



U.S. DEPARTMENT OF
ENERGY

*Presentation to the Savannah River Site
Citizens Advisory Board*

**Status of Depleted Uranium
Shipments**

November 17, 2009

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EM Environmental Management
safety ♦ performance ♦ cleanup ♦ closure

Acronyms

ARRA – American Reinvestment & Recovery Act

DOE – Department of Energy

DOT – Department of Transportation

DUO – Depleted Uranium Oxide

EM – DOE Office of Environmental Management

FATS – F-Area Temporary Storage

FY – Fiscal Year

IP – Industrial Package

LSA – Low Specific Activity

NATS – N-Area Temporary Storage

NRC – Nuclear Regulatory Commission

NTS – Nevada Test Site

NNSA – National Nuclear Security Administration

ORNL – Oak Ridge National Laboratory

RCRA – Resource Conservation and Recovery Act

SRS – Savannah River Site

WAC – Waste Acceptance Criteria



Purpose

DUO Disposition Project Status

- **Background**
- **Disposition paths**
- **Palletizing/loading operations**
- **Concerns of State of Utah**
- **ORNL shipments**
- **Summary**



Background

- The nuclear weapons program left SRS with large inventories of DUO
- Originally ~35,800 drums DUO packaged in 55-gallon, carbon steel drums, including several thousand overpacked in 85-gallon drums
- Funded through ARRA
- Four successful disposal campaigns between FY03 and early FY09
- Currently final campaign is under way to dispose of the last 15,606 55-gallon drums (so far ~100 of these are overpacked)



DUO Characteristics

- **DUO is low radiological hazard, DOT LSA 1**
- **Contains no RCRA constituents**
- **Heavy metal oxide health hazard**
- **Low level waste that meets WAC for both NTS and the Energy Solutions low level waste disposal facility in Clive, UT**



Previous DUO Disposition Campaigns



Campaign 1 – 3,270 55-gal drums to UT FY03
Open-top gondola cars w/ "Superload" wrappers as container



Campaign 3 – 5,408
55-gal drums to UT
FY09, DOE-owned
lidded gondola cars
as IP-1 container



Campaign 2 – 7,296
85-gal overpacked
IP-2 drums to UT
FY04-06, boxcars



Campaign 4 – 4,015 55-gal
drums to NTS FY08-09 w/
modified cargo containers



DUO Disposition Paths

- **Shipment by rail to Clive, UT for disposal (primary)**
- **Shipment by truck to NTS for disposal (alternate)**
- **Shipment by truck to ORNL for reuse**



Rail shipments to Clive, UT

- **F-Area inventory of 9,140 drums**
 - **8,334 drums will ship by rail to Clive, UT for disposal**
 - **5,408 drums will ship in first train expected to leave SRS in December 2009**
 - **Remaining 2,926 drums will ship in second train**
- **N-Area inventory of 6,466 drums**
 - **2,482 drums will complete second train**
 - **Remaining 3,984 drums will ship in third train**
 - **Shipments are planned to be complete by late spring 2010**



F-Area Layout



Drum Variations & Overpacking



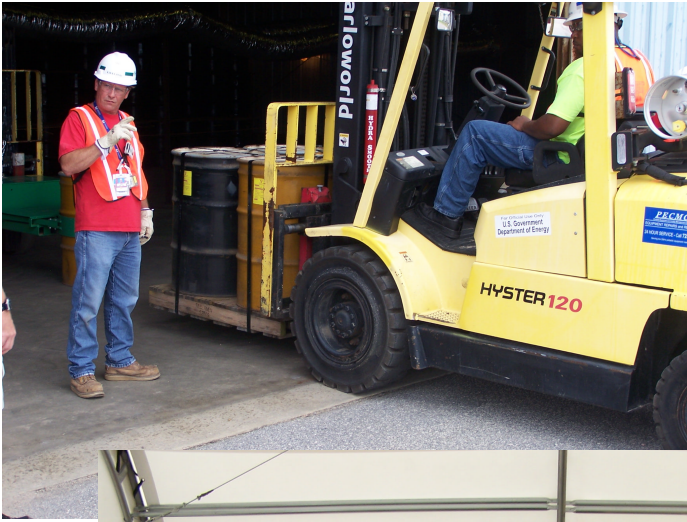
F-Area Palletizing



F-Area Temporary Storage Fabrication



First Drums into FATS



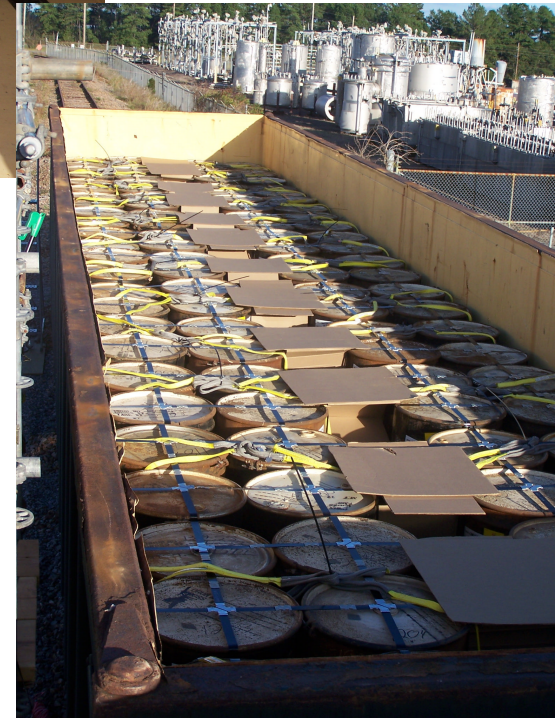
Prepare Railcar



Lifting Pallets



Loading Railcar



N-Area Preparations



**N-Area Temporary Storage
under construction**



N-Area storage facility



Reuse by ORNL

- **806 drums needed by ORNL for the U-233 Blend Down Project**
- **One of these drums shipped in September 2009 as a sample**
- **805 will be shipped in IP-1 20-foot cargo containers by truck**
- **35 trucks**
- **Will be completed after last train leaves SRS**



Concerns Raised in the State of Utah

- Letter from State of Utah Congressman to Secretary of Energy dated September 16, 2009 requesting temporary suspension of SRS DUO shipments
- Concerns raised about disposal of large amounts of DU due to long term (U-238) decay over time with radon in-growth
- Under current regulations (10 CFR 61.55), DU is a Class A low level waste, but NRC rulemaking has begun to address concerns with disposal of significant quantities of DU
- Clive, UT facility is licensed for Class A wastes
- SRS DUO meets NRC definition of “Class A” low level waste and the Clive, UT, facility’s WAC
- New conditions to the Clive, UT license are currently out for public review and comment
- In October 2009, the Utah Radiation Control Board decided to add a license condition to the Clive, UT facility that would prevent the Clive, UT facility from disposing of DU until a new performance assessment is complete and approved



Alternate Disposition Path to NTS

- **If shipments are interrupted to Clive, UT, shipments will be diverted to NTS using modified cargo containers similar to DUO shipments from R-Reactor from FY08/09**
- **Cost would increase up to 35%**
- **Schedule would increase by at least 12 months**
- **144 railcars vs. 640 trucks**



Summary

- **Four successful previous DUO campaigns**
- **One final campaign of 15,606 drums will complete disposition of DUO from SRS**
- **Shipping most of inventory for disposal by rail to Clive, UT**
- **Shipping small quantity by truck for reuse to ORNL**
- **Concerns from State of Utah may delay disposition and increase cost**
- **SRS will continue to ensure safe and compliant packaging, transportation, and disposition of DUO**
- **We will keep the CAB advised of changes to the DUO Disposition Project**

