



January 30, 2008

SRS-REG-2008-00008

Mr. Marty Lindler, Manager  
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**Saltstone Status Report - Fourth Quarter 2007 (U)**

References:

1. Modified Permit for the Savannah River Site (SRS) Z-Area Saltstone Disposal Facility, Facility ID No. 025500-1603, Aiken County, 1/23/07
2. Notification and Response to Vault 4 Wet Spots, ESH-WPG-2007-00031, August 27, 2007

The *Saltstone Status Report – Fourth Quarter 2007* is being submitted on behalf of the Department of Energy (DOE), Permittee, to the South Carolina Department of Health and Environmental Control (herein referred to as the Department) to satisfy, in part, the reporting requirements of the *Modified Permit for the Savannah River Site (SRS) Z-Area Saltstone Disposal Facility, Facility ID No. 025500-1603, Aiken County, 1/23/07* (Reference 1). The Report is organized into Attachments which satisfy the Special Conditions found in Reference 1 in accordance with the table below and the requirements of Reference 2.

<b>Condition, Reference 1</b>	<b>Attachment</b>
General Condition B.5 and Special Condition A.3.d	Attachment 1
Special Condition A.3.a	Attachment 2

The information contained in Attachment 1 provides a status of the Saltstone Production and Disposal Facility (SPF/SDF) operations during the fourth quarter of 2007. Also included in Attachment 1 is an update on the vault exterior condition which is required per Reference 2.

The information contained in Attachment 2 of this letter is being submitted to the Department in order to provide a status of the SRS Liquid Waste Disposition Processing Strategy activities during the fourth quarter of 2007, except for activities associated with Permit Special Condition A.1.d. (Reference 1), which will be covered in a separate report provided by DOE. Moreover, the report required by Permit Special Condition A.3.b., will be provided separately by DOE.

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If you have any questions, please contact Sharon Nicodemus at (803) 208-7111.

Sincerely,

Sharon Nicodemus  
Environmental Compliance Authority  
Washington Savannah River Company, LLC

### Attachment 1

## Saltstone Production and Disposal Facility Status Fourth Quarter 2007

Permit Condition	Requirement	Value	Comments
<b>B.5 a)</b>	Cumulative process volume of salt waste disposed to date	888 kilogallons (kgals)	
<b>b)</b>	Process volume of saltstone grout disposed and vault location (cell identity) for the reporting period	1429 kgals, Vault 4, Cell E Vault 4, Cell F	
<b>c)</b>	Cumulative process volume of saltstone grout disposed to date	1655 kgals	
<b>d)</b>	Remaining vault volume	$1.11 \times 10^4$ kgals	
<b>e)</b>	Curies disposed and vault location for the reporting period	7.7 kilocuries (kCi), Vault 4, Cell E Vault 4, Cell F	
<b>f)</b>	Cumulative inventory of curies disposed to date	8.4 kCi, Vault 4, Cell E Vault 4, Cell F Vault 4, Cell L	
<b>g)</b>	Curies of highly radioactive radionuclides disposed and vault location for the reporting period	3.7 kCi, Vault 4, Cell E Vault 4, Cell F	
<b>h)</b>	Cumulative inventory of highly radioactive radionuclides disposed to date	4.0 kCi, Vault 4, Cell E Vault 4, Cell F Vault 4, Cell L	

#### Vault 4 Exterior Update (Cells B,D,E,F,H,J,K,L only)

A number of wet spots were observed on the exterior wall of Vault 4, Cells E, F, J, K, and L during the reporting period. The Xypex coating is working as designed, as drying of the wet spots has been observed. The occurrence of new wet spots decreased over the reporting period. Some chronic wet spots exist, which continue to be observed. Engineering evaluations are being conducted in accordance with Reference 2. Changes in appearance of the wet spots, observed during routine inspections, are noted in Saltstone Disposal Facility operating procedures.

## **Attachment 2**

### **SRS Liquid Waste Disposition Processing Strategy Update**

Activities continue at the Savannah River Site consistent with the Department of Energy's (DOE) programmatic objectives and the Common Goals and Values {jointly developed by the DOE, the South Carolina Department of Health and Environmental Control (SCDHEC), and the South Carolina Governor's Nuclear Advisory Council (GNAC) as described in the SRS Liquid Waste Disposition Processing Strategy}. This update reports on the progress in implementing the Liquid Waste Disposition Processing Strategy for the period of October 1, 2007 through December 31, 2007, and thereby satisfies Special Condition 3.a., Modified Permit for the Savannah River Site (SRS) Z-Area Saltstone Disposal Facility, Facility ID # 025500-1603, January 23, 2007.

Treatment and disposal of the Deliquification, Dissolution and Adjustment (DDA) waste resumed on October 23, 2007 following successful resolution of the challenge to the Saltstone Disposal Facility permit modification and upgrades to the facility. After resumption of operations, the Saltstone Facilities dispositioned over 750,000 gallons of salt solution from Tank 50, the low-level waste feed tank, during this quarter. This material was designated as DDA Batch 2. The material processed to date has contained very little of the dissolved salt solution from Tank 41; the higher-curie material (<0.2 curies/gallon of Cs-137) containing a higher percentage of Tank 41, DDA Batch 3, will be introduced into the facility in late January or early February. DDA Batch 3 preparation activities that have occurred this quarter include the transfer of Tank 23 adjustment solution into Tank 49 and the subsequent 30-day solids settling period. During the first quarter of 2008, Tank 49 material will be transferred into Tank 50 to complete the preparations for DDA Batch 3.

Readiness preparations continue for the Actinide Removal Process (ARP) and the Modular Caustic Side Solvent Extraction Unit (MCU) facilities. The facilities have been undergoing readiness reviews during this quarter. The Washington Savannah River Company (WSRC) Operational Readiness Review (ORR) is on-going and will be followed by a final DOE ORR. It is anticipated that the facilities will receive DOE permission to initiate the next phase of operations on or about March 31, 2008.

Physical site tie-in preparations for the construction of the Salt Waste Processing Facility (SWPF) continued during this quarter. The Phase 1 electrical tie-ins were completed. In addition, the fire water and the domestic water tie-ins were initiated.

Sludge processing continued at the Defense Waste Processing Facility (DWPF) with 60 canisters of high-level waste being filled during this quarter. The facility is currently processing material from Sludge Batch 4. Preparations for Sludge Batch 5 material continue in Tank 51. Low-temperature aluminum dissolution activities were initiated last

quarter and continue today in Tank 51. To date, the results have been favorable with an estimated 50 percent of the aluminum dissolving back into the supernate. In the first quarter of 2008, the supernate in Tank 51 will be decanted and transferred to Tank 11. The activities associated with the transfer and storage of this aluminum-rich supernate to Tank 11 will be consistent with the written agreements with SCDHEC. The transfer to Tank 11 from Tank 51 is anticipated to occur in late January or early February.

A key activity during this quarter was the written decision, issued on November 19, 2007 by SCDHEC, Environmental Protection Agency, and DOE, resolving the *Dispute Concerning Extension of Closure Dates for Savannah River Site High-Level Radioactive Waste Tanks 19 and 18*. A risk-based approach was used to develop a new series of Federal Facility Agreement (FFA) closure commitments for waste removal and tank closure, as well as for the development of key regulatory documentation and initiation of discussions on the removal of legacy transuranic waste from the Site. The provisions of this agreement supersede the FFA Waste Removal Schedule, Revision 2 (9/6/04), and any other prior commitments related to waste removal, removal of tanks from service, or tank operational closure.

Tank closure activities continue on schedule to support the newly revised FFA closure commitments described above. Preparations continued this quarter for additional waste removal from Tanks 18 and 19 both with equipment fabrication and testing at the vendor's shop, and tank top design and modifications. Slurry Mixer Pump (SMP) installation in Tank 5 has been completed in preparation for resumption of mechanical cleaning activities in this tank. Design activities also continued for the chemical cleaning activities that are scheduled to occur in the second quarter of 2008. Additional information on tank closure activities will be provided in the quarterly briefing with SCDHEC that is currently scheduled for February 7, 2008.

Two major projects that will return valuable Type III tank space to general tank farm usage continue to move forward. Critical Decision 0, the first major project decision point, was approved for the project to return Tank 50 to general tank farm service. Work continues toward completion of Critical Decision 1 later this year. This decision will identify the technology, methodology and/or new construction that will be used to provide the alternative lag storage capability to free up Tank 50. In addition, progress continues toward implementing a viable treatment technology for the organics currently stored in Tank 48. During this quarter, Critical Decision 1 for the Tank 48 project was approved by the DOE Savannah River Operations Office. This approval allowed the Request for Proposal to be issued to prospective vendors for the design and construction of a Fluidized Bed Steam Reforming unit.

During this quarter, DOE did not realize any significant risks relative to the SRS Liquid Waste Disposition Processing Strategy nor were any new significant risks identified. Several opportunities for risk reduction have been realized, though, this quarter. In

DWPF, the processing rate for Sludge Batch 4 material has exceeded expectations. Sludge Batch 4 is the first sludge batch to contain significant quantities of insoluble solids from the H-Canyon process with the associated higher aluminum concentrations. The processing rates have exceeded expectations to date permitting Sludge Batch 4 waste to be vitrified and safely stored (pending future shipment to the federal repository) at a faster rate. In addition, the processing rates at the Saltstone Facilities have been over 15% higher than initial projections.

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File Info:

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