



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Environmental Management Cleanup Program Performance Measures for Fiscal Year 2016

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Strategic & Legacy Management Committee

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- Fulfill a Strategic & Legacy Management (S&LM) Committee Work Plan requirement to periodically provide Environmental Management (EM) performance updates.
 - Review Fiscal Year 2016 actual performance results

SRS Cleanup Program - Background

- The EM Cleanup Program for the SRS started in the 1990's.
- Performance Measures have been developed to track progress towards end state targets.

SRS Cleanup Program – Major Areas

**Radioactive
Liquid
Waste**

**Solid
Waste**

**Nuclear
Materials**

**Soil,
Water
& Facilities**

**Insoluble
Waste
(Sludge)**

**Transuranic
(TRU)
Waste**

**Nuclear
Materials
Disposition**

**Waste Site
Remediation**

**Soluble
Waste
(Salt)**

**Mixed & Low
Level Waste**

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

**Facilities
Deactivation &
Decommissioning**

**Tank
Closures**

“ How did we do in FY 2016 ? ”



Answer: Continued progress but with challenges

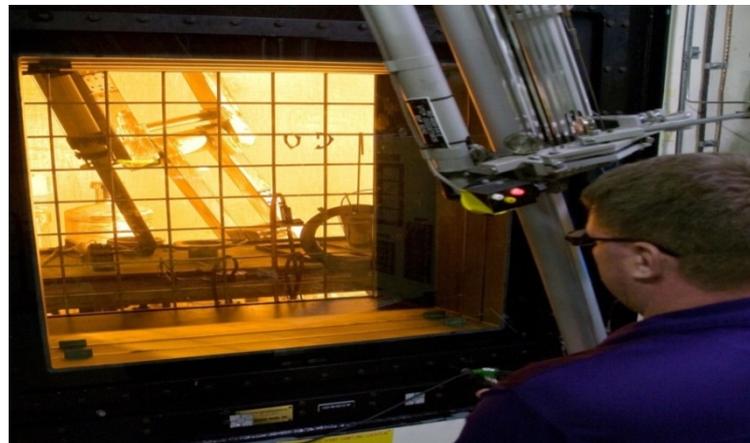
- **Temporary Closing of Waste Isolation Pilot Plant (WIPP)**
 - Delay of Transuranic Waste (TRU) shipments
- **Realized Evaporator failure risk**
 - 241-25H (3H) Evaporator Pot leak discovered
 - Impacted DWPF operations
- **Realized Tank Farm Infrastructure failure risk**
 - Evaporator 241-16H (2H) operations limited due to underground chromate cooling water and compressed air line failures
 - Impacted DWPF Recycle receipt capability but no impact to DWPF operations
- **Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (ARP/MCU) forced into an outage**
 - Failed Strip Effluent Decanter (SED) Aqueous Pump impacted FY17 processing goal

Highlights of FY 16 SRS Cleanup Program

- Vitrified 136 Canisters of Radioactive Liquid Waste
- Completed operational closure of one Liquid Waste Tank (Tank 12)
- Processed more than 1.1 million gallons of salt solution in ARP/MCU – second highest production year
- Continued recovery of uranium from dissolution of Foreign & Domestic Research Reactor fuel in H-Canyon
- Continued to prepare plutonium for disposition
- Continued receipt, safe storage and shipment of Nuclear Materials, including Spent Nuclear Fuel, and Modifications to H-Canyon for receipt of the Canadian Target Residue Materials
- Significant progress towards closure of the D Area Ash Basin
- Upgrades to Site Infrastructure (Roof Replacements & Lab Facilities)
- Met 100% of FY 2016 FAA & RCRA Regulatory Milestones

Liquid Waste: Vitrification Process

Canister Production



Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actual FY16	Cum To Date	End State*	% Compl.
Vitrify Insoluble Waste (Sludge)	Canisters Produced	93	150	136	4,106	8,170	50%

Note: Production was limited due to failure of the 241-25H Evaporator in order to provide uninterrupted MCU/SWPF Strip Effluent receipt capability

*Based On System Plan Rev 20

Liquid Waste: Saltstone Processing

Saltstone Production Facility



Saltstone Disposal Unit (SDU-6,SDU-3 &5)



Performance Measure	Unit of Measure	Actuals FY15	Target FY16	Actual FY16	Cum To Date	End State*	% Compl.
Process Salt Solution	K Gallons Processed	828	1,500	1,506	12,228	158,932	8%

* Based on System Plan Rev 20

Liquid Waste: Tank Closure

Grouting of Tank 12



Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actuals FY16	Cum To Date	End State	% Compl.
Close Tanks: Old Style	Tanks Closed	1	1	1	8	24	%
Close Tanks: New Style	Tanks Closed	0	0	0	0	27	0%

* Based on System Plan Rev 20

Solid Waste Disposal: Transuranic Waste

Transuranic Waste (TRU) Shipment to WIPP

Note: WIPP Shipments
Temporarily
Halted



Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actual FY16	Cum To Date	End State	% Compl.
TRU- Legacy Shipped (in storage prior 2009)	Cubic Meters	0	0	0	10,445	11,062	95%
TRU- Newly Generated Shipped	Cubic Meters	0	0	0	177	TBD	Ongoing

Solid Waste Disposal: Mixed & Low Level Waste

Mixed Waste Shipment to Utah



Low Level Waste (LLW) New Trench - On Site

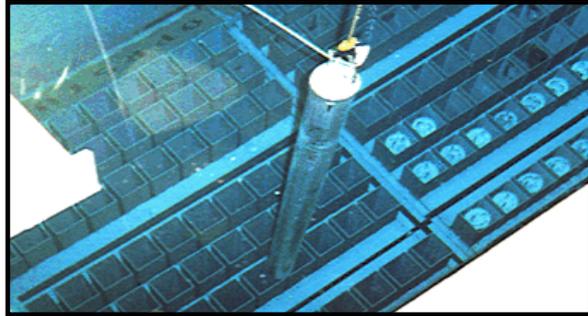


Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actuals FY16	Cum To Date	End State	% Compl.
M&LL-Legacy (Prior to April 2008)	Cubic Meters	-	-	-	103,171	103,171	100%
M&LL-Newly Generated	Cubic Meters	Met	< 400*	Met	< 400	< 400	Ongoing

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

Spent Nuclear Fuel Receipt & Storage

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



SNF being sent to H Canyon via 70 Ton Cask

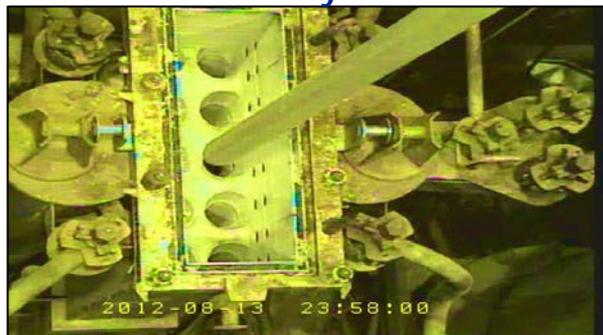


Performance Measure	Unit of Measure	EOY Actual FY15	EOY Target FY16	EOY Actual FY16	End State
L-Basin <u>Additions</u> : New Receipts	Bundles	6	82	76	-
L-Basin <u>Removals</u> : Packaged for Transfer to H Canyon	Bundles	106	0*	0*	-
L-Basin <u>Inventory</u>	Bundles	2,960	3,042	3,036	0
	Cores	120	120	120	0

* Fuel was pre-shipped in FY15 to support Canyon processing in FY 16

Nuclear Materials Management

Spent Nuclear Fuel (SNF) Bundle placed into H-Canyon Dissolver



Plutonium 3013 Type Container Dissolved in H-Canyon for Feed to HB-Line



Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actual FY16	Cum To Date	End State	% Compl.
HEU Dissolved (SNF from L-Basin)	Bundles Cores	69 0	40 0	40 0	120 0	1,000* 200*	12% 0%
Plutonium Prepared for Disposition (All Paths)	Containers	8	3	3	11	TBD	-

* AROD approved amounts of Material Test Reactor Bundles and HFIR Cores

D Area Ash Project 488-2D and 488-4D



Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actual FY16	Cum To Date	End State	% Compl.
Remediation of Waste Sites	Waste Site	0	5	5	505	515	79%
Facilities D&D*	Facilities	0	0	0	289	1,127	26%

*Deactivation & Decommissioning

- DOE-SR will continue to track & monitor performance measures for the key operational areas of EM cleanup operations.
- Suggestions from the CAB for any additional improvements are welcomed.

Acronyms

AROD	Amended Record of Decision (1000 bundles + 200 HFIR Cores)
ARP	Actinide Removal Process
D&D	Deactivation & Decommission
DWPF	Defense Waste Processing Facility
FFA	Federal Facility Agreement
HEU	Highly Enriched Uranium
LLW	Low Level Waste
MCU	Modular Caustic Side Solvent Extraction Unit
MLLW	Mixed Low level Waste
Pu	Plutonium
RCRA	Resource Conservation & Recovery Act
SNF	Spent Nuclear Fuel
SRE	Sodium Reactor Experiment
SWPF	Salt Waste Processing Facility
TRU	Transuranic Waste
WIPP	Waste Isolation Pilot Plant