



**U.S. DEPARTMENT OF
ENERGY**

Savannah River Site

Savannah River Site Citizens Advisory Board Waste Management Committee

Solid Waste Program Update TRU Waste and PUREX Disposition

Presentation By

Mike Simmons
Solid Waste Team Leader
U.S. Department of Energy
Savannah River Operations Office

Bert Crapse
TRU Waste Program Manager
U.S. Department of Energy
Savannah River Operations Office

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A M E R I C A N R E C O V E R Y A N D R E I N V E S T M E N T A C T



Acronyms

| | |
|--------------------|---------------------------------------------------------------|
| ARRA | American Resource and Recovery Act |
| CAB | Citizens Advisory Board |
| PUREX | Plutonium Uranium Extraction Process |
| DOE | Department of Energy |
| FY | Fiscal year |
| NDA | Non-Destructive Assay |
| NDE | Non-Destructive Examination |
| NRC | Nuclear Regulatory Commission |
| RCRA | Resource Conservation and Recovery Act |
| SCDHEC | South Carolina Department of Health and Environmental Control |
| SRS | Savannah River Site |
| SWB | Standard Waste Box |
| SLB | Standard Large Box |
| TRUPACT-III | Transuranic waste shipping container III |
| TRU | Transuranic |
| WIPP | Waste Isolation Pilot Plant |





Purpose

- Provide update as requested to CAB Recommendation #258
- Provide status of TRU Waste Disposition Project
- Provide status of PUREX Disposition





Agenda

1) TRU Waste Disposition Update

- Definition of TRU waste
- SRS Inventory
- FY 2009 TRU Waste Activities and Status
- TRU Waste Scope and Plans under ARRA Funding

2) PUREX Disposition Update





TRU Waste Definition

- Transuranic waste is radioactive waste containing more than 100 nanocuries of alpha-emitting transuranic isotopes per gram of waste, with half lives greater than 20 years
- SRS TRU waste is mainly debris type waste (i.e. construction debris, equipment, plastic suits, household waste products) that was generated in facilities that process/manage nuclear material at SRS





Legacy TRU Waste Inventory

- 2,100 55-gallon drums
- 4,000 cubic meters of boxed waste (approximately 1500 boxes)
- TRU Pad 1 Waste (1,000 containers)





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Typical Drums in Storage



TRU Pad 1





Typical Boxed TRU Waste





FY09 TRU Waste Activities

- Ship 2,200 drums to WIPP.
- Complete the Battelle-Columbus RH-TRU shipments
- Complete RCRA closure of TRU Pads 7-13.
- Complete WIPP certification of large box NDA and NDE systems.
- Initiate TRUPACT-II shipments of Standard Waste Box.
- Unearth and initiate culvert retrieval from TRU Pad 1.





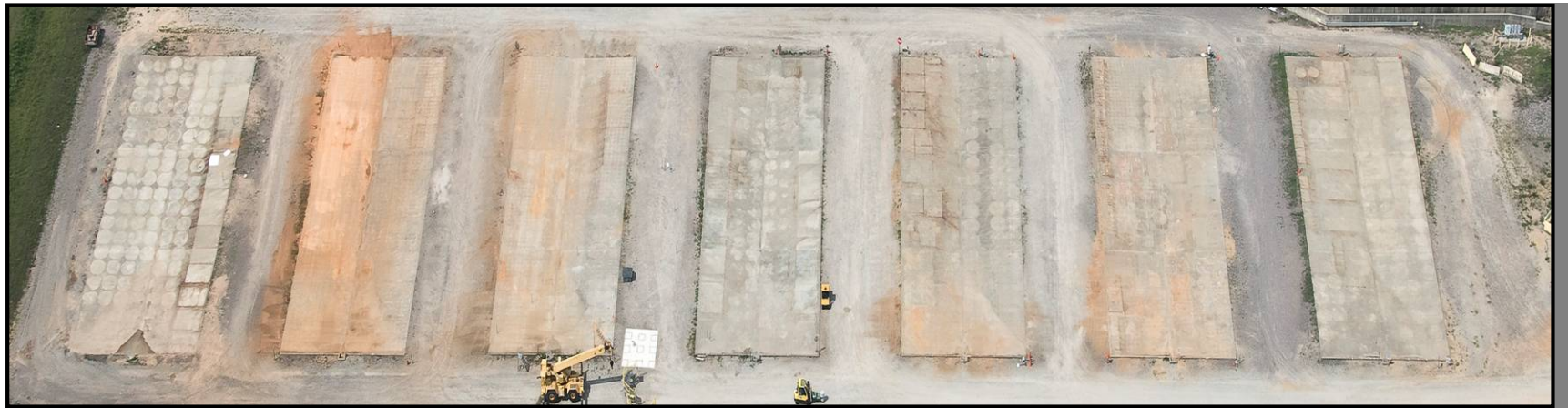
WIPP Shipments Update

- Making 3-5 shipments per week
- Shipped Approx. 1,600 drums to WIPP in FY09
- Completed 18 RH-TRU shipments in FY09
- 1000th WIPP Shipment June 2, 2009





SRS TRU Pads 7 – 13
September, 2006 700+ Containers



SRS TRU Pads 7 – 13
July 31, 2008 All Containers Removed





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Large Box Certification Equipment



Large Box NDA Unit

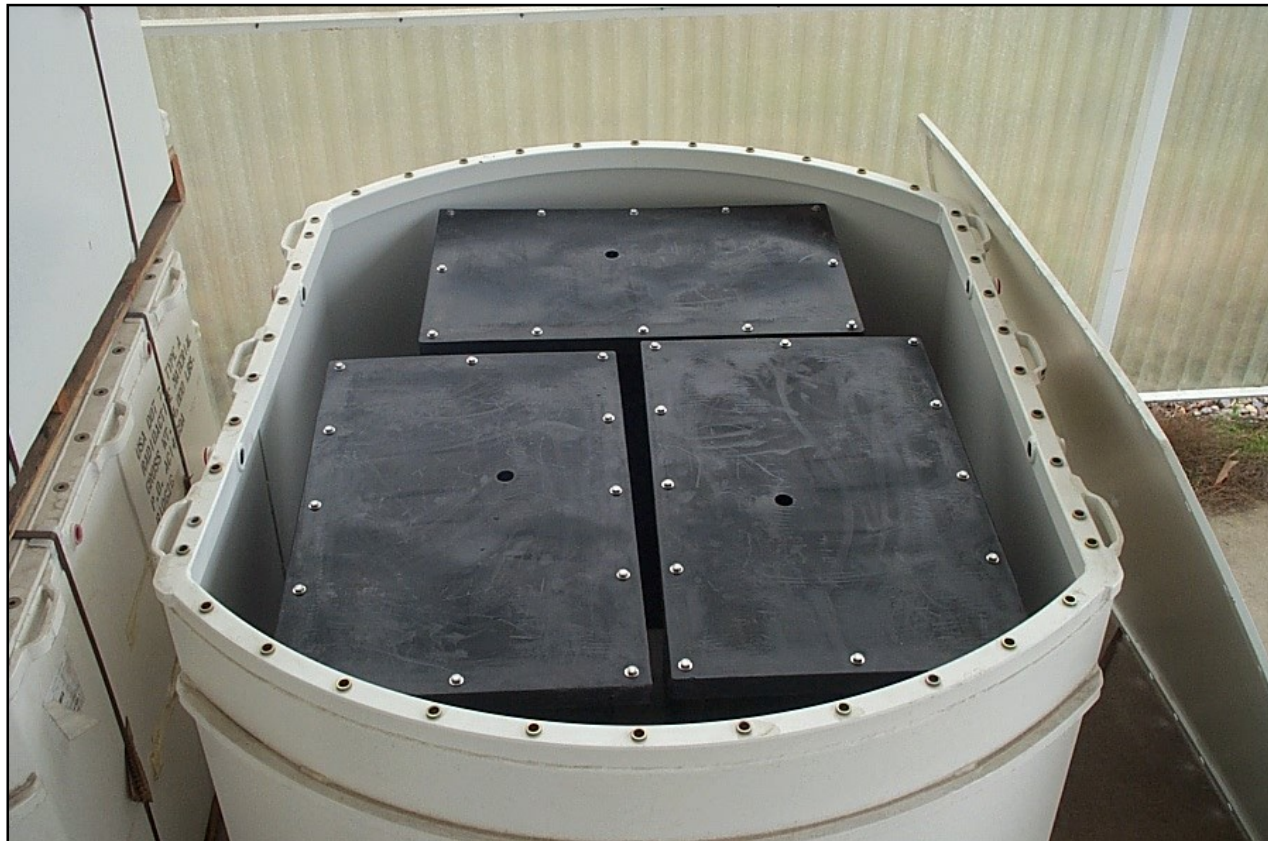


Large Box NDE Unit





Standard waste box (SWB) with poly boxes





TRU Pad 1



First Three Culverts
Removed From Pad 1





TRU ARRA Scope

Reduce the Solid Waste Footprint by 75%

- Consolidate hazardous waste storage areas to E-Area
- Disposition approximately 4,500 cubic meters of legacy TRU waste stored in E-Area which includes:
 - 1,500 miscellaneous boxed TRU waste containers
 - 1,000+ TRU waste containers stored under earthen cover (TRU Pad 1) containing over 250,000 curies of Plutonium 238





CAB Recommendation 258, June 2009

Progress Report

1. Ensure the SRS funding for FY 2009 is at a level that continues to address the highest risk reduction activities to complete the removal of all legacy TRU waste no later than FY 2013.
2. Provide a FY09 budget update to the CAB when it is known and assess the plans for disposition alternatives for all SRS legacy TRU waste with the goal of disposition of all waste by 2013.
3. The CAB requests that DOE-SRS provide an update to the Committee and the Board on the status of TRU Pad 1 disposition scope and schedule.
4. Provide assurances that efforts are in place to step up obtaining the NRC license for the TRUPACT-III; invite the NRC to brief the CAB on obtaining the necessary license; and inform the CAB about what it can do to assist in resolving technical issues with TRUPACT-III to ensure meeting the 2013 end date.
5. Define completion date of WIPP certification of large box NDA and NDE systems and invite Carlsbad (WIPP) to discuss and outline steps with the CAB Waste Management Committee and Board and the appropriate regulatory parties to resolve technical issues with large box NDE to ensure meeting the 2013 end date.





Project Funding and Risks

| Appropriation | FY 2008 | FY 2009 | FY 2010 |
|-------------------|---------|---------------------|---------|
| PBS 13 | \$73M | \$62M (pre ARRA) | TBD |
| Line Item Project | 0 | 0 | 0 |
| Capital Project | 0 | 0 | 0 |
| | | | |

| | |
|-------|---------------------------------------------------------------------------------------------------------------|
| Risks | Hiring of key personnel, NRC license of TRUPACT -III, and durability of large box NDE and NDE equipment |
|-------|---------------------------------------------------------------------------------------------------------------|





TRU Waste Disposition Summary

- Complete drum disposition in FY 2009
- Large box TRU waste disposition under way
- TRU Pad 1 waste disposition under way
- ARRA Funding available to support completion of legacy TRU waste disposition
- Technical Risk still remain for large box TRU waste disposition and TRU Pad 1 waste disposition





PUREX History

- Disposition path for PUREX waste was thermal treatment at the Consolidated Incineration facility (CIF).
- CIF suspended operation in 2000; alternative treatment needed for PUREX waste.
- CIF Focus Group and Savannah River Site pursued optional alternatives.
- Systems Engineering evaluation identified alternative treatments to CIF for both aqueous and organic PUREX.





PUREX Waste Treatments

- Legacy Aqueous PUREX
 - Effluent Treatment Facility (ETF)
 - **Completed March 2004**
- Legacy Organic PUREX
 - Commercial solidification/macroencapsulation
 - **Completed January 2009**
- F-Canyon PUREX Waste
 - Commercial solidification
 - **Completed April 2007**





PUREX Waste Disposal

- Nevada protested PUREX disposal at the Nevada Test Site (NTS) in December 2008 letter to Secretary of Energy
- Treated legacy organic PUREX waste is in interim storage at SRS N-Area RCRA permitted facility.



PUREX in N-Area Storage





PUREX Waste Disposal (continued)

- April 2009 EM received letter from Nevada agreeing to resumption of shipments to NTS.
- SRS initiated shipments to NTS for disposal on July 9, 2009, at 2 per week.
- PUREX disposition will permit de-inventory of N-Area hazardous/mixed low-level waste facility in support of the SR Recovery Act footprint reduction initiative.





PUREX Summary

- All PUREX solvent waste has been successfully treated.
- Remaining PUREX waste to be shipped to NTS by September, completing disposition of all PUREX waste currently in inventory.





Summary and Path Forward

Status:

- Sufficient funding appears available to complete TRU disposition by 2013
- Significant staffing increase has begun
- Detail schedules and baseline being developed

Near Term Challenges:

- Developing plans and obtaining personnel to implement tasks within ARRA window
- Resolving technical challenges with TRUPACT-III license and WIPP large box certification program

