Heavy Water Components Test Reactor (HWCTR) Update

Presentation By
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Agenda

• Heavy Water Components Test Reactor (HWCTR) Background
• Completion Objectives / Key Performance Parameters
• Scope
• Current Status
• Path Forward
## List of Acronyms

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<td>ARRA</td>
<td>American Recovery and Reinvestment Act</td>
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<td>D&amp;D</td>
<td>Deactivation and Decommissioning</td>
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<td>HWCTR</td>
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<td>KPP</td>
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<td>M</td>
<td>Million</td>
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<td>RSER</td>
<td>Removal Site Evaluation Report</td>
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HWCTR Location on the Savannah River Site
Background continued

HWCTR was built to test the concept of heavy water moderated reactors for the civilian power industry (circ 1960)
Background continued

- **1965**
  - retired in place with controlled access

- **1975-1976**
  - decommissioning plans considered
  - postponed due to budget constraints

- **1994-1997**
  - Second attempt to D&D
  - budget constraints again
  - Auxiliary buildings removed
  - placed in extended surveillance mode
Background - Panorama view showing inside of HWCTR at zero elevation
Completion Objectives / Key Performance Parameters

❖ Achieve Human Health and Environmental Protectiveness by removing approximately 99% contamination
   ➢ Meets standards for industrial worker

❖ Final Decommissioned End State
   ➢ Achieve Mechanical Completion
   ➢ Final walk-down inspection is completed, including close-out of punch list
   ➢ Regulatory acceptance is documented
Scope

- Project being performed as part of Recovery Act funding for $10.7M
- End State: In Situ Decommissioning with Reactor Vessel and 2 Steam Generators removed
Scope continued

- **Major Work Activities**
  - Drain all liquids and isolate all hazardous energy
  - Remove and dispose the metal dome
  - Remove and dispose the reactor vessel
  - Remove and dispose the two steam generators
  - Grout the spent fuel pool
  - Grout the below-grade areas of the building, including remaining piping and equipment
  - Install a concrete cover over the remaining grouted structure
Current Status
Current Status - Cutting of two access doors
Path forward

- Asbestos Abatement (June 10, 2010)
- Start removal of concrete blocks and cutting piping around Reactor Vessel (August 10, 2010)
- Cut and remove dome for heavy lifts (December, 2010)
- Rig and remove Polar Crane and Trolley (January, 2011)
- Remove Reactor Vessel and load on transport frame (January, 2011)
- Remove and disposition 2 Steam Generators (January, 2011)
- Move Fuel Transfer Vessel Coffin to Reactor Vessel void (February, 2011)
Path Forward – continued

- Grout below grade building areas (March 2011)
- Concrete cover over remaining grouted area (May, 2011)
- Decommissioning complete (July 2011)
Back up
HWCTR Background

• Constructed 1959-1961 at a cost of $8.9M
  – 70 feet in diameter
  – Steel dome rises 65 feet above ground
  – Reinforced concrete extends 60 feet below grade
  – Heavy water moderated and cooled
  – Pressurized loop and boiling water loop to test fuel assemblies
  – Control room, auxiliary service equipment, and emergency power equipment in separate buildings (D&D in 90’s)
  – Fuel Basin capacity for 36 fuel assemblies

• Operated March 1962 to December 1964
  – Nominal reactor power of 50 megawatts (thermal)
  – Total power history of 13,882 megawatt-days
  – 36 different fuel assemblies tested; 10 cladding failures experienced

• Shutdown December 1964