



U.S. DEPARTMENT OF
ENERGY

Presentation to the SRS Citizen's Advisory Board Combined Committees Meeting

SRS Performance Measures Update Nuclear Materials

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EM *Environmental Management*
safety ♦ performance ♦ cleanup ♦ closure

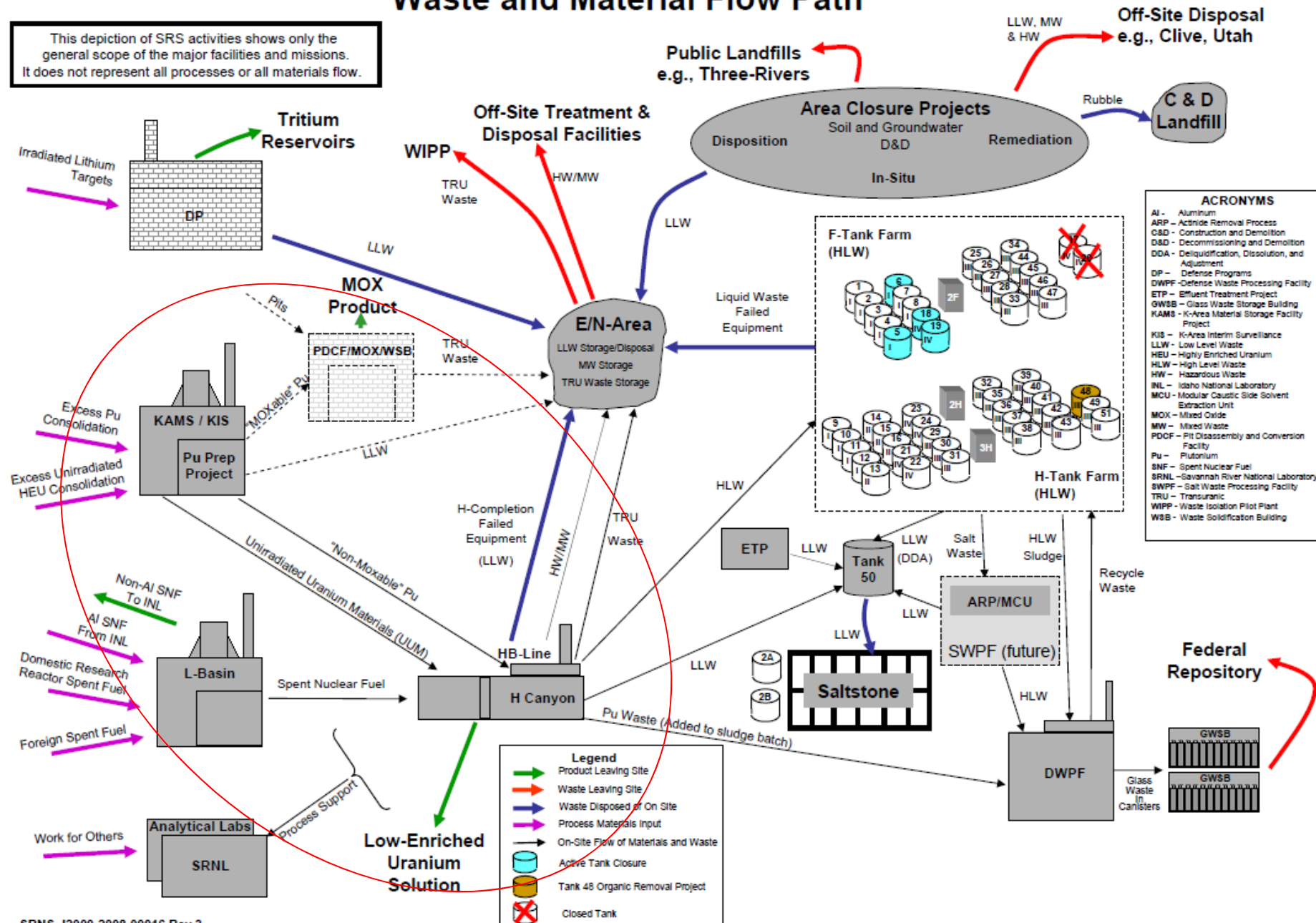
Acronyms

DRR	Domestic Research Reactor
FRR	Foreign Research Reactor
LEU	Low Enriched Uranium
HEU	Highly Enriched Uranium
NU	Natural Uranium
SNF/UNF	Spent Nuclear Fuel / Used Nuclear Fuel
SRNS	Savannah River Nuclear Solutions
TVA	Tennessee Valley Authority

Focus of Discussion – CAB Slide

Savannah River Site Waste and Material Flow Path

This depiction of SRS activities shows only the general scope of the major facilities and missions. It does not represent all processes or all materials flow.



- Share format changes to Performance Measures Report as suggested by the CAB (Nuclear Materials Subcommittee in particular)
- Provide an update of Nuclear Materials Performance Measures through 1/16/11
- Development Process Underway – Open for Suggestions
- Other programs (e.g. Liquid Waste, Solid Waste, Soil and Ground Water), expected to develop expanded performance measure formats

➤ Nuclear Material Processing Facilities

- K-Area receives and safely stores enriched uranium and plutonium materials awaiting disposition:
 - Uranium is dispositioned by H-Area
 - Plutonium is dispositioned via the Waste Isolation Pilot Plant, MOX and/or H-Area/DWPF
- L-Area safely receives and stores Used (Spent) Nuclear Fuel awaiting disposition:
 - Awaiting amended Record of Decision to begin shipping Used Nuclear Fuel (Foreign and Domestic Research Reactor fuel) to H-Canyon for disposition
 - SRS proposes exchange of non-aluminum clad fuel at SRS for aluminum clad fuel at Idaho National Laboratory
- H-Canyon safely disposes plutonium and uranium materials:
 - Plutonium is dissolved in H-Canyon/HB-Line and sent to the Defense Waste Processing Facility for vitrification
 - Uranium is recovered, purified and down-blended in H-Canyon to Low Enriched Uranium for shipment to the Tennessee Valley Authority (for manufacture of commercial fuel to generate electricity)

Performance Measures- High Level Summary

<u>Major Areas of Cleanup</u> (as of 11/30/10)	<u>End State</u> <u>% Complete</u>
Nuclear Materials	
Plutonium Dissolved (Currently authorized)	29%
LEU Shipped to Tennessee Valley Authority vendor (LEU is the result of blending HEU w/ natural uranium)	63%
Used (Spent) Nuclear Fuel (from FRR & DRR) Dissolved	0%
Liquid Waste	
Disposition Radioactive Liquid Waste	
Produce Canisters	
Process Salt Solution	
Close Tanks	
Solid Waste	
Radioactive Legacy Waste & NGW	
Transuranic (TRU) Waste Shipped	
Mixed Low-Level & Low- Level Waste Dispositioned	
Soil & Ground Water	
Complete Remediation of Waste Sites	
Facilities	
Facility Decommission & Demolition	

EM Performance Measures – Format as of July 2010


<u>Nuclear Materials</u>	Unit of Measure	Cum Actuals thru FY 2009
Measure		
Plutonium & Enriched Uranium		
Plutonium Dissolved in H-Area for Disposition ¹	Containers	42
LEU Shipped to TVA Vendor (LEU = HEU blended with NU) ²	Trailers	297
SNF (from FRR & DRR) Dissolved (To begin in FY 2011)	Bundles	0


FY 2010 Analysis	
Actuals FYTD	Annual Target
28	29
20	20
0	0

End State Analysis			
Cum Act thru 2010 (FYTD)	End State	% Complete	Target Year to Complete
70	967	7%	2019
See Note 3			
317	564	56%	2019
0	Being Developed	0%	2019

Nuclear Materials Notes:

- Quantities Since 2008, End State Quantity is Pre- Decisional
- LEU = Low Enriched Uranium
HEU = Highly Enriched Uranium
NU = Natural Uranium
SNF = Spent Nuclear Fuel
FRR = Foreign Research Reactor
DRR - Domestic Foreign Reactor
- Start-up of HB-Line South will double through-put capacity of plutonium disposition

 On / Ahead of Schedule

 Behind Schedule

End State Basis

Nuclear Materials End State Quantities and Target Year to Complete are based on 2008 Certified Life Cycle Plan

EM Performance Measures – Revised Format as of January 2011

FY 2011 EM Performance Metrics Report through January 16, 2011

<u>Nuclear Materials</u>	Unit of Measure	Actuals thru FY2007	FY2008 Actuals	FY2009 Actuals	FY2010 Actuals	FY2011 Actuals thru 1/16/11	Cum Actuals thru 1/16/11	FY 2011 Analysis		End State Analysis		
								FY2011 Actuals thru 1/16/11	Annual Target	End State	% Complete	Target Year to Complete
Plutonium Disposition												
Current Disposition Path¹												
(Plutonium Dissolved in H-Area)	Containers	18	28	8	32	12	98	12	92	339	29%	2012
Potential Disposition Paths^{2,3}												
(WIPP, MOX, Add'l H-Area/DWPF)	Containers					0	0	0	0	TBD		2019
<i>Total Plutonium</i>	Containers		28	8	32	12	98	12	92	TBD		2019
Enriched Uranium Disposition												
LEU Shipped to TVA Vendor (from diss. of site fuel and unirradiated HEU)	Trailers	257	27	11	24	2	321	2	12	333	96%	2011
LEU Shipped to TVA Vendor (from dissolution of Used Nuclear Fuel)	Trailers					0	0	0	4	180	0%	2019
									Note 4			
<i>Total LEU Shipped to TVA Vendor</i> (Note: LEU = HEU blended with NU)	Trailers	257	27	11	24	2	321	2	16	513	63%	2019
									Note 4			
Used Nuclear Fuel (UNF) Dissolved (To begin in 2Q FY 2011)	Bundles					0	0	0	52	3268	0%	2019
									Note 4			
Used Nuclear Fuel Exchange with INL (TBD)	Bundles											2019

Nuclear Materials Notes:

- Quantities Since 2007, End State Quantity is Pre- Decisional (Includes LAP & EU/Pu Containers)
- DOE/NNSA is in the process of evaluating Plutonium disposition paths (via the NEPA process) including:
 - Shipping to WIPP
 - MOX
 - Additional H- Area Processing / DWPF
- Start-up of HB-Line South will double through-put capacity of plutonium disposition
- Dependent on receiving approval of the Amended ROD and SA in 2nd Qtr FY11

- On / Ahead of Schedule
- Behind Schedule

End State Basis

Nuclear Material "End State Quantities" and "Target Year to Complete" are based on the 2008 Certified Life Cycle Plan

Work in Progress

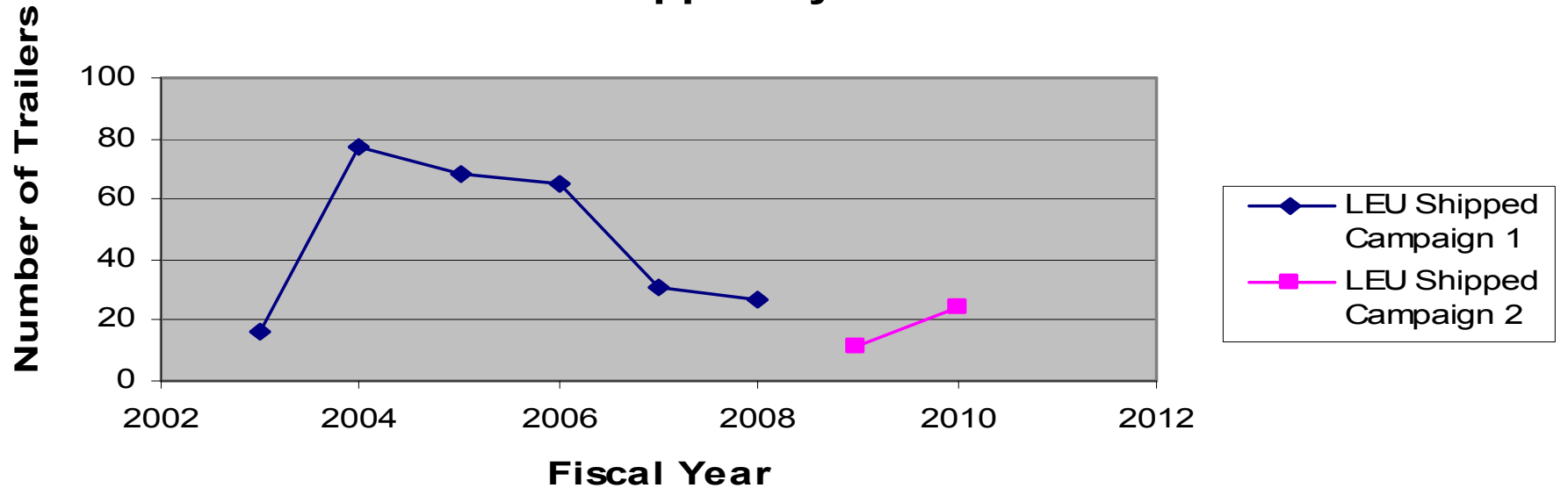
For each significant Performance Measure, a graphical depiction of the lifecycle (historical and forward looking) is being developed

The following graphs showing progress of Low Enriched Uranium shipments to the Tennessee Valley Authority are examples

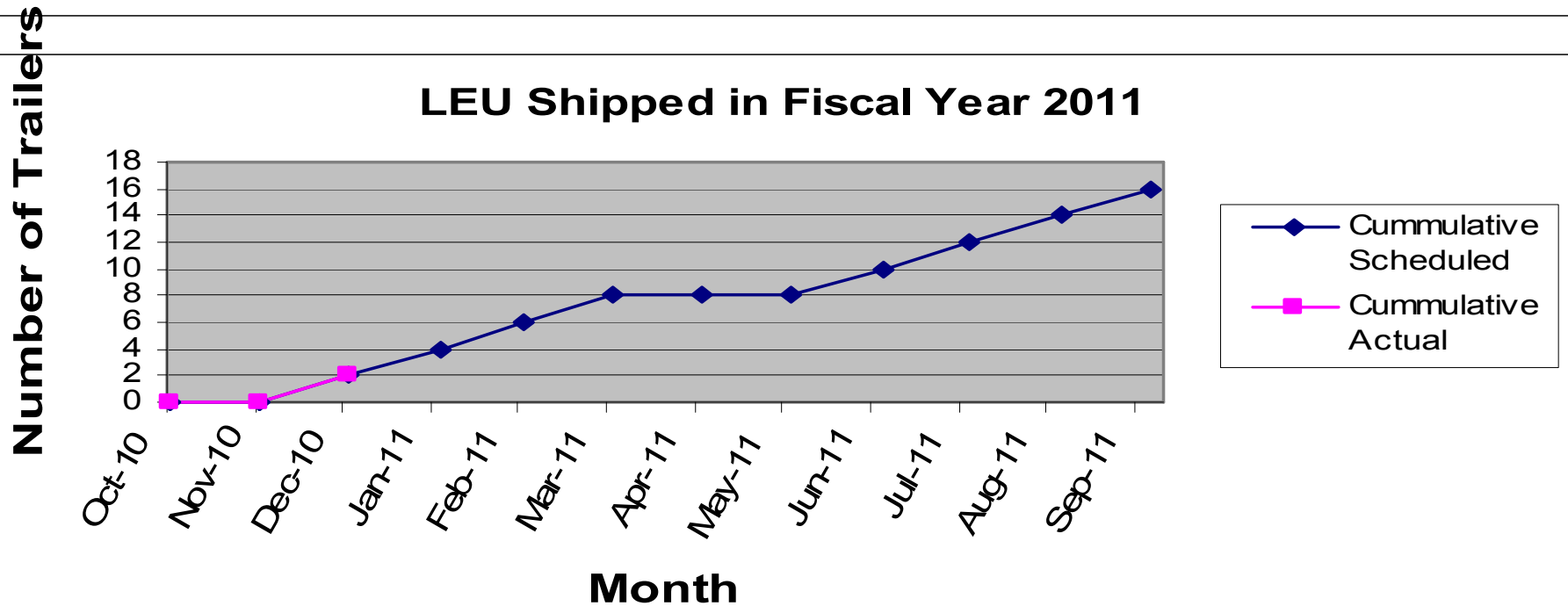
Graphs will also be developed for Used Nuclear Fuel and Plutonium disposition

Graphical Analysis & Lifecycle Projections

LEU Shipped by Fiscal Year



LEU Shipped in Fiscal Year 2011



EM Performance Measures – Take Aways

Nuclear Materials including Used Nuclear Fuel continue to be safely received and stored while awaiting disposition

SRS continues to make steady progress with disposition of Nuclear Materials in a safe manner

