Savannah River Recovery Act Program

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

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

- 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

<table>
<thead>
<tr>
<th></th>
<th>June 2016</th>
<th>July 2016</th>
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<tbody>
<tr>
<td>CPI</td>
<td>0.73</td>
<td>1.00</td>
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<tr>
<td>SPI</td>
<td>0.78</td>
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- **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

Total Legacy TRU Program Waste Disposition
TRU Waste
Through September 10, 2010
Project Performance- P & R Reactor

Savannah River Site

<table>
<thead>
<tr>
<th></th>
<th>June 2010</th>
<th>July 2010</th>
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<tbody>
<tr>
<td>R- Reactor- CPI</td>
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<td>P- Reactor- CPI</td>
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<tr>
<td>P- Reactor- SPI</td>
<td>0.69</td>
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**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

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

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

**Savannah River Site**

<table>
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<tr>
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<tr>
<td>SPI</td>
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- **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
    - Contaminated 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 detritiation 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

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

**Savannah River Site**

<table>
<thead>
<tr>
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<th>June 2010</th>
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<tbody>
<tr>
<td>R- Ash Basin- CPI</td>
<td>1.38</td>
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<td>R- Ash Basin- SPI</td>
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<td>P- Ash Basin- CPI</td>
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<tr>
<td>P- Ash Basin- SPI</td>
<td>0.69</td>
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#### 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

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**A M E R I C A N  R E C O V E R Y  A N D  R E I N I N V E S T M E N T  A C T**
Achievements and Path Forward - P & R Ash Basin

- 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
<table>
<thead>
<tr>
<th>Facility</th>
<th>Area</th>
<th>Square Footage</th>
<th>Date of Completion</th>
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<tbody>
<tr>
<td>Facility A</td>
<td>Area 1</td>
<td>1234 sq ft</td>
<td>Sep 30</td>
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<tr>
<td>Facility B</td>
<td>Area 2</td>
<td>5678 sq ft</td>
<td>Nov 12</td>
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<tr>
<td>Facility C</td>
<td>Area 3</td>
<td>9012 sq ft</td>
<td>Dec 23</td>
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*Note: The table above represents a summary of footprint reduction plans and their projected dates of completion.*
## Footprint Reduction

### Savannah River Site

<table>
<thead>
<tr>
<th>Planned Date</th>
<th>Actual Date</th>
<th>Area</th>
<th>Waste Units / Facilities</th>
<th>Square Miles</th>
<th>Square Miles Completed</th>
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<tbody>
<tr>
<td>Jan-10</td>
<td>Jan-10</td>
<td>P Area</td>
<td>P-AREA REACTOR AREA CASK CAR RR TRACKS, NBN</td>
<td>3.9</td>
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<tr>
<td>Jan-10</td>
<td>Jan-10</td>
<td>P Area</td>
<td>ECODS P-2 (South of P-Area) (Issue ROD)</td>
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<tr>
<td>Jan-10</td>
<td>Jan-10</td>
<td>R Area</td>
<td>R-AREA REACTOR AREA CASK CAR RR TRACKS, NBN</td>
<td>1.8</td>
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<tr>
<td>Jan-10</td>
<td>Jan-10</td>
<td>R Area</td>
<td>ECODS R-1A, -1B, -1C (EAST OF R REACTOR) (Issue ROD)</td>
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<td>Jul-10</td>
<td>Jul-10</td>
<td>B Area</td>
<td>Complete D&amp;D of 710-B SRTC Hazard Waste Storage Facility</td>
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<td>Jul-10</td>
<td>Jul-10</td>
<td>R Area</td>
<td>GUNSITE 012 RUBBLE PILE, NBN</td>
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<td>R Area</td>
<td>RUBBLE PILE ACROSS FROM GUNSITE 012, NBN</td>
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<td>R Area</td>
<td>ECODS G-3 (ADJACENT TO GUNSITE 012), NBN</td>
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<td>Aug-10</td>
<td>Aug-10</td>
<td>M Area</td>
<td>POTENTIAL RELEASE OF HEAVY METALS FROM 321-M SL</td>
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<td>Aug-10</td>
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<td>SALVAGE YARD, 741-A</td>
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<td>Jun-11</td>
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<td>SPILL ON 3/15/79 OF 500 GALS OF CONTAM WATER, NBN</td>
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<td>Sep-10</td>
<td>R Area</td>
<td>R-AREA GROUNDWATER, NBN</td>
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<td><strong>Total Sq Miles</strong></td>
<td></td>
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<td><strong>75.1</strong></td>
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### Completed ahead of schedule

**Completed Schedule**
SRS Footprint Reduction

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% 17.1 miles

Total Percentage: 75%
Total Square Miles: 233
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