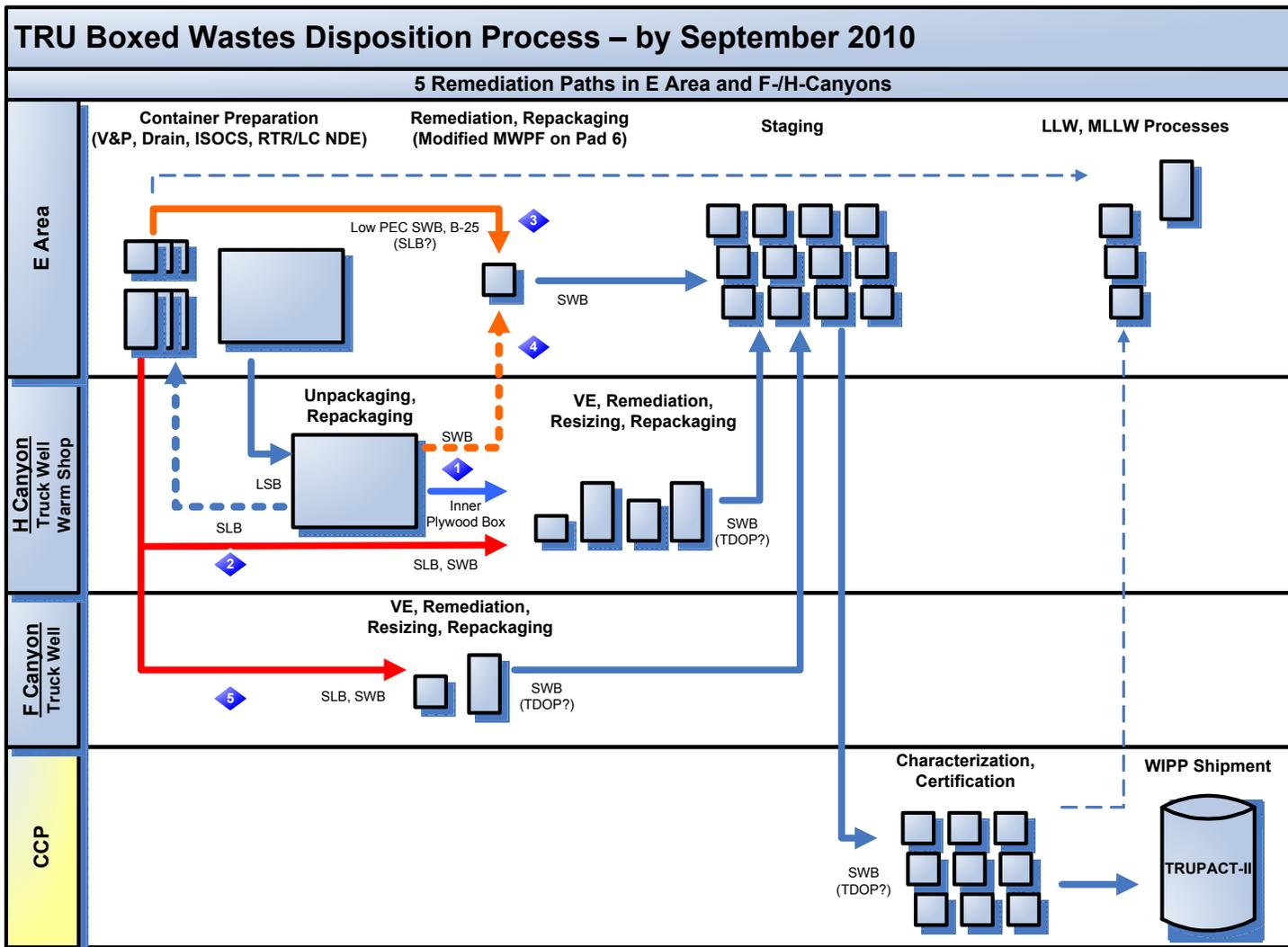


# Large Boxed Waste Challenges

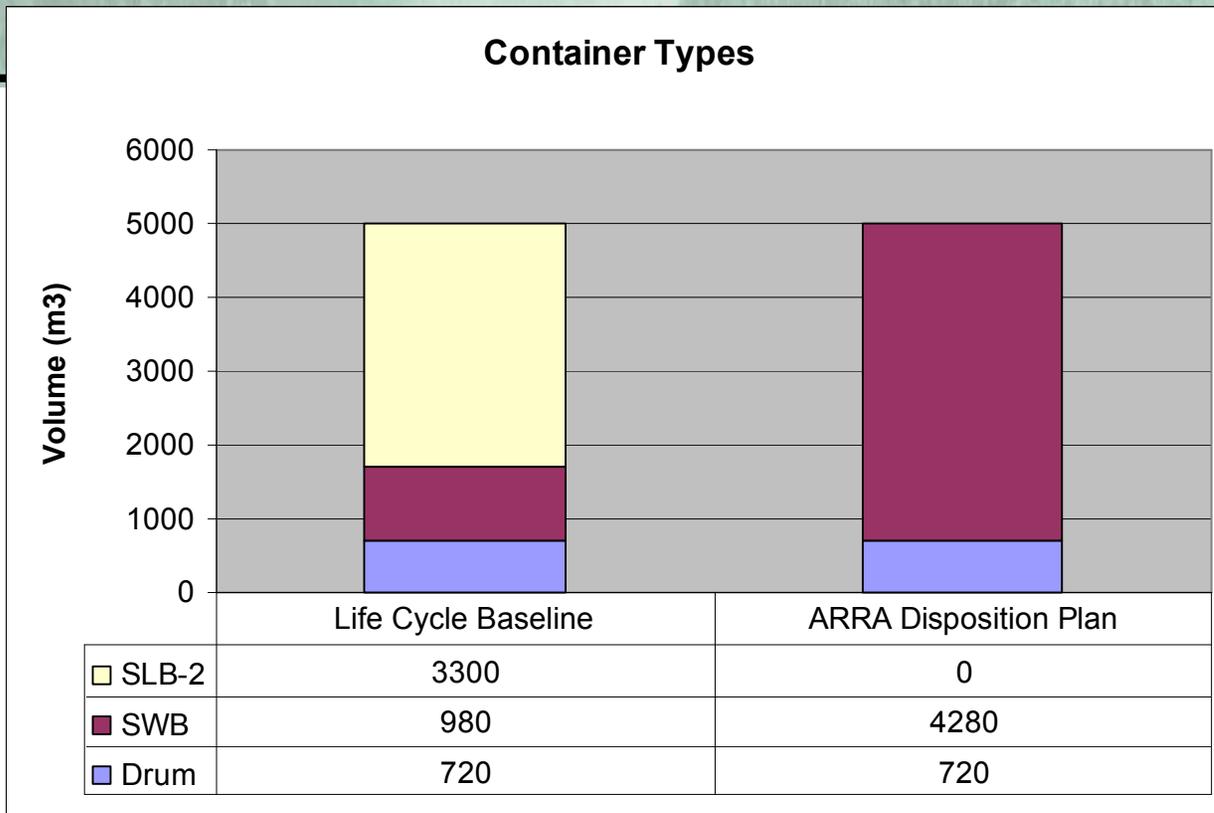


Boxed TRU Waste on Pad 26

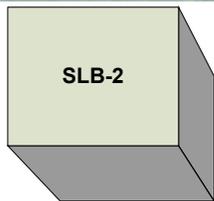
# Box Repackaging/Remediation Challenges



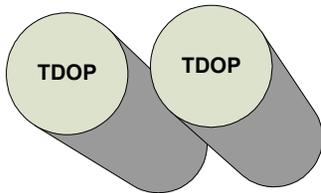
# Size Reduction Change



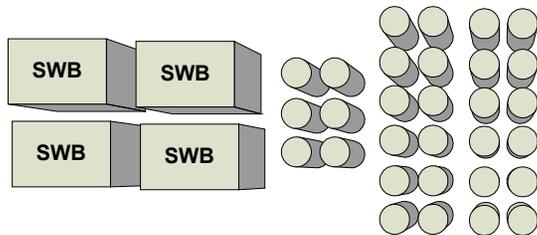
# Aggressive Size Reduction Challenges



1 SLB-2,



2 TDOPs,



4 SWBs, or 30 Drums

- More Hands-On Work
- Longer Processing Time
- Increase in Overall Worker Exposure Dose
- Increase Probability of Contamination Event

# 200 m<sup>3</sup> of Very Difficult Waste

- High Gamma Emitting Wastes – NDA issues
  - Concrete casks from SRNL
  - Silver Saddles from F- & H-Canyons
- High Curie Content Wastes – over WIPP and/or NC limits
  - Mound and Los Alamos wastes on Pad 1
- Highly Contaminated Wastes – up to 400 million dpm alpha
  - Stainless steel boxes from H-Canyon Hot Sample Aisle
  - MSM from 235-F
  - One-pack plywood boxes from HBL
- Waste with Integral Lead Shielding – NDA and NDE issues
  - Stainless steel boxes from H-Canyon Hot Sample Aisle
- Oversized RH Debris – size reduction needed

# 200 m<sup>3</sup> Very Difficult Waste Challenges

- RH-TRU Repackaging Process
- RH-TRU Size Reduction and Repackaging Process
- Special Container Grouting Process
- Waste Solidification Process
- High FGE/PEC Container Handling Process
- Secure Sorting and Segregation Process
- *Other Special Characterization Tasks*

# Summary

- ❖ **Worker Safety Highest Priority**
- ❖ **30,000 Drum Inventory Complete**
- ❖ **Multiple Size Reduction/Remediation Facilities Needed to Complete the Remaining Legacy Inventory**
- ❖ **Significant Technical Challenges Remain**
- ❖ **Overall Project Still in Early Phase of Execution**
- ❖ **Progress to Date Is a Little Behind Plan**