



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**

# Environmental Management Cleanup Program Performance Measures Update

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**Strategic & Legacy Management Committee**

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# Purpose

- Fulfill a Strategic & Legacy Management (S&LM) Committee Work Plan requirement to periodically provide Environmental Management (EM) performance updates.
- Provide an update to EM performance measures for Fiscal Year 2014 (ending Sept. 30).

**Note:** This update will not include target levels for FY 2015 and beyond as EM Budget & Funding has not been finalized.

# Acronyms

ARP	Actinide Removal Process
D&D	Deactivation & Decommission
DWPF	Defense Waste Processing Facility
HEU	Highly Enriched Uranium
LLW	Low Level Waste
MCU	Modular Caustic Side Solvent Unit
MLLW	Mixed Low level Waste
Pu	Plutonium
SNF	Spent Nuclear Fuel
SRE	Sodium Reactor Experiment
SWPF	Salt Waste Processing Facility
TRU	Transuranic Waste
WIPP	Waste Isolation Pilot Plant

# SRS Cleanup Program - Background

- **The EM Cleanup Program for the SRS started in the 1990's.**
  - Current Lifecycle Estimate (scope, cost, schedule) indicates EM cleanup completion by 2042.
- **Performance Measures have been developed to track progress towards end state targets.**



# SRS Cleanup Program – Major Areas

**Radioactive  
Liquid  
Waste**

**Insoluble  
Waste  
(Sludge)**

**Soluble  
Waste  
(Salt)**

**Tank  
Closures**

**Solid  
Waste**

**Transuranic  
(TRU)  
Waste**

**Mixed & Low  
Level Waste**

**Nuclear  
Materials**

**Nuclear  
Materials  
Disposition**

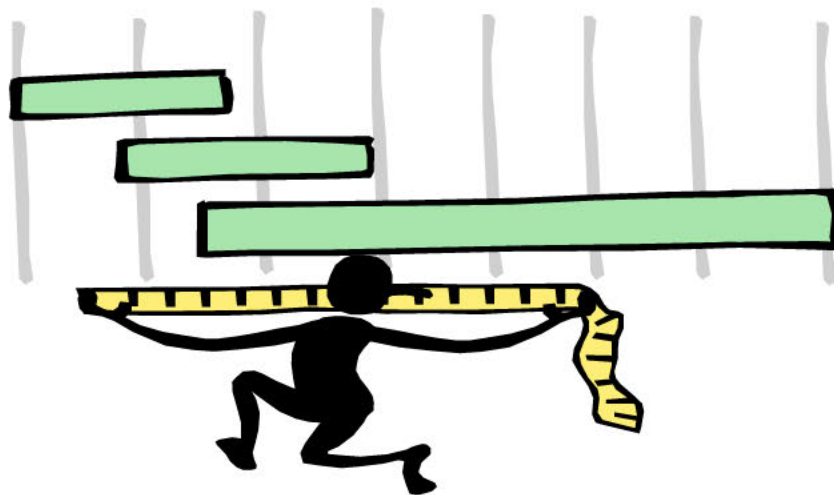
**Spent Nuclear Fuel  
Receipt, Storage  
& Disposition**

**Soil,  
Water  
& Facilities**

**Waste Site  
Remediation**

**Facilities  
Deactivation &  
Decommission**

**“How did we do in FY 2014 ?”**



**Answer: Continued progress under  
funding & weather constraints**

- **Government Shutdown October 2013 (beginning of FY14)**
  - Temporary Funding Authorization Constraints
  - Temporary SRS Furloughs
- **FY14 Continuing Resolution**
  - Beginning of year delays in authorization
  - Budget constraints
- **Polar Vortex**
  - Freezing Temperatures
  - Steam Outage and Equipment Damages
- **Ice Storm**
  - Site Closing and Equipment Damages
- **Temporary closing of WIPP**
  - Delay of planned TRU shipments

# Highlights of FY 2014 SRS Cleanup Program

- Vitrified 126 Canisters of Radioactive Waste
- Completed operational closure of two Liquid Waste Tanks (Tanks 5 and 6)
- All Legacy Transuranic Waste (TRU) Remediated and WIPP characterization completed
- 405 cubic meters of legacy Transuranic Waste (TRU) disposed at WIPP
- Spent Nuclear Fuel: Completed dissolution of the Sodium Reactor Experiment (SRE) Campaign and began dissolution of Foreign & Domestic Research Reactor fuel for uranium recovery
- Prepared Plutonium for MOX Plutonium Production; HB-Line began oxide production
- Continued receipt, safe storage and shipment of Nuclear Materials (including UNF)
- Operated and maintained 39 remedial systems and completed sampling and analysis on more than 2,300 groundwater monitoring wells
- Began field activities at the D Area Ash Project



# Liquid Waste: Vitrification Process

## Canister Production



Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY14	End State*	% Complete	Est. Year Complete*
Vitrify Insoluble Waste (Sludge)	Canisters Produced	125	126	3,877	7,580	51	2028

\* Based on System Plan Rev 17

# Liquid Waste: Saltstone Processing

## Saltstone Production Facility



## Saltstone Disposal Unit (SDU2)



Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY14	End State *	% Complete	Est. Year Complete*
Process Salt Solution	K Gallons Processed	1,200	1,167	9,891	124,657	8%	2028

\* Based on System Plan Rev 17



# Liquid Waste: Tank Closure

## Grouting of Tanks 5 & 6 (Tanks operationally closed in Fiscal Year 2014)



Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY14	End State*	% Complete	Est. Year Complete*
Close Tanks: Old Style	Tanks Closed	2	2	6	24	25%	2022
Close Tanks: New Style	Tanks Closed	0	0	0	27	0	2028

\* Based on System Plan Rev 17

# Solid Waste Disposal: Transuranic Waste

## Transuranic Waste (TRU) Shipment to WIPP



## Last Legacy TRU Container Remediated



Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY14	End State	% Complete	Est. Year Complete
TRU- Legacy (in storage prior 2009)	Cubic Meters	716	405	11,063	11,600	95%	2017
TRU- Newly Generated	Cubic Meters	118	24	139	3,980 (Est)	Ongoing	TBD



# Solid Waste Disposal: Mixed & Low Level Waste

## Mixed Waste Shipment to Utah



## Low Level Waste (LLW) New Trench - On Site

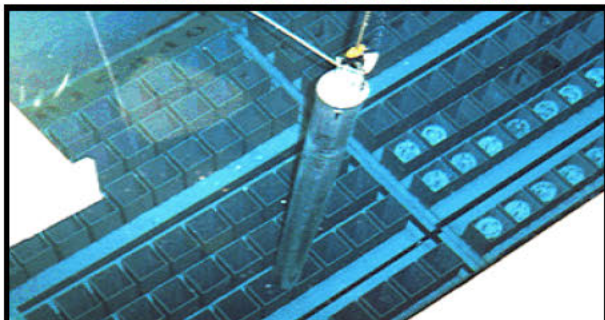


Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY14	End State	% Complete	Est. Year Complete
M&LL-Legacy (Prior to April 2008)	Cubic Meters	0	0	103,171	103,171	100%	2008
M&LL-Newly Generated	Cubic Meters	< 400*	Met	< 400	< 400	Ongoing	TBD

\* Accumulation of M&LL not to exceed 400 Cu Meters at anytime

# Spent Nuclear Fuel Receipt, Storage & Disposition

Spent Nuclear Fuel (SNF)  
Bundle stored in L- Basin



SNF being sent to H Canyon  
via 70 Ton Cask



Performance Measure	Unit of Measure	FY13	Target FY14	Actuals FY14	FY14	L-Basin Capacity	% Fill
L-Basin Inventory	Bundles Cores	3,165 120			3065 120	3650 120	84% 100%
Added: New Receipts	Bundles		N/A	6			
Removed: SRE & DRR&FRR	Bundles		105	106*			

\* Actuals include SNF from Sodium Reactor Experiment (SRE) campaign (95 bundles) and Domestic Research Reactor and Foreign Research Reactor fuel (11bundles)

# Nuclear Materials Disposition

## First SNF Bundle Charged to H-Canyon Dissolver in SRE Campaign



## Plutonium 3013 Type Container



Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY14	End State	% Complete	Est. Year Complete
HEU Dissolved (SNF from L-Basin)	Bundles Cores	105 0	106 0	158 0	1,147* 200*	13% 0%	TBD TBD
Plutonium Prepared for Disposition (All Paths)	Containers	10	10	167	5,600	3%	2031

\* Current approved number of bundles / cores to be dissolved in H canyon



## Field activities have begun at the D Area Ash Project



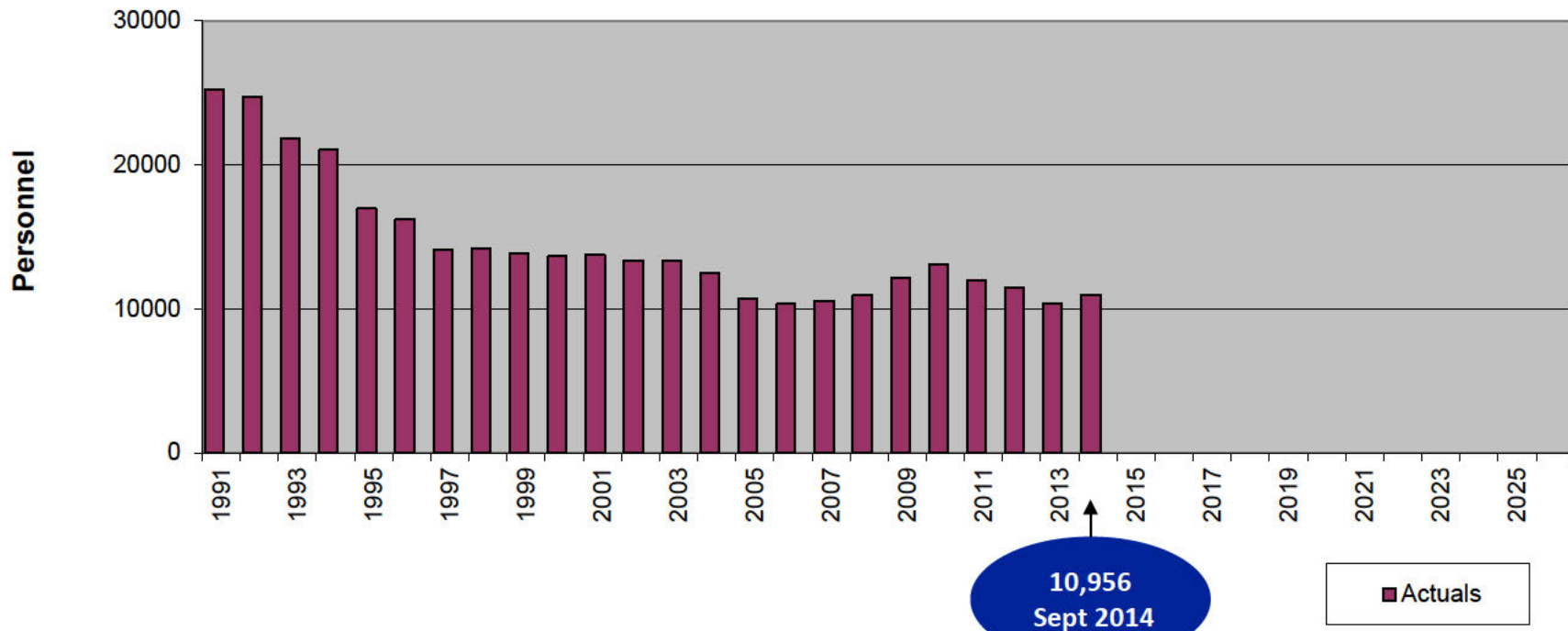
Performance Measure	Unit of Measure	Target FY14	Actuals FY14	Cum FY13	End State	% Complete	Est. Year Complete
Remediation of Waste Sites	Waste Site	0	0	399	515	77%	2042
Facilities D&D'd	Facilities	0	0	284	1,103	26%	2042



# SRS Cleanup Program: Performance Measures Summary

EM Site Cleanup- Major Categories	Unit of Measure	Fiscal Year		Cum Actuals	End State Quantity	% Complete	Est. Year to Complete
		Actuals (FYTD)	Annual Target				
<b>Liquid Waste</b>							
Vitrify Highly Radioactive Components	Canisters	126	125	3,877	7,580	51%	2028
Process Low Level Components (Saltstone)	k Gallons	1,167	1,200	9,891	124,657	8%	2028
Close Tanks - Old Style	Tanks	2	2	6	24	25%	2022
Close Tanks - Newer Style	Tanks	0	0	0	27	0%	2028
<b>Solid Waste</b>							
Transuranic Waste Disposed							
Legacy TRU (prior to 2009)	Cu Meters	405	716	11,063	11,600	95%	2017
Newly Generated TRU	Cu Meters	24	118	139	3,980	Ongoing	2042
Mixed & Low-Level Waste Disposed							
Legacy (prior to 2008)	Cu Meters	Complete	Complete	Complete	103,171	Complete	2008
<b>Nuclear Materials</b>							
Highly Enriched Uranium: Blend Down & Ship	Trailers	Complete	Complete	Complete	336	Complete	2012
Plutonium Preparation - All Paths	Containers	10	10	167	5,600	3%	2031
Spent Nuclear Fuel: Dissolve							
Sodium Reactor Experiment	Bundles	95	95	147	147	100%	2014
Foreign & Domestic Reactor Fuel	Bundles	11	10	11	1,000	1%	TBD
High Flux Isotope Reactor Fuel	Cores	0	0	0	200	0%	TBD
<b>Spent Nuclear Fuel Receipt &amp; Storage</b>							
Inventory in L-Basin	Bundles	(100)	NA	3,065	0	Ongoing	TBD
<b>Soil, Groundwater &amp; Facilities</b>							
Remediation of Waste Sites	Waste Sites	0	0	400	515	78%	2042
Facilities Deactivated & Decommissioned	Facilities	0	0	285	1,103	26%	2042

**Savannah River Site Workforce**



- DOE-SR will continue to track & monitor performance measures for the key operational areas of EM cleanup operations.
  - Performance Targets for FY15 & beyond will be shared with the CAB when available
- Suggestions from the CAB for any additional improvements are welcomed.