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Z Area Salt Disposal Facility Update

Presentation to the Waste Management Committee

August 12, 2014

Mike Borders
Defense Waste Processing Facility/Saltstone Facility Manager

Purpose

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- **Fulfill a 2014 Waste Management Committee Work Plan topic.**

Background

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

- **Actions SRR has and is taking to address these issues**

Saltstone Disposal Facility

Location of Saltstone Disposal Facility at SRS

Saltstone Disposal Facility (SDF)

Vault 4 Water Intrusion

- 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

Vault 4 Stabilization

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- **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

Vault 4 Stabilization Project Status

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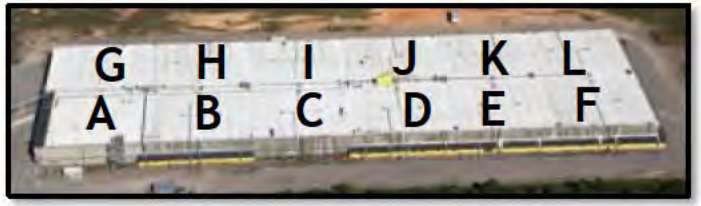
- **SRR and DOE are committed to Vault 4 Stabilization Plan**
  - Project fully funded and ahead of schedule
- **Clean cap and elastomeric roof coating of three cells (J, K & L) scheduled in FY14**
  - Roof coating material determined
  - Testing of low-bleed grout mixtures completed and mix selected
  - Capping of Cells J, K and L complete
    - Capping of cell D in progress (ahead of plan)
  - Roof coating completed on cells J and K with cell L in progress
- **Capping and coating of remaining cells (D, E & F) planned to complete by February 2015**



Z Area Retention Basin Contamination

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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

Z Area Storm Water Outfall

- **Sedimentation basin being expanded to 100-year storm event size**
  - Excavation began on June 12, 2014
  - Expansion projected to be 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)**