



U.S. DEPARTMENT OF
ENERGY

Solid Waste Management

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Savannah River Site Information Pods

Aiken Technical College, Center for Energy and Advanced Manufacturing
October 28, 2015

SRS E Area Solid Waste Management Facility

- Located in central region of SRS
- Waste Types Managed
 - Sanitary Waste
 - *Collected / transported to sanitary landfill*
 - Low Level Waste (LLW)
 - *Majority of LLW is disposed onsite in various disposal units*
 - *Disposal unit and method dependent on curie content and waste form*
 - Transuranic (TRU), hazardous and mixed wastes
 - *Stored on site only*
 - *Commercial vendors primarily used for hazardous waste and mixed waste treatment and disposal*
 - *TRU waste disposed at Waste Isolation Pilot Plant in New Mexico*

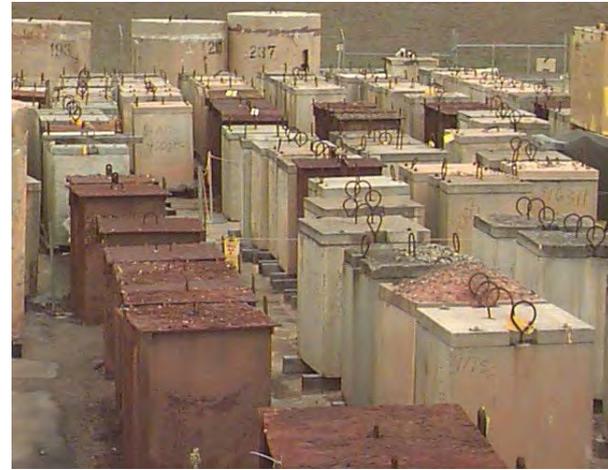


A Brief History of Legacy TRU at SRS

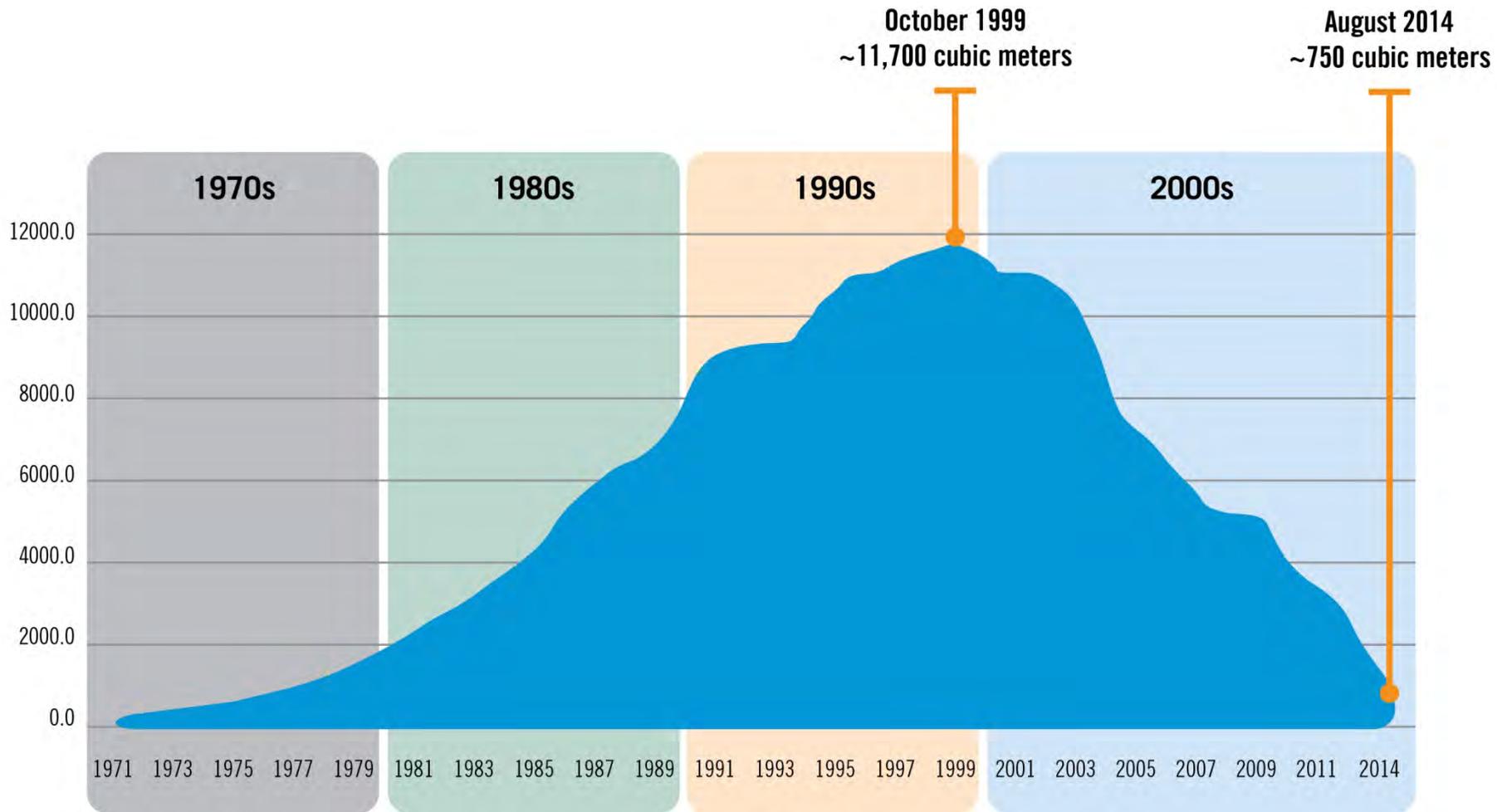
- From the early 1970s to April 2009, 13,750 cubic meters of TRU waste were generated
- Retrieval operations started in 1995
- Much of the waste required remediation and repackaging
- First shipment to Waste Isolation Pilot Plant occurred in May 2001
- Over 1,650 shipments made to date
- An estimate of 120 more shipments will complete legacy program
- About 30 percent of original waste volume stored was characterized as low-level waste for disposal



Legacy TRU Storage Over the Years



TRU Waste Stored Volume *(cubic meters)*



TRU Handling, Repacking and Preparation

To prepare legacy waste to be shipped to the Waste Isolation Pilot Plant, the waste was:

- 1 Removed from its container
- 2 Sorted
- 3 Repacked
- 4 Loaded into shipping containers, such as TRUPACT-II, TRUPACT-III or 72-B containers



Transporting TRU Waste



- Highly-regulated process (safety, health, emergency preparedness, transportation)
- Numerous federal and state government agencies involved
- Requires coordination of Department of Energy sites across the U.S.

Summary

- After almost 20 years, all of the legacy TRU waste at SRS has been remediated, packaged, and characterized for disposal.
- TRU waste generated by ongoing operations is safely and compliantly packaged to ensure certification and disposal at WIPP.

■
TRU Pads 7-13
September 2005



■
TRU Pads 7-13
August 2008





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Waste Management - Liquid Waste

Matt Bodine

DWPF/Saltstone Facility Engineering



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Liquid Waste Overview

- The U.S. Department of Energy awarded Savannah River Remediation the six-year base contract, plus two year option, for high level waste clean-up
- Contract began July 1, 2009; Extended by DOE until June 30, 2017
- Currently about 2,100 employees

Environment and Public Safety

- Protect the environment
- 36 million gallons of high level waste
- 43 underground tanks



Waste Disposition

- Support U.S. government's nuclear nonproliferation agenda = H Canyon
- Remove waste from tanks and stabilize into glass and grout



Clean Up

- Clean the empty tanks
- Operationally close tanks
- One tank grouted and closed in September
- One tank being prepared for grout
- Seven tanks closed total



A Focus on Safety



Industrial Safety



Radiological Safety



Environmental Safety



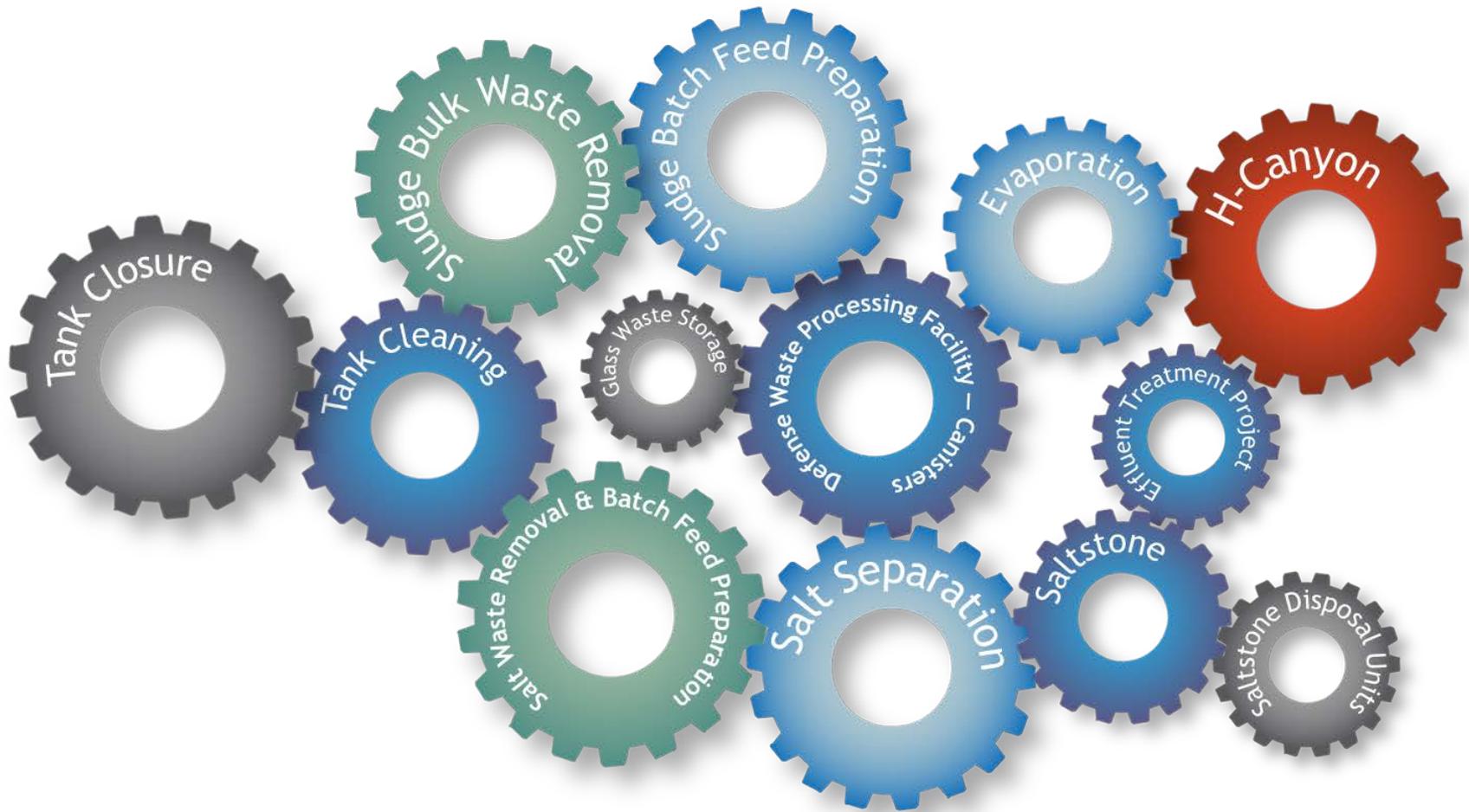
Chemical Safety

Safety: Perspective/Awards

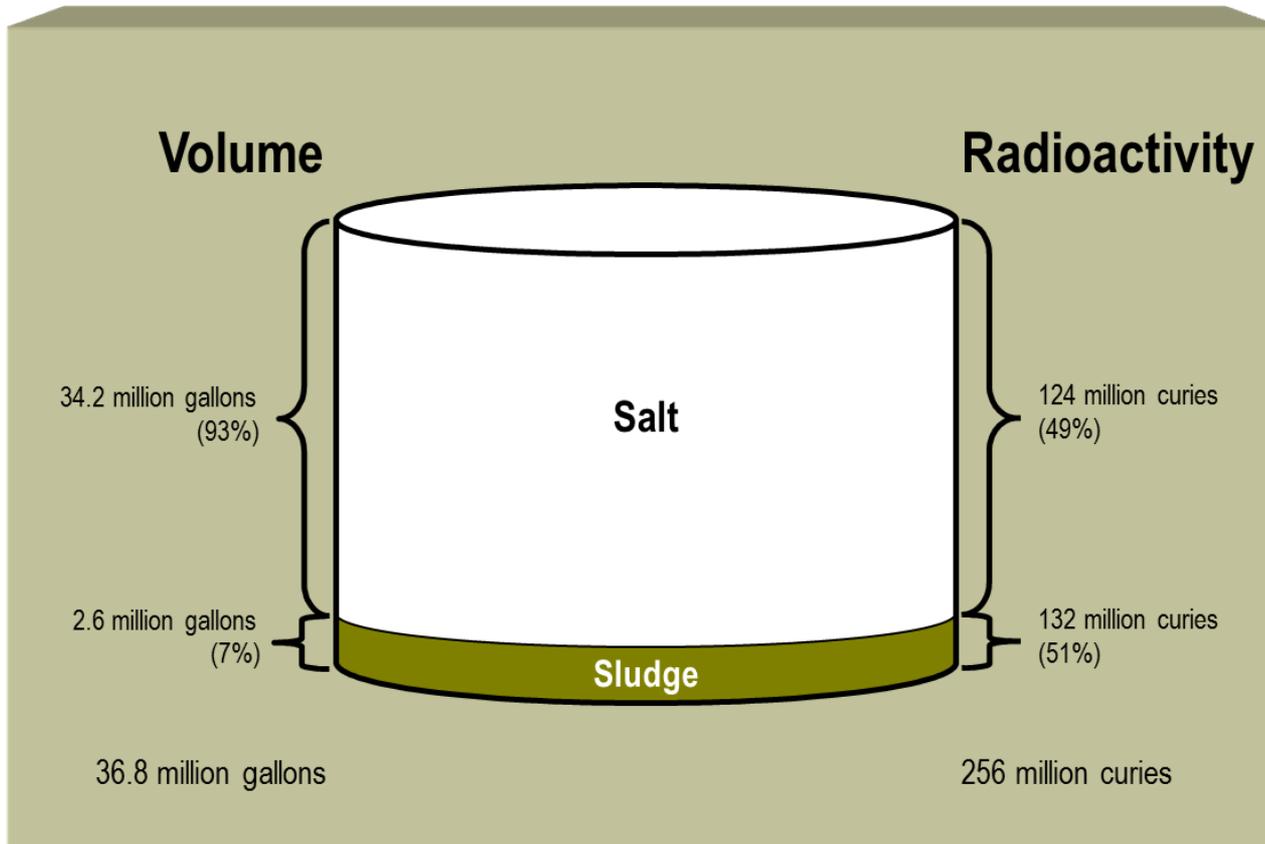
- Construction forces (legacy and current) accumulated over 27 million safe hours
- Recipient of National and State Awards in recognition of safety performance (National Safety Council Industry Leader, Occupational Excellence Achievement and Million Hour Awards; S.C. Chamber of Commerce and S.C. Department of Labor, Licensing and Regulation Awards)
- Reached contract-high 9.8 million safe hours in operations in 2015.



An Integrated System

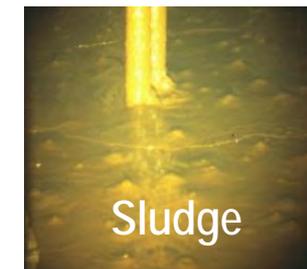
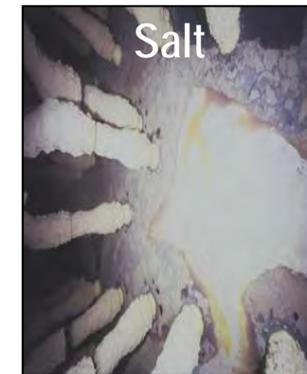


Where it Starts: Waste in the Tanks



Inventory values as of 2015-03-31

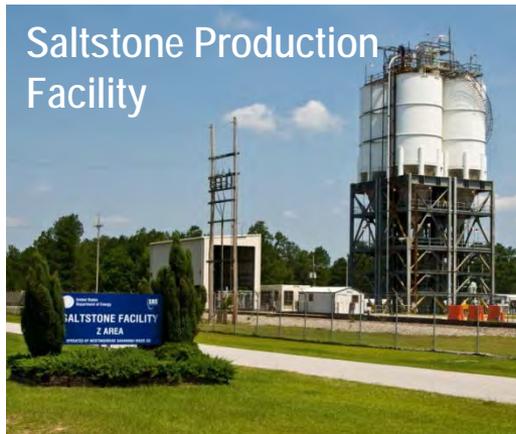
“The high-level waste at the Savannah River Site represents the single largest environmental risk in South Carolina.” – S.C. Department of Health and Environmental Control



Liquid Waste Facilities



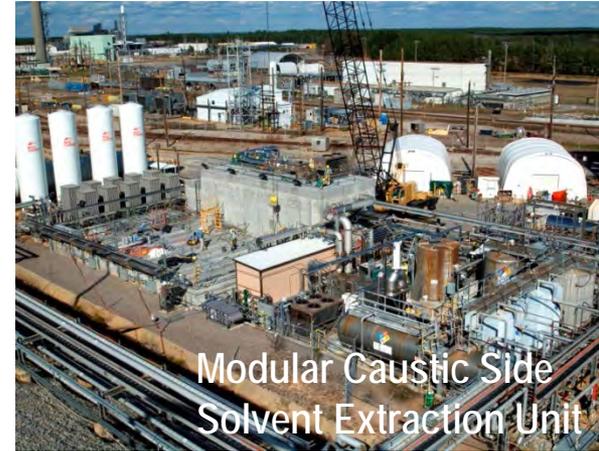
Actinide Removal Process



Saltstone Production Facility



Waste Tanks



Modular Caustic Side Solvent Extraction Unit



Defense Waste Processing Facility

Salt Processing

- Saltstone Disposal Unit (SDU)
SDU 3 and 5 currently being filled with a grouted decontaminated salt solution
- SDU 6 primary construction complete
 - 30 million gallon capacity
 - 6 more mega units planned



Record Production Last Year

Defense Waste
Processing Facility



- DWPF: 93 canisters produced in FY 15
- ARP/MCU: 752,000 gallons processed
- Saltstone: 1.5M gallons of grout put into Saltstone Disposal Units

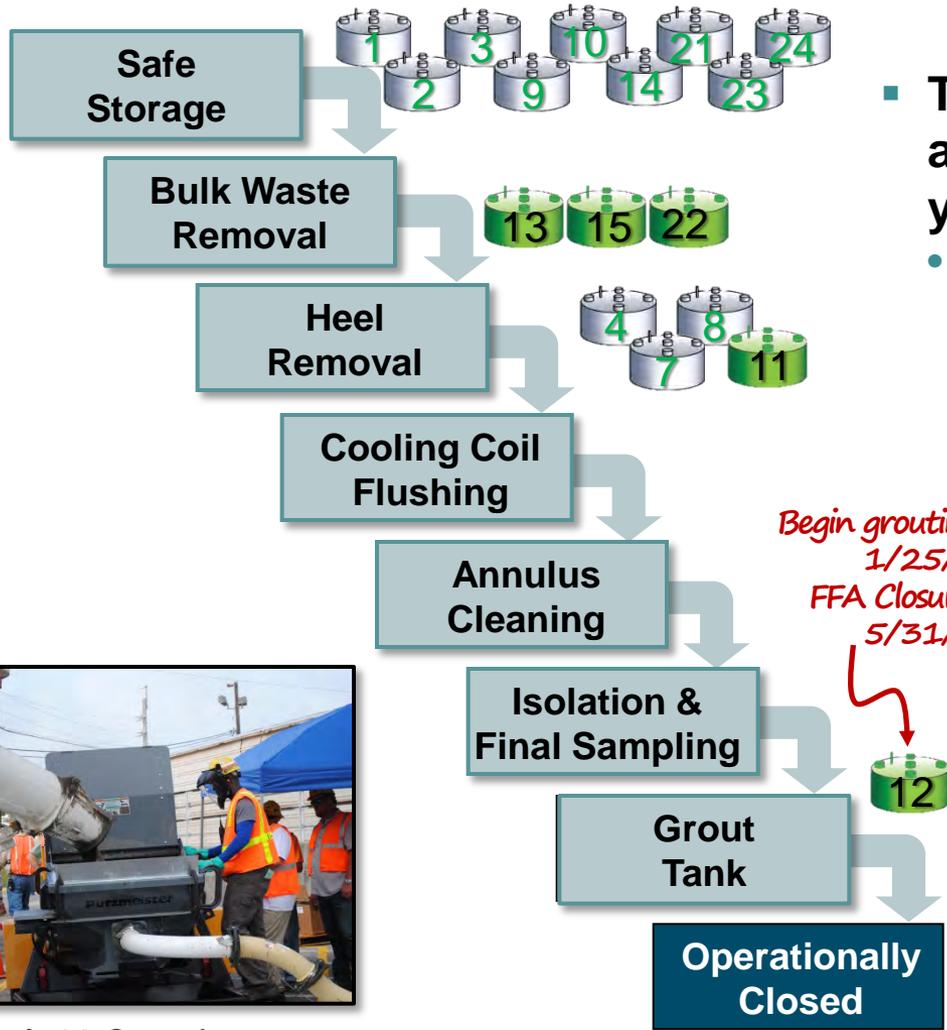
Saltstone Facility



Actinide Removal Process (ARP)
& Modular Caustic Side Solvent Extraction Unit (MCU)



Tank Closure



- Tank Closures continue at a pace unheard of six years ago
 - Five tank closures completed during the past 6 years; 7 total at SRS, all old-style tanks



Tank 16 Grouting

Tank Closure



Conclusion

- We continue to perform safely
 - Focus on safety has been excellent
- Sharing our technology and our people across the DOE Complex for cost-savings
- Operations are proceeding as planned, and progress is being made
- Waste treatment and tank closure work reduces the risk for all of us

