Savannah River Recovery Act Program

Office of Environmental Management
Savannah River Operations Office
Savannah River Site
Aiken, South Carolina

U.S. DEPARTMENT OF ENERGY

Savannah River Site Citizens Advisory Board Meeting

Update on Savannah River Recovery Act Program

September 27, 2010

Presented by
Zack Smith, Director
Savannah River Recovery Act Program

Presentation Overview

U.S. DEPARTMENT OF ENERGY
Savannah River Site

- Project Performance
  - TRU
  - P & R Reactor
  - M & D Area
  - P & R Ash Basin
- Foot Print Reduction

105-R Decommissioning
Removing HEPA Filters

Project Performance- TRU

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	June 2010	July 2010
CPI	0.73	1.00
SPI	0.78	1.00

- **Scope of Work:**
  - **Disposition 5,000 cubic meters legacy waste Dec. 2012**
- **Challenges:**
  - **Project baseline developed using historical SRS experience in limited operational experience in repacking large boxed waste**
  - **Key Areas that were under estimated:**
    - Contaminated water in container and drum integrity issues
    - Worker protection controls for opening and resizing/ repackaging high Plutonium Equivalent Curie (PEC) waste
    - Significantly higher Pu-238 concentrations requiring additional controls, more 85 gallon overpacks
    - Facility modifications to address fire egress life safety code
    - Extensive training for newly hired ARRA works
    - Increased scope of dispositioning 5,000 cubic meters of TRU waste by the end of 2012
- **Achievements & Path Forward:**
  - **Project changes recognized & incorporated**
  - **Resumed WIPP Shipments on August 19th**
  - **Repackaged 22 of 25 large steel boxes in H-Canyon (currently 2 months ahead)**
  - **Awarded TRUPACT-III fabrication in September**

TRU Accomplishments

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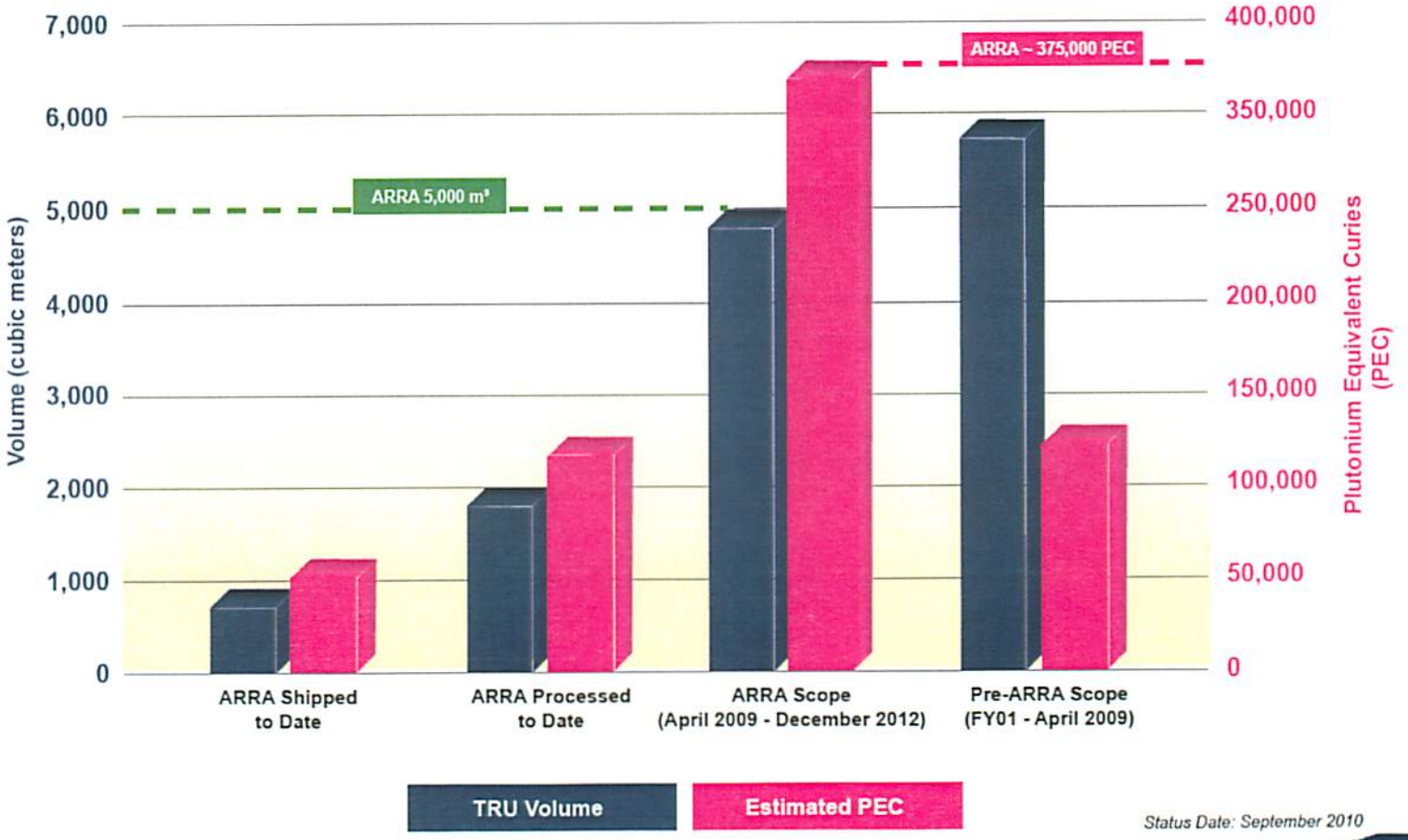
TRU Legacy Waste Program



Status Date: September 2010

TRU Accomplishments

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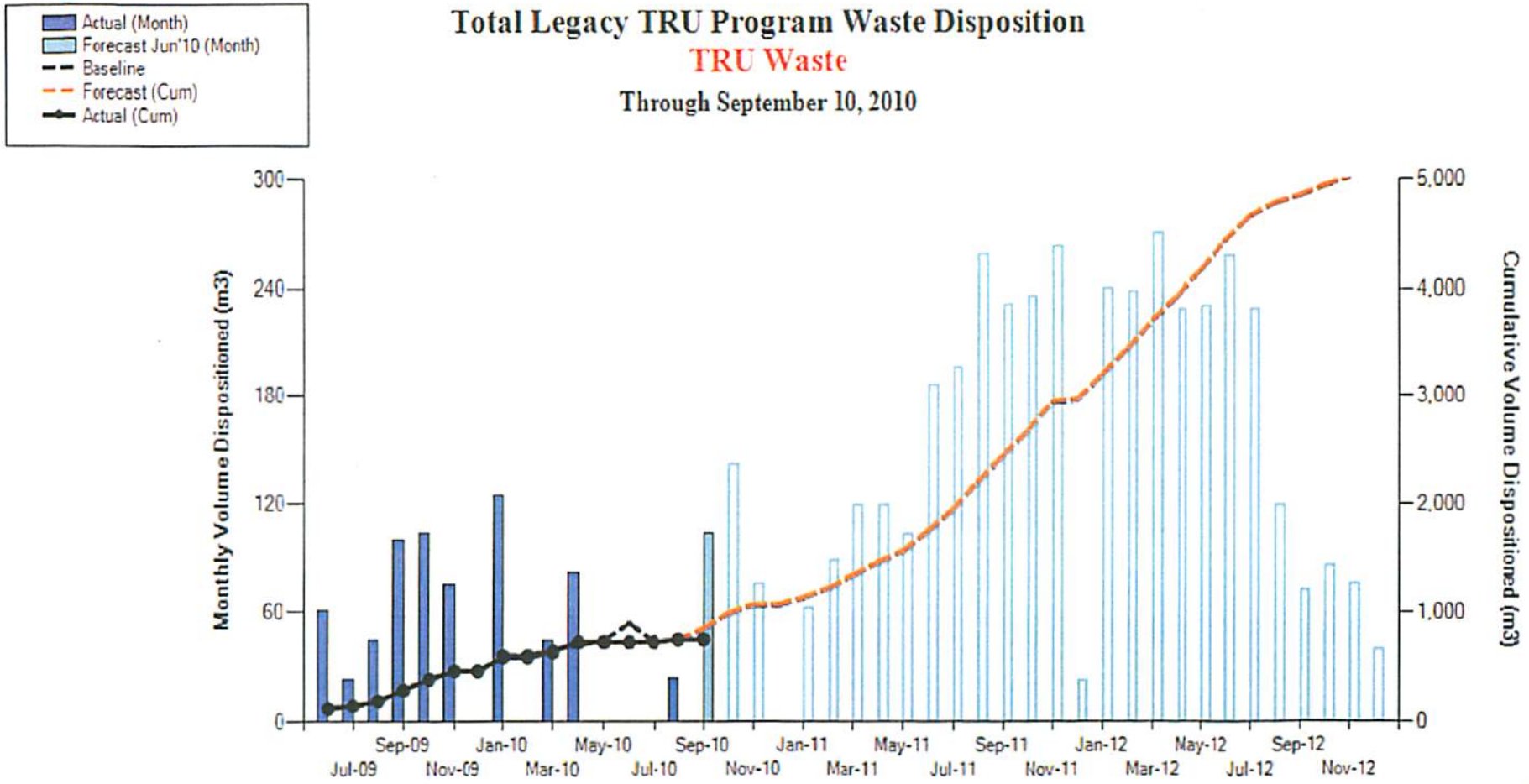

Project Performance- P & R Reactor

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	June 2010	July 2010
R- Reactor- CPI	1.38	.94
R- Reactor- SPI	0.60	1.02
P- Reactor- CPI	2.38	.91
P- Reactor- SPI	0.69	1.30

- **Scope of Work:**
  - Grout reactor building below grade, vessel, disassembly basin
  - Modify selected roofs for drainage
  - Remove stack to +55 foot-level
  - Seal reactor building exterior
- **Challenges:**
  - Started late
  - Grout Supply Subcontract impacted by Davis Bacon determination
  - Davis Bacon determination delayed awards of major procurements and construction start
  - Cost saving resulting from competitive bid

Achievements and Path Forward- P & R Reactor

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P Reactor

- 60,000 out of the 100,000 cubic yards of grout placed in reactor
- Evaporated 3.5 of 4.2 mgals disassembly basin water
- Initiated roof modification preparations

Grouting and Roof Modifications

R Reactor

- Completed moderator draining -40 level
- Mobilized in the -40 level to start grouting
- Completed 94% grouting in the disassembly basin
- Removed HEPA Filter

Grouting basin was stopped about 18 inches below floor level to allow removal of handrails. Photo shows basin with handrails removed

Project Performance- M & D Area

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	June 2010	July 2010
CPI	.88	.89
SPI	1.02	1.03

- Scope of Work:
  - M Area:
    - 45 acres in size; includes former reactor fuel manufacturing area
    - Contaminated with volatile organic compounds
      - Construct 2 Passive Soil Vapor Extraction
  - D Area:
    - 210 acres; location former heavy water production facilities
    - Contaminate with volatile organic compounds
      - Remove PCB coatings from 420-D (Pump House) slab
      - Remediate tritium-contaminated soils and concrete
      - Remediate portion of D Ash Basin
- Challenges:
  - D Area Moderator Facility:
    - Treatability study data led to need for larger sized detritation cells
    - Increased depth of PCB contamination at 420-D slab required additional time and labor
  - D Area Bubble Tower:
    - Required remediation of larger area, requiring installation of more remediation wells
    - Bid procurement higher than estimated cost

Achievements and Path Forward- M & D Area

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M Area

- Completed August 2010

D Area

- Completed installation of 11 enhanced passive soil vapor extraction wells
- Completed Thermal Detritiation Treatability Study
- Two campaigns performed under Treatability Study successfully remediated 165 cubic yards of tritiated concrete and soil
- Started construction of three additional Thermal Detritiation Units
  - Units will be used along with unit used in Treatability Study to remediate remaining inventory of tritiated concrete and soil

Project Performance- P and R Ash Basin

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	June 2010	July 2010
R- Ash Basin- CPI	1.38	.94
R- Ash Basin- SPI	0.60	1.02
P- Ash Basin- CPI	2.38	.91
P- Ash Basin- SPI	0.69	1.30

P Ash Basin-

- Scope of Work:
  - 40 acres in size; received ash sluice water from P Powerhouse operations (1953-1991)
  - Consolidate ash into basin; install 2-foot thick non-structural soil cover over consolidated ash and soil
- Challenges (All past, none current):
  - Late start
  - Additional 5 acres of ash found outside footprint
  - Soil Stockpiling equipment costs greater than planned

R Ash Basin-

- Scope of Work:
  - 14 acres in size; received ash sluice water from R Powerhouse operations (1953-1964)
  - Consolidate ash into basin; install 2-foot thick non-structural soil cover over consolidated ash and soil
  - Construction is underway
- Challenges (All past, none current):
  - Late start
  - Unplanned Roadway
  - Soil Stockpiling equipment costs greater than planned

Achievements and Path Forward- P & R Ash Basin

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- **Achievements:**
  - Completed vegetation removal
  - Project performance is strong
  - Expected to complete on schedule and below cost estimates

R Ash Basin 8/20/2010

R Ash Basin 9/02/2010

Footprint Reduction

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Planned Date	Actual Date	Area	Waste Units / Facilities	Square Miles	Square Miles Completed
Jan-10	Jan-10	P Area	P-AREA REACTOR AREA CASK CAR RR TRACKS, NBN	3.9	3.9
Jan-10	Jan-10	P Area	ECODS P-2 (South of P-Area) (Issue ROD)	3.9	3.9
Jan-10	Jan-10	R Area	R-AREA REACTOR AREA CASK CAR RR TRACKS, NBN	1.8	1.8
Jan-10	Jan-10	R Area	ECODS R-1A, -1B, -1C (EAST OF R REACTOR) (Issue ROD)	1.8	1.8
Jul-10	Jul-10	B Area	Complete D&D of 710-B SRTC Hazard Waste Storage Facility	7.0	7.0
	Jul-10	R Area	GUNSITE 012 RUBBLE PILE, NBN	1.8	1.8
	Jul-10	R Area	RUBBLE PILE ACROSS FROM GUNSITE 012, NBN	1.8	1.8
	Jul-10	R Area	ECODS G-3 (ADJACENT TO GUNSITE 012), NBN	1.8	1.8
	Aug-10	M Area	POTENTIAL RELEASE OF HEAVY METALS FROM 321-M SL	9.9	9.9
	Aug-10	M Area	SALVAGE YARD, 741-A	9.9	9.9
	Aug-10	M Area	UNDERGROUND SUMP 321 M #001 321-M	9.9	9.9
	Aug-10	M Area	UNDERGROUND SUMP 321 M #002 321-M	9.9	9.9
	Jul-10	P Area	POTENTIAL RELEASE FROM P-AREA DISASSEMBLY BASIN,105-P (Issue ROD)	3.9	3.9
	Jul-10	P Area	POTENTIAL RELEASE FROM P-AREA RX COOLING WATER, 186/190-P (Issue ROD)	3.9	3.9
Jun-11	Jul-10	P Area	SPILL ON 3/15/79 OF 500 GALS OF CONTAM WATER, NBN	3.9	3.9
Sep-10		R Area	R-AREA GROUNDWATER, NBN	1.8	
		SR Area	D&D of 185-3K Cooling Tower	36.5	
Oct-10		R Area	GUNSITE 218 RUBBLE PILE, 631-23G (Issue ROD)	1.8	
Mar-11		R Area	COOLING WATER EFFLUENT SUMP, 107R	1.8	
		R Area	R-AREA PROCESS SEWER LINES AS ABANDONED	1.8	
		B Area	ECODS B-3 (East of B Area, South of Road C)	7.0	
		B Area	ECODS B-5 (Adjacent to ECODS B-3)	7.0	
May-11		R Area	AREA ON THE NORTH SIDE OF BUILDING 105-R, NBN	1.8	
		R Area	LAYDOWN AREA NORTH OF 105R, NBN	1.8	
		R Area	RELEASE FROM DECON R-REACTOR DISASSEMBLY BASIN	1.8	
		R Area	COMBINED SPILLS NORTH OF BUILDING 105-R, NBN	1.8	
		R Area	POTENTIAL RELEASE OF NAOH/H2 SO4 FROM 183-2R, NBN (Issue ROD)	1.8	
		R Area	POTENTIAL RELEASE FROM R-AREA DISASSEMBLY BASIN, 105-R (Issue ROD)	1.8	
		P Area	P-AREA PROCESS SEWER LINES AS ABANDONED	3.9	
Jul-11		R Area	R-AREA ASH BASIN, 188-OR	1.8	
Aug-11		D Area	D-AREA COAL PILE RUNOFF BASIN, 489-D	5.3	
		D Area	D-AREA WASTE OIL FACILITY, 484-10D	5.3	
		D Area	D-AREA ASBESTOS PIT, 080-20G	5.3	
		D Area	D-AREA PROCESS SEWER LINES AS ABANDONED, NBN	5.3	
		D Area	D-006 PETROLEUM RELEASE SITE, NBN	5.3	
		M Area	SMALL ARMS TRAINING AREA (SATA), NBN	9.9	
Sep-11		D Area	COMBINED SPILLS FROM 483-D AND ASSOCIATED AREAS	5.30	
		B Area	D&D of 770-U Heavy Water Component Test Reactor	6.95	
		R Area	D&D of 105-R Reactor Building Complex	1.80	
		P Area	P-AREA ASH BASIN (including Outfall P-007), 188-0P	3.90	
		PAR Pond	D&D of 651-6G Primary Transformer Substation/681-6G	1.60	
		PAR Pond	D&D of 681-6G PAR Pond Pump House	1.60	
		PAR Pond	D&D of 681-7G Pump House Equip Building - Adjacent to 681-1G	1.60	
		PAR Pond	D&D of 681-23G Chlorine Building	1.60	
		PAR Pond	D&D of 735-7G Environmental Support Facility, Par Pond	1.60	
		PAR Pond	D&D of 735-8G Greenhouse	1.60	
Dec-11		P Area	D&D of 105-P Reactor Building Complex	3.9	
Sep-12		C Area	C Area Reactor Cask Car Railroad Tracks as Abandoned (NBN)	1.9	
		C Area	Potential Release from C Area Disassembly Basin & C Area Reactor Cooling Water System 186/190-C	1.9	
		C Area	717-C Contaminated Maintenance Facility	1.9	
		C Area	108-3C Fuel Unloading Facilities Power	1.9	
		C Area	904-89G Retention Basin for 100-C Containment	1.9	
		C Area	ECODS C-1	1.9	
		C Area	C Area Process Sewer Lines as Abandoned	1.9	
		C Area	C Area Reactor Discharge Canal	1.9	
		C Area	C Area Groundwater Operable Unit	1.9	
Total Sq Miles				233.6	75.1

Completed | Completed ahead of schedule | Behind Schedule

Footprint Reduction

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SRS Footprint Reduction

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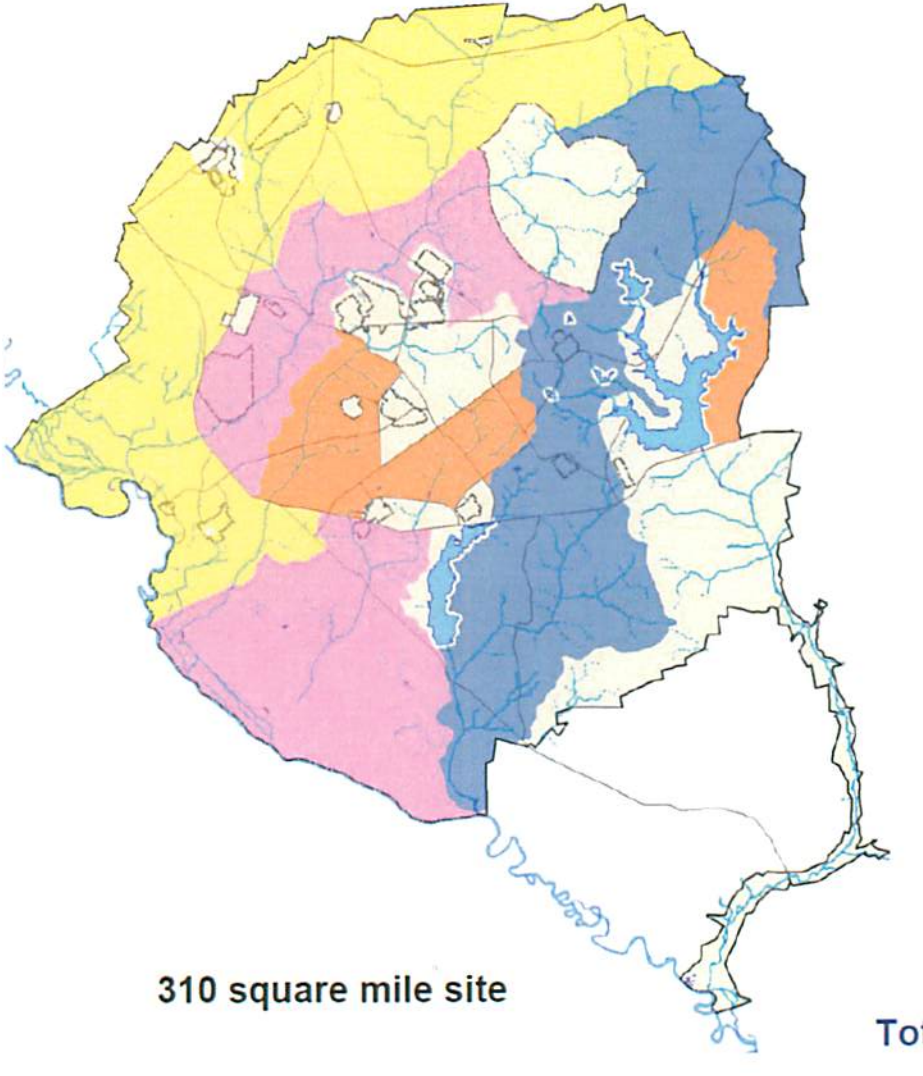

310 square mile site

EM Footprint Reduction by FY11

P&R	20% 84.7 miles
M&D	26% 81.3 miles
Sitewide	21% 50.45 miles
Total	67% 216.45 miles

EM Footprint Reduction by FY12

P&R	8% 17.1miles

Total Percentage	75%
Total Square Miles	233

Summary

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Savannah River Site

- Major progress achieved under ARRA
  - 912 cubic meters of TRU shipped to date
  - 1980 cubic meters of TRU processed to date
  - 75.1 miles Footprint Reduction achieved
- Aggressive / Manageable plans for continued progress
  - Focused
    - TRU Disposition
    - Footprint Reduction

TRU Waste Shipment leaving E Area to WIPP