



U.S. DEPARTMENT OF
ENERGY

Public Presentation

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Saltstone Operations and Monitoring Update

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EM *Environmental Management*
safety ❖ performance ❖ cleanup ❖ closure

Purpose

- **Provide status of Saltstone operations and monitoring activities**
 - **Salt Waste Processing**
 - **Saltstone Disposal Operations**
 - **DOE's process for Disposal Operations**
 - **Summary of Technical Issues raised by NRC – Ginger Dickert, Savannah River Remediation**
 - **Approach to address NRC's Request for Additional Information (RAI) on the revised Saltstone Performance Assessment (SS PA)**
 - **Path Forward**



Salt Waste Processing

- **At Savannah River Site, liquid radioactive waste is stored in underground tanks in 3 phases**
 - **Sludge**
 - **Solid saltcake**
 - **Supernate**
- **The sludge waste is vitrified at the Defense Waste Processing Facility and stored for future disposal.**
- **The salt waste is processed to remove the radioactivity (actinides and cesium) for vitrification with the sludge.**
- **The decontaminated salt solution is treated and disposed on site as low level waste at Saltstone Disposal Facility (SDF).**



Saltstone Disposal Operations

- The decontaminated salt solution is mixed with a reducing grout to form a solid, stabilized waste form and placed in engineered barriers for disposal.
- The SDF is permitted by SCDHEC
- Historically, SDF was used to disposition low level waste streams resulting mainly from site ETP operation
- Since February 2008, following consultation with NRC in accordance with Section 3116(a) of the NDAA for FY 2005, DOE has dispositioned decontaminated salt waste at SDF
 - DOE and NRC conclusions were based on analysis performed in a 1992 Performance Assessment, a 2005 Special Analysis, 2005 Performance Objectives Demonstration Document, the Basis Document for the DOE Waste Determination, and responses to NRC's Request for Additional Information.
 - In accordance with Section 3116(b) of the NDAA for FY 2005, NRC has been performing monitoring activities, in coordination with SCDHEC, since 2006.



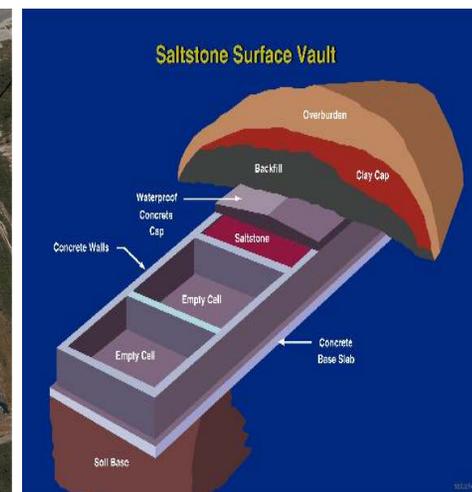
Saltstone Processing and Disposal Facilities

Saltstone Production Facility

- Aqueous waste mixed with flyash, slag and cement
- Poured in concrete vaults to solidify

➤ Saltstone Disposal Facility

- Engineered disposal facility
- Low water permeability
- Excellent non-leaching qualities
- Non-hazardous product



DOE's Process for Disposal Operations

- **In accordance with DOE Order 435.1, DOE :**
 - **Regularly assesses the performance of radioactive disposal facilities.**
 - **Prepares Annual Reports for review by the DOE Low Level Waste Federal Review Group**
 - **Maintain currency of performance assessments by performing Maintenance Plan activities.**
 - **Performs research and development activities to strengthen knowledge and technical basis of the analysis.**
 - **Considers new information such as research and development, groundwater modeling data, and facility operations.**
 - **Updates analysis, as appropriate.**



Saltstone Performance Assessment Update

- **The revised Saltstone Performance Assessment (October 2009)**
 - **Includes new information from ongoing research and development activities**
 - **Incorporates lessons learned from ongoing DOE and NRC consultation and monitoring activities under Section 3116 of the NDAA**
 - **Includes analysis for new designed disposal cells**
 - **Informed by ongoing salt processing activities**
 - **Analytical approach consistent with the F Tank Farm Performance Assessment**
 - **Provided to NRC, SCDHEC and public well in advance of DOE decisions**



SRR Presentation – Ginger Dickert

Summary of Technical Issues Raised by NRC



Approach to Address NRC's RAI on SS PA

- **In July 2010 DOE responded to NRC's April 2010 RAI**
- **DOE and SRR are working contract actions to incorporate work associated with resolving NRC's second RAI request dated 12/15/10.**
- **A DOE public meeting with NRC to discuss (Date TBD ~ Spring 2011)**
 - **Latest research on Tc-99 reduction that is supportive of 2009 PA assumptions**
 - **Categorize NRC's RAI into those required to be addressed now versus those to be addressed via DOE's PA maintenance program**
 - **DOE requests NRC agreement with new modeling parameters in alternative case prior to computer runs in order to maximize efficiency and minimize schedule**



In Summary...

- **DOE has a robust process for development, review and approval of PAs**
- **DOE utilizes a risk-informed process to select key model parameters and is committed to continuous improvement through research and development**
- **DOE utilizes probabilistic analyses to understand model parameter sensitivities and uncertainties**
- **DOE appreciates the thoughtful and thorough review process of the NRC and recognizes their unique perspective**
- **DOE is very confident that the upcoming discussions between respective technical staff will provide satisfactory responses to the NRC questions**
- **DOE is working to complete decisions pertaining to the new SS PA to allow disposal operations at the new disposal cells mid 2012.**

