



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Environmental Management Cleanup Program Performance Measures for Fiscal Year 2017

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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 2017 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 2017 ? ”



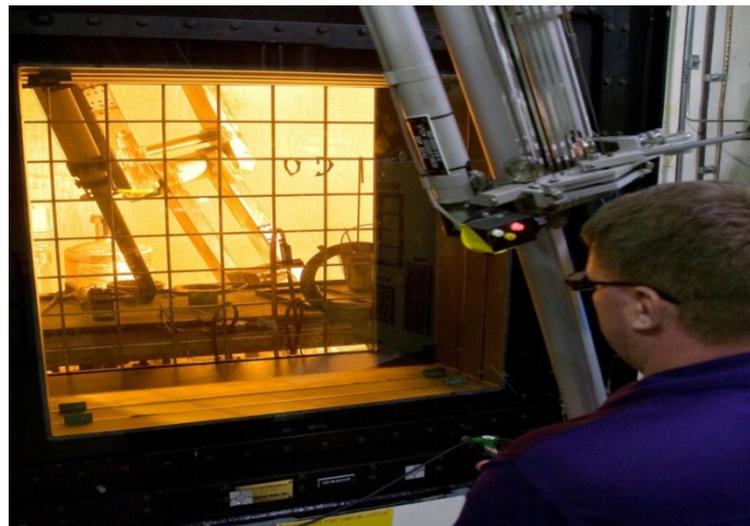
Answer: Continued progress but with challenges

- **LW System-wide outage**
 - Defense Waste Processing (DWPF) Facility Melter 3 Installation which impacted DWPF and Actinide Removal Process and Modular Caustic Side Solvent Extraction Unit (ARP/MCU) operations
 - Realized Evaporator failure risk - 241-25H (3H) Evaporator Pot leak discovered
 - Realized Tank Farm Infrastructure failure risk - Evaporator 241-16H (2H) operations limited due to underground chromate cooling water and compressed air line failures
 - ARP/MCU forced into an outage - Failed Strip Effluent Decanter (SED) Aqueous Pump

Highlights of FY 17 SRS Cleanup Program

- Vitrified 52 Canisters of Radioactive Liquid Waste
- Completed Bulk Waste Removal Efforts in one Liquid Waste Tank (Tank 15) meeting FFA milestone
- Processed 397,000 gallons of salt solution in ARP/MCU
- Initiated tie-in of Salt Waste Processing Facility to existing LW systems – on schedule
- Continued recovery of uranium from dissolution of Foreign & Domestic Research Reactor fuel in H-Canyon (80 bundles in Fy17 with a total of 200 bundles out of the 1000 authorized)
- Continued to prepare plutonium for disposition
- Continued receipt, safe storage and shipment of Nuclear Materials, including Spent Nuclear Fuel, and began receipt of the Canadian Target Residue Materials
- Continued receipt and disposition of Nuclear Materials, including Spent Nuclear Fuel in H-Canyon
- Completed modifications and began receipt of Canadian Target Residue Material in H-Canyon

Canister Production



Performance Measure	Unit of Measure	Actual FY16	Target FY17	Actual FY17	Cum To Date	End State*	% Compl.
Vitrify Insoluble Waste (Sludge)	Canisters Produced	136	100	52	4,158	8,170	51%

Note: Production was limited due to Melter Replacement

*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 FY16	Target FY17	Actual FY17	Cum To Date	End State*	% Compl.
Process Salt Solution	K Gallons Processed	1,506	1,250	170	12,398	158,932	8%

* Based on System Plan Rev 20

Liquid Waste: Tank Closure

Grouting of Tank 12



Performance Measure	Unit of Measure	Actual FY16	Target FY17	Actuals FY17	Cum To Date	End State	% Compl.
Close Tanks: Old Style	Tanks Closed	1	0	0	8	24	33%
Close Tanks: New Style	Tanks Closed	0	0	0	0	27	0%

* Based on System Plan Rev 20

Transuranic Waste (TRU) Shipment to WIPP

Note: WIPP Shipments Resumed on April 12, 2017



Performance Measure	Unit of Measure	Actual FY16	Target FY17	Actual FY17	Cum To Date	End State	% Compl.
TRU- Legacy Shipped (in storage prior 2009)	Cubic Meters	0	0	54.9	10,450	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

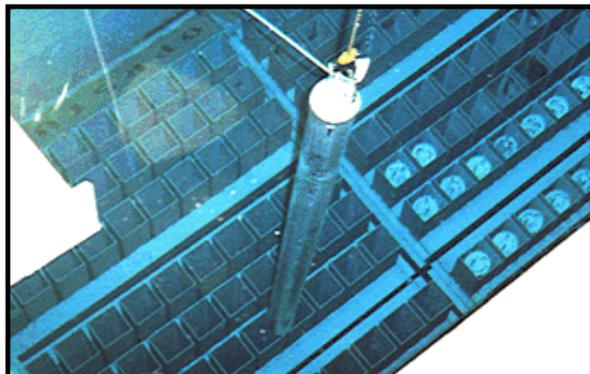


Performance Measure	Unit of Measure	Actual FY15	Target FY16	Actuals FY16	Cum To Date	End State	% Compl.
M&LL-Legacy (Prior to April 2008)	Cubic Meters	-	-	-	103,171	103,171	100%
M&LL-Newly Generated	Cubic Meters	Met	< 400*	Met	< 400	< 400	Ongoing

* 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

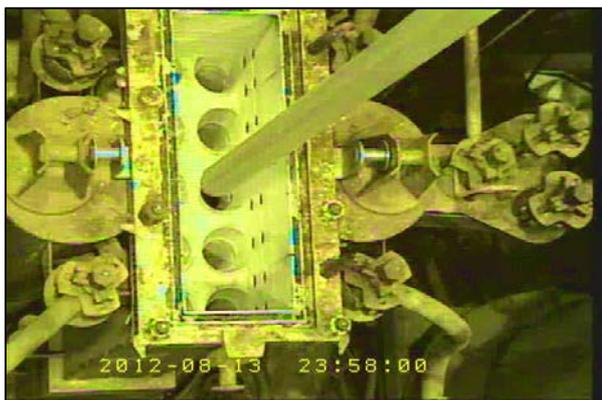


Performance Measure	Unit of Measure	EOY Actual FY16	EOY Target FY17	EOY Actual FY17	End State
L-Basin <u>Additions</u> : New Receipts	Bundles	76	134	132	-
L-Basin <u>Removals</u> : Packaged for Transfer to H Canyon	Bundles	0*	80	80	-
L-Basin <u>Inventory</u>	Bundles	3,036	3,090	3,088	0
	Cores	120	120	120	0

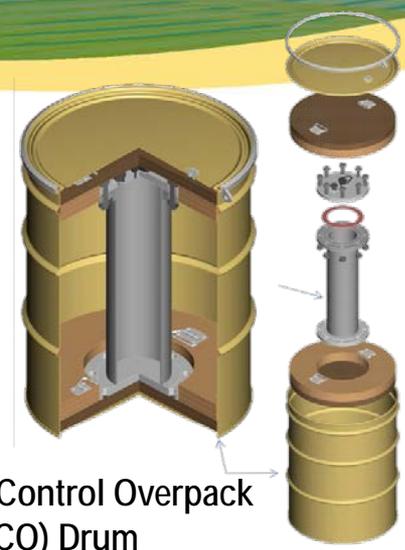
* Fuel was pre-shipped in FY15 to support Canyon processing in FY 16

Nuclear Materials Management

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



Placement of Inner Convenience Can into Outer Blend Can



Performance Measure	Unit of Measure	Actual FY16	Target FY17	Actual FY17	Cum To Date	End State	% Compl.
HEU Dissolved (SNF from L-Basin)	Bundles Cores	40 0	80 0	80 0	200 0	1,000* 200*	20% 0%
Plutonium Prepared for Disposition	Containers (CCO's)	0	75	75	745	20595**	3%

* AROD approved amounts of dissolution of Material Test Reactor Bundles and HFIR Cores in H-Canyon Dissolution

** AROD approved disposition of 6MT Pu that is not suitable for MOX (performing Down Blend in K-Area)

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



Performance Measure	Unit of Measure	Actual FY16	Target FY17	Actual FY17	Cum To Date	End State	% Compl.
Remediation of Waste Sites	Waste Site	5	3	3	408	515	79%
Facilities D&D*	Facilities	0	0	3	292	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.

AROD	Amended Record of Decision
ARP	Actinide Removal Process
CCO	Criticality Control Overpack
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