

Project Baseline Summary Report

Data Source: **EM CDB**
Operations/Field Office: **Savannah River**
Site Summary Level: **Savannah River Site**
Project **SR-HL06 / Glass Waste Storage**

Report Number: **GEN-01b**
Print Date: **3/9/2000**
HQ ID: **0041**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

THE SCOPE OF WORK DESCRIBED IN THIS PROJECT IS WRITTEN FOR FUNDING AT THE PLANNING LEVEL. The Glass Waste Storage Building (GWSB) receives filled canisters from DWPF and stores them temporarily in shielded, below grade, storage sites pending shipment to a Federal Repository (scheduled to open in FY2015). GWSB activities include 24-hour surveillance, maintenance, operation, monitoring, and inspection of the highly radioactive glass canisters currently being stored in GWSB #1, including operation and maintenance of forced air ventilation systems, radiation monitors and temperature sensors. GWSB #1, which will hold 2159 canisters, is scheduled to be filled in FY07, by which time GWSB #2 must be designed, constructed, and ready to receive canisters. Canisters will be shipped to the Federal Repository at the rate of 500 per year from FY15 through FY26.

Technical Approach: The key technologies used in the safe storage and management of these high-level radioactive canisters include the following: ventilation (to remove radioactive decay heat from the storage vault); shielding (to protect workers from radiation hazards); seismically qualified storage silos (to ensure continued safe storage of the canisters in the event of an earthquake).

Project Status in FY 2006:

GWSB #1 began radioactive operations in FY96 when it received the first radioactive glass canisters from DWPF. GWSB will continue receiving and storing canisters until the opening of a Federal Repository (scheduled for FY15). By the end of FY06, GWSB #1 is projected to be storing approximately 2,100 canisters, close to its capacity of 2,159 canisters. Design and construction of GWSB #2 will take place from FY03-FY06 so that GWSB #2 will be ready to receive radioactive canisters in early FY07.

Post-2006 Project Scope:

From FY07-FY24, approximately 3,600 additional SRS glass canisters will be produced at DWPF. These will be stored at the GWSBs, pending shipment to a Federal Repository which is scheduled to begin in FY15. Canister shipments to the repository are scheduled to occur from FY15-FY26 at the rate of 500 canisters per year. Prior to FY15, a canister load-out facility will be designed, constructed and operated to remove the canisters from the GWSBs and load them into approved transportation casks for shipment to the repository for safe permanent disposal.

Project End State

The project will end in FY26 when all waste glass canisters have been removed from Glass Waste Storage Buildings #1 and #2 and shipped to the Federal Repository. No canisters will remain at SRS. GWSB #1 is scheduled to be emptied and available for disposition activities in FY24. GWSB #2 is scheduled to be emptied and available for disposition activities in FY26. Disposition is covered by project SR-FA24 (High Level Waste Facilities Disposition).

Cost Baseline Comments:

Outyear cost baseline estimates use FY01 as the base year, adding escalation and adjusting for the following major programmatic changes. Operating costs are relatively constant from FY02-FY06 while GWSB #1 is being filled. In FY07 operating costs will basically double when GWSB #2

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begins receiving waste and there are two facilities storing and monitoring radioactive waste canisters. Operating costs again remain relatively constant until FY15, when the shipping facility becomes operational and canister shipments to the Federal Repository begin. Both GW SBs are used for receiving new canisters and shipping to the repository until FY24 when GW SB #1 ceases operations. The last canisters are shipped from GW SB #2 in FY26 and all operations cease. The major programmatic changes to the cost baseline are the construction of GW SB #2 from FY02-FY15 and the construction of the shipping facility from FY12-FY14.

Facility disposition is covered by project SR-FA24 (High Level Waste Facilities Disposition).

Safety & Health Hazards:

The Glass Waste Storage Building provides safe storage for the highly radioactive, solidified, waste glass filled canisters produced by the DWPF Vitrification Facility, Project SR-HL05. Operations, maintenance and waste handling are done under radiological conditions to avoid direct personnel exposure and prevent contamination. Other hazards include miscellaneous hazards commonly encountered in industrial settings (lifting, tripping, falls, rotating equipment, etc.). These hazards are controlled both through engineering controls (hand rails, motor guards, etc.) and through administrative controls (policies and procedures, training, personal protective equipment, etc.).

Safety & Health Work Performance:

All work is performed using a WSRC Integrated Safety Management System (ISMS) approach. The ISMS integrates safety considerations into management and work practices at all levels to accomplish missions while protecting the public, the worker, and the environment. The key elements of the WSRC ISMS are to define the scope of work, identify and analyze hazards associated with the work, develop and implement hazard controls, perform work within controls, and provide feedback on adequacy of controls and continue to improve safety management. The WSRC Integrated Procedures Management System is the primary mechanism for implementing the objective, principles and functions of the ISMS. This system establishes Company-Level, Division-level, and Program-specific procedures consistent with organizational roles, and ensures a consistent, disciplined site-wide approach to safety while performing work.

PBS Comments:

Funding for the Glass Waste Storage Buildings is at the minimum level necessary to assure safe storage and management of the radioactive waste glass canisters produced by the DWPF vitrification facility at the rate of 200 canisters per year from FY98-04; 225 canisters in FY05; 250 canisters per year in FY06-FY14; 200 canisters per year in FY15-23, and 72 canisters in FY 24. Reductions in Glass Waste Storage Building funding or the funding for related projects (i.e., Waste Removal Operations and Tank Closure, ITP/ESP/LW, Glass Waste Storage Building, or High Level Waste System Upgrades) would eliminate the mortgage reductions for surveillance and maintenance that can be generated as groups of waste tanks are closed and will delay the schedule, thereby increasing the overall life cycle cost of high level waste immobilization.

The Glass Waste Storage Buildings operate under an SCDHEC waste water permit.

The major drivers for this project are:

- Federal Facilities Agreement (FFA) - Executed by the Department of Energy, the Environmental Protection Agency and the South Carolina Department of Health and Environmental Control on January 15, 1993. The initial schedule proposed that liquid high level radioactive waste be

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removed all 24 of the old style tanks in H and F-Tank Farms which do not meet specified secondary containment and leak detection requirements by 2028. This proposed date, however, has been rejected by the state as not aggressive enough. Negotiations are underway to establish a more aggressive commitment date that will meet regulatory expectations while balancing technical and resource limitations.

- Site Treatment Plan - The Site Treatment Plan for SRS includes the following commitments for DWPF (Vitrification, SR-HL05): "Upon the beginning of full operations, DWPF must maintain an average of 200 canisters of processed glass per year to meet the commitment for the removal of backlogged and currently generated waste inventory by 2028."

Glass Waste Storage Buildings #1 and #2 must operate to support these commitments.

Baseline Validation Narrative:

This project has completed an internal validation conducted by SRS personnel independent from the project.

General PBS Information

Project Validated? Yes **Date Validated:** 1/29/1999
Has Headquarters reviewed and approved project? No
Date Project was Added: 12/1/1997
Baseline Submission Date: 7/3/1999
FEDPLAN Project? Yes

Drivers:	CERCLA	RCRA	DNFSB	AEA	UMTRCA	State	DOE Orders	Other
	N	N	N	N	N	Y	N	N

Project Identification Information

DOE Project Manager: H. B. Gnann
DOE Project Manager Phone Number: 803-208-6076
DOE Project Manager Fax Number: 803-208-7414
DOE Project Manager e-mail address: howard.gnann@srs.gov
Is this a High Visibility Project (Y/N):

Planning Section

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Baseline Costs (in thousands of dollars)

	1997-2006 Total	2007-2070 Total	1997-2070 Total	1997	Actual 1997	1998	Actual 1998	1999	2000	2001	2002	2003	2004	2005	2006	
PBS Baseline (current year dollars)	159,560	70,188	229,748	430	430	316	316	494	597	362	8,540	38,895	46,015	39,446	24,465	
PBS Baseline (constant 1999 dollars)	136,826	44,611	181,437	430	430	316	316	494	576	337	7,748	34,358	39,579	33,037	19,951	
PBS EM Baseline (current year dollars)	159,560	70,188	229,748	430	430	316	316	494	597	362	8,540	38,895	46,015	39,446	24,465	
PBS EM Baseline (constant 1999 dollars)	136,826	44,611	181,437	430	430	316	316	494	576	337	7,748	34,358	39,579	33,037	19,951	
	2007	2008	2009	2010	2011- 2015	2016- 2020	2021- 2025	2026- 2030	2031- 2035	2036- 2040	2041- 2045	2046- 2050	2051- 2055	2056- 2060	2061- 2065	2066- 2070
PBS Baseline (current year dollars)	805	827	849	872	42,348	10,798	11,686	2,003	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	639	639	639	639	28,680	6,401	6,064	910	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	805	827	849	872	42,348	10,798	11,686	2,003	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	639	639	639	639	28,680	6,401	6,064	910	0	0	0	0	0	0	0	0

Baseline Escalation Rates

1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
0.00%	0.00%	0.00%	3.60%	3.60%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

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2010	2011-2015	2016-2020	2021-2025	2026-2030	2031-2035	2036-2040	2041-2045	2046-2050	2051-2055	2056-2060	2061-2065	2066-2070
2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%	2.70%

Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project: 9/1/2026

Current Projected End Date of Project: 3/30/2026

Explanation of Project Completion Date Difference (if applicable):

This Baseline predicts 5700 instead of 6000 total canisters to be produced. Therefore the shipments can be completed approximately 5 months earlier.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	155,316	Actual 1997 Cost:	430	Actual 1998 Cost:	316
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	154,570	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):			4,173
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	158,743				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
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Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+):

	21,947	Shipment Facility required for Repository shipments not in prior baseline.
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Cost Growth Associated with Scope Previously Reported (+):

Cost Reductions Due to Science & Technology Efficiencies (-):

Subtotal:

	180,690	
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Additional Amount to Reconcile (+):

	1	
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Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):

	180,691	
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Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Finish shipping vitrified waste to Federal Repository. (End of Project)	SR-HL06-260		3/30/2026								
Initiate Glass Waste Storage Building II Line Item	SR-HL06-020		10/1/2001								
Initiate Operations in Glass Waste Storage Building II	SR-HL06-070		10/1/2006								
Initiate Shipment of Vitrified Waste to Federal Repository	SR-HL06-150		10/1/2014								
Project Start	SR-HL06-001		10/1/1996								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critical Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
Finish shipping vitrified waste to Federal Repository. (End of Project)	SR-HL06-260				Y						
Initiate Glass Waste Storage Building II Line Item	SR-HL06-020										
Initiate Operations in Glass Waste Storage Building II	SR-HL06-070										
Initiate Shipment of Vitrified Waste to Federal Repository	SR-HL06-150										
Project Start	SR-HL06-001			Y							

Performance Measure Metrics

Category/Subcategory	Units	1997-2006 Total	2007-2070 Total	1997-2070 Total	Actual Pre-1997	Planned 1997	Actual 1997	Planned 1998	Planned 1999	Planned 2000	Planned 2001	Planned 2002	Planned 2003	Planned 2004
HLW														
Storage	M3													

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Category/Subcategory	Units	Planned 2004	Planned 2005	Planned 2006	Planned 2007	Planned 2008	Planned 2009	Planned 2010	Planned 2011 - 2015	Planned 2016 - 2020	Planned 2021 - 2025	Planned 2026 - 2030	Planned 2031 - 2035
HLW													
Storage	M3												
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2065	Planned 2066 - 2070	Exceptions	Lifecycle Total			
HLW													
Storage	M3												