Z Area Salt Disposal Facility Update
Presentation to the Citizens Advisory Board

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Purpose

- Savannah River Site’s (SRS) Z Area Saltstone Facility
  - Status of Saltstone Disposal Facility Vault 4
  - Low-level radioactive contamination at Storm Water Outfall Z-01

- Actions Savannah River Remediation (SRR) has and is taking to address these issues
Cracks in Vault 4 roof allowed rainwater to migrate into the vault.

Liquid collected in the narrow annular space between the grout waste form and the vault wall.

Contaminated liquid could weep through construction joints or cracks that existed in the vault wall.
Existing Vault 4
Contamination Controls

- Prevent Rainwater Intrusion into Vault (Roof Coatings, Sealants)
- Control Rainwater Flow Path
  - Gutters on roof and weather enclosures
  - Grading to route rainwater to retention basin
- Fix Wall Contamination
- Manage Drain Water Levels Inside Vault
  - Drain water return system
  - Manage cell water level below hut level to prevent release of contamination to environment
- Containment
  - Weather enclosures up to 8’
  - Troughs to collect leakage
  - Isolate from rainwater
  - Installed Megamix coating on walls
  - Installed Xypex coating on walls
Last Vault 4 disposal operation in 2012
- Current disposal operations utilize new design cylindrical SDUs

Several alternatives were evaluated to:
- Eliminate rainwater infiltration to Vault 4
- Mitigate worker and environmental risks

Alternative selected:
- Pour minimum “clean cap” to Vault 4 cells as necessary to establish roof dose rate <5 mrem/hr for worker exposure control
- Install elastomeric roof covering on cells D, E, F, J, K, and L
  - Cells A, B, C, G, H, and I are already coated/sealed
- Continue maintenance on roof and weather enclosures
- Continue to manage drain water levels
SRR and DOE are committed to Vault 4 Stabilization Plan
- Project fully funded and significantly ahead of schedule

Project scheduled to clean cap and apply elastomeric roof coating to three cells in FY14
- Clean capping is complete on five cells (J, K, L, D, and E)
- Roof coating is complete on four cells (J, K, L, and D)
- Roof coating of cell E in progress

Capping and coating of remaining cells planned to complete by February 2015
Rainwater carried contamination from Vaults 1 and 4 area to the Storm Water drain line
- Drain line flows to Basin No. 4

Basin No. 4 only discharges if level reaches the height of spillway
- Feb 2013 first observed basin discharge

Spillway from Basin No. 4 flows to Storm Water Outfall Z-01
- Low-level contamination deposited

Storm Water Outfall Z-01 flows to McQueen’s Branch
- Sedimentation breaks installed to minimize contamination spread

We do the right thing.
- Sedimentation basin expanded to 100-year storm event size
  - Increases volume from 3.3 million to 7.3 million gallons
  - Project completed in September 2014
- Storm Water Outfall
  - Completed work to excavate spots of contaminated soil in accordance with DOE Order 458.1 and consistent with the SDF Solid Waste Permit
- Radioactive effluent monitoring at Outfall and McQueen’s Branch continues with no increases detected (sampled when liquid present)
- Utilize commercial drinking/waste water storage tank design principles
  - Common throughout the US
  - Very successful track record

- Designed to withstand large hydrostatic pressures due to cylindrical design
  - Reinforced concrete design using both vertical and horizontal post tensioning
  - Increased strength and durability

- Improved interior coating

- Leak tested as part of construction

- Roof is sloped to shed rain water

- Improved drain water collection and return system