

# *Project Baseline Summary Report*

Data Source: **EM CDB**

Operations/Field Office: **Savannah River**

Site Summary Level: **Savannah River Site**

Project **SR-ER01 / Flood Plain Swamp Project**

Report Number: **GEN-01b**

Print Date: **3/9/2000**

HQ ID: **0051**

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## **General Project Information**

### **Project Description Narratives**

#### **Purpose, Scope, and Technical Approach:**

##### *Purpose / Scope*

The Flood Plain Swamp Watershed Project is one of six geographical divisions of SRS established with the purpose of implementing the Federal Facility Agreement (FFA). The Flood Plain Swamp Watershed Project contains three primary areas: D-Area, TNX Area, and West M-Area. Portions of D-Area were used from the mid-1950s through the mid-1980s for disposal and storage of coal ash, oil, chemicals, and general debris. TNX was also operated during the same time frame for the purpose of conducting pilot tests to support the SRS activities and operations. Portions of West M-Area were used for disposal of waste before the government had control of the site and for disposal of general debris after the site started operations.

Definition of Scope: Remediation of the Flood Plain Swamp Watershed Project will consist of the following:

- preliminary evaluation of known suspect areas to determine if action is necessary,
- investigation and analysis of the identified waste units and any suspect areas identified through preliminary evaluations to determine further investigation and possible required remediation,
- implementation of remediation technologies to mitigate the impact of contaminants of concern on human health and the environment, and
- post action monitoring to ensure that the implemented technology was effective.

Remediation of the Flood Plain Swamp Watershed Project in accordance with RCRA and CERCLA will decrease human and environmental risks to acceptable levels. The Flood Plain Swamp Watershed Project will require remediation of

- primary source material,
- affected soils,
- affected surface water pathways, and
- affected groundwater.

##### *Technical Approach*

The technical approach to the preliminary evaluations and investigations will consist of sampling soil, surface water, and groundwater to determine the nature, extent, and mobility of the contaminants associated with the waste units. Once the sampling has been completed, analysis of the data will be performed to evaluate current and future impacts to human health and the environment due to the waste unit. This information will be used to screen remediation technologies to identify the most effective remedy. The remedy will then be implemented, and post action monitoring initiated to ensure it is effective.

The types of remedies anticipated to be used or currently in use on the Flood Plain Swamp Watershed Project

- capping (using either natural or synthetic materials),
- removal and proper disposal of contaminated soil and sediments, and
- continued operation of existing air strippers for the removal of VOCs from the groundwater.

In addition to these standard technologies, the Environmental Restoration Division is aggressively pursuing innovative technologies that will either

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enhance the effectiveness of the remedy or minimize the cost. Innovative technologies to be deployed in this project include various sampling and analysis methods to reduce Investigative Derived Waste (IDW). Technologies include

- Alternatives to pump and treat for ground water contamination;
- Long term low permeability cover systems;
- In situ solidification and stability technologies;
- New technologies to characterize and remediate DNAPL;
- Technologies to remotely identify the presence of buried waste;
- Phytoremediation and other passive treatment systems;
- Technologies to treat or hydraulically control tritium contaminated groundwater.

### Project Status in FY 2006:

"Just in time" compliance is depicted in the "Planning Case." ("Just in time" is defined as adherence to compliance direction in a manner that is "Just in time" to meet regulatory deliverables and avoid fines and penalties.) Projects unfunded at the target case could be deferred upon approval.

Due to insufficient funding at the target level, the following projects are unfunded

- 1204 D-Area IHMU
- 1406 Silverton Road

The planning case will allow for ongoing assessment at D-Area Waste Oil Facility. Remediation will be ongoing for 488-D Ash Basin. The planning and target case will allow remediation to be completed and five-year ROD review to be ongoing for D-Area Oil Seepage Basin, D-Area Burning Rubble Pit, Silverton Road, and TNX Operable Unit. Within project 1129(TNX Outfall Delta), soil excavation will be done for the remediation of the first four feet of soil in a 9-acre plot. Operation and maintenance will be ongoing for TNX groundwater in both the target and planning case. However, the target case does not allow for remediation of D-Ash Basin in FY06.

### Post-2006 Project Scope:

"Just In Time" compliance is depicted in the "Planning Case." Projects unfunded at the target case could be deferred upon approval.

In the planning case, D-Area Ash Basin remedial action will be complete in FY07. TNX groundwater will be operating with a groundwater remediation system. In the target case, the remedial action for D-Area Ash Basin will not be complete by FY07 as currently planned. In the planning and target cases, three sites (D-Area Burning Rubble Pit, D-Area Oil Seepage Basin, and D-Area Waste Oil Facility) will have ongoing routine groundwater monitoring. Five-year ROD reviews will be required for TNX Operable Unit, TNX Outfall Delta, D-Area Burning Rubble Pit, D-Area Oil Seepage Basin, and D-Area Waste Oil Facility.

### Project End State

The Flood Plain Swamp Watershed Project will meet the EM site objectives after the completion of the remediation and monitoring described in the technical approach. After remediation has been completed, the sites will be subject to periodic five-year reviews of the ROD. Portions of the project where institutional controls were implemented will continue to require oversight until the property is transferred with appropriate deed restrictions.

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### Cost Baseline Comments:

- "Just In Time" compliance is depicted in "Planning Case."
- Target Funding for FY01 is insufficient for current regulatory requirements.
- Certain projects are unfunded at target level of funding and could impact completion.
- The Cost Baseline reflects fully utilized target funding in outyears (FY02 - FY06) for existing and anticipated regulatory requirements.
- Budget for regulatory driven Low Level Waste disposal will be included in Solid Waste Division's Program Baseline Summaries (PBS).

The following projects have been identified as compliance work for FY01; however, they are unfunded at the current target level due to insufficient funding.

- 1204 D-Area IHMU (FY01= \$37,301)
- 1406 Silverton Road (FY01= \$161,547)

### Safety & Health Hazards:

The criteria for determining the radiological hazard categories are provided in DOE-STD-1027-92 and the criteria for determining the chemical hazard categorization are provided in WSRC-MS-92-206. Chemical inventory is controlled in accordance with RDP 14.1, Chemical Management Program and Chemicals and Nonradioactive Hazardous Materials Control (U), DPSOL 105-1845-K.

### Safety & Health Work Performance:

Activities and checkpoints are described by the Integrated Management System Description. The conditions and requirements are clearly established and agreed upon prior to the start of any project, and those requirements are contractually binding upon WSRC. The key elements of the WSRC Integrated Safety Program are to define the scope of work, identify and analyze hazards associated with the work, develop and implement hazard controls, perform work within controls, provide feedback on adequacy of controls, and continue to improve safety management. The WSRC Integrated Procedures Management System (IPMS) is the primary mechanism for implementing the objectives, principles, and functions of the Safety Management System. 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. The resource description, costs, and skill mix are defined in the following Sections; Costs D.2.2, Costs D.3, FTEs D.2.5, and FTEs D.2.7 of the IPMS.

### PBS Comments:

The remediation of the Flood Plain Swamp Watershed Project is monitored very closely by both EPA Region IV and SCDHEC through the implementation of the FFA. If progress in this watershed is not made in accordance with the FFA, RCRA permits, and settlement agreements then DOE could be subject to fines and penalties from both regulatory agencies. In addition, portions of the Flood Plain Swamp Watershed Project have been identified as areas that could be developed for industrial purposes in the future. This future industrial use of the site could be impeded if remediation of the watershed is not conducted as planned.

### Baseline Validation Narrative:

ERD's Baseline Validation History

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The Environmental Restoration (ER) Department was established in 1990 with the mission to clean up (remediate) the environmental damage incurred during past operations. Although the scope of cleanup was not clearly defined at that time, DOE, through its contractors, initially identified 420 waste units. In 1992, the ER Department defined and bounded this scope of work via the Federal Facilities Agreement (FFA), a legally binding agreement between the Department of Energy (DOE), the U.S. Environmental Protection Agency, and the State of South Carolina. However, ER and DOE management realized the need to continue refining the scope defined in the FFA. A tool to manage the work in terms of scope, schedule, and cost was also needed. This realization led to the development of Baseline 93 (BL93).

To accomplish the scope of work found in the approved FFA, the ER Department realized that the scope of work had to be more clearly defined. BL 93 was organized by scope, schedule, and cost in accordance with the EM-40 "Project Management Notebook".

The first baseline was prepared using the "Balanced Program Strategy". This strategy considered the needs and requirements of worker and public health and safety, environmental concerns (risk), regulatory compliance and funding considerations. A mixture of high-, medium-, and low-risk waste units was scheduled at the same time. This balanced approach would later be changed to schedule the higher-risk units prior to lower-risks units.

The cost estimates in this baseline were in FY93 dollars. Escalation (to accommodate rising costs) was applied beginning in FY95. Neither contingency nor management reserve were built in to the cost estimate at this time. The baseline time frame extended only to FY99 per DOE direction and did not account for the full Life Cycle Cost. In early 1994, an Independent Cost Estimating (ICE) team reviewed BL93 and verified the building blocks used in development of BL93 were accurate.

### Baseline 93 Highlights

- The parametric model template was developed for the SRS from a baselining model used at DOE Hanford. DOE approved this model.
- This first ER baseline used parametric modeling to estimate the cost of a project.
- The baseline reflected target values through FY99.
- The scope of work encompassed 420 waste units identified in the FFA, including the RCRA scope of work.
- Schedules were developed using legal drivers (i.e., settlement agreements, FFA and court orders).
- BL93 was endorsed by Savannah River Operations Office and EM-42 as a quality document.
- BL93 included data for FY93 to FY99 only per DOE direction.
- BL93 with the ICE comments included was utilized to request future funding.

In FY94, Congress required that DOE provide a Baseline Environmental Management Report (BEMR) with annual updates.

The ER Department used this request as an opportunity to update the FY93 baseline. This report used the Life Cycle Cost Estimate (LCCE) for the first time. The LCCEs were not fully complete at the first request of the BEMR so parametric modeling in conjunction with LCCEs were used to develop the cost estimates for BEMR 94. Using legal drivers, BEMR 94 schedules indicated the life cycle of the ER program (including surveillance and monitoring) would extend to FY2045.

This was the first SRS ER baseline that included a full life cycle cost schedule for FFA Appendix C waste units. An estimated cost, for assessment only, was applied to FFA Appendix G waste units that had not been characterized or estimated in BL93. The estimates to cleanup Appendix G waste

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units were not included to capture the total cost of the ER program because there was not enough information to make an educated guess.

In the absence of a formal future land use designation, BEMR 94 assumed a base case that closely followed industrial criteria for remediation of waste units. All budgets were in constant FY95 dollars. No contingency or escalation was applied.

### BEMR 94 Highlights

- Estimates were taken from a combination of modeled LCCEs and parametric estimates.
- Schedules were developed from legal drivers (FFA). The end date for all ER activity was estimated to be FY2045.
- The number of waste units could increase due to new discoveries.
- An estimate was included to cover the assessment of Appendix G waste units; no remediation costs were included.

BEMR 96 was the next update required by congress. In this update, technology approaches that would lead to productivity improvements were assumed. Remediation of FFA Appendix G waste units were now included and was the major contributor to the increase in cost from BEMR 94 to BEMR 96. These costs were developed using a model that assumed past experience that would continue for future site evaluation activities and cost. It was also assumed that 25% of the waste units in the Site Evaluation (SE) Program would be classified as high-risk sites and move into the base program. This assumption later proved to be incorrect.

### BEMR 96 Highlights

- Estimates were taken from modeled LCCEs.
- Schedules were developed from legal drivers (FFA).
- With new waste unit discoveries, in addition to the split of existing waste units for tracking purposes, the scope of work was increased to 478 waste units.

Changing technologies and assumptions in land use demonstrated a need to further define the ERD scope of work, schedule, and cost. In April of 1996, ER issued the most inclusive baseline to date. The assumptions were clearly documented, with contingency derived from risk analysis and escalation applied in a logical manner (not straight-lined).

- BL96 used the information taken from LCCEs. These estimates were activity-based estimates with specific resources identified and applied to work scope.
- Schedules were then developed by applying regulatory drivers (i.e., FFA, primary agreements, other agreements and drivers).
- After further evaluation, some waste units were combined, dropping the population of waste units to 467.
- Although BEMR 96 included order of magnitude costs for remediation of waste units in Appendix G, they were not included in BL96. BL96 did not include any planning estimates.
- Schedules used the same regulatory drivers as BEMR 96.

In order to validate BL96, an ICE review was conducted.

The ICE team comments centered on the LCCEs. The cost delta between BL96 and BL96 ICE is primarily attributed to changes in scheduling and costs for program support. The agreed-to ICE comments significantly reduced the cost of this scope in the outyears. This review concluded with

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preparation of a baseline change package addendum to BL96 in April 1997. The ICE comments were incorporated into revised LCCE beginning in FY97.

A primary objective of the Ten Year Plan was to cleanup as many waste units as possible within ten years. The ER Program planned to complete remediation of the majority of high- and medium- risk waste units within ten years assuming regulatory flexibility with rescheduling of work and that funding would be available to support the work.

The concept of organizing work scope into areas (PBS) was first introduced in the Ten Year Plan. The SRS ER Program chose to utilize the natural occurrence of watersheds (areas) to summarize the projects. This PBS is a product of this WBS change.

### Ten Year Plan Highlights

- Basis for the existing WBS configuration.
- Most high-risk units in cleanup by FY2006.
- 25% of Appendix G units were assumed to require further assessment and remediation.
- Scope of work was 467 sites.

The "Accelerating Cleanup: Paths to Closure" report was built on the concepts of the Ten Year Plan. Expanding on the area format, data requirements were further refined to produce an integrated management strategy for Environmental Restoration efforts across the DOE Complex. The ER program at SRS was also streamlining the regulatory process to accelerate remediation. One streamlining concept, the Plug-in Record of Decision (ROD) was also introduced. The Plug-in ROD is designed to reduce the time from characterization to actual remediation for sites with similar contamination where the same remediation technology is applied. Work scope was also re-evaluated to achieve maximum remediation results and cost reductions. Included in this update was the addition of the Integrator Operable Units (IOUs) that extended the schedule for cleanup after all the waste units in that area had been remediated.

### Accelerated Cleanup: Paths to Closure Highlights

- Approved LCCEs were used to develop ACP Cost.
- Schedules were based on a new FFA, which reflected the cleanup of high-risk waste units first, followed by sites of lower risk.
- Scope of work was 477 waste units.

During FY97 and FY98, LCCEs were updated yearly to include the latest technologies used to clean up the waste units, which greatly increased the productivity of the ERD Program.

Incorporation of technological advances resulted in increased savings from BL96 though the scope increased since BL96, due to site evaluation units moving into the base program.

During FY98, ER's Technical baseline was reviewed by TetraTech EM, Inc. and in November 1998 validated with minimal recommendations. These recommendations are under review and are being incorporated in future revisions to the LCCEs.

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## Project Description Narratives

### Current Baseline Estimate Highlights

- Most comprehensive baseline
- Integration of Strategic Planning
- Environmental Risk Analyses and Assignment of waste units.
- Business Risk Analyses
- Baseline developed by consensus building by ERD, DOE, Regulators and the Public
- LCCEs reviewed and approved by DOE
- FFA is primary driver of program
- Changes from BL96 to current estimates reconciled
- Recognition of new technologies
- Again, some waste units were split apart and newly discovered, increasing the ER program scope to 477 waste units.
- The ER program completion date moved from FY2045 to FY2038.

During the last six years, ERD has undergone significant improvement in defining work scope and estimating the cost to complete this scope. LCCEs and schedules have evolved to definitive documents that will more accurately measure future changes in scope, schedule, and cost. A configuration control process is used to manage this baseline.

## General PBS Information

**Project Validated?** Yes **Date Validated:** 10/3/1996

**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
	Y	Y	N	Y	N	Y	Y	Y

## Project Identification Information

**DOE Project Manager:** Cynthia V. Anderson

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**DOE Project Manager Fax Number:** 803-725-7548

**DOE Project Manager e-mail address:** cynthia-v.anderson@srs.gov

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## General PBS Information

Is this a High Visibility Project (Y/N):

## Planning Section

### 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)	68,785	90,890	159,675	4,836	4,836	5,646	5,646	8,551	4,466	7,531	12,965	3,794	11,909	3,905	5,182	
PBS Baseline (constant 1999 dollars)	63,214	65,873	129,087	4,836	4,836	5,646	5,646	8,551	4,311	7,017	11,762	3,351	10,243	3,271	4,226	
PBS EM Baseline (current year dollars)	68,785	90,890	159,675	4,836	4,836	5,646	5,646	8,551	4,466	7,531	12,965	3,794	11,909	3,905	5,182	
PBS EM Baseline (constant 1999 dollars)	63,214	65,873	129,087	4,836	4,836	5,646	5,646	8,551	4,311	7,017	11,762	3,351	10,243	3,271	4,226	
	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)	20,839	18,252	15,712	6,136	18,790	7,828	1,295	720	1,318	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	16,548	14,112	11,829	4,498	12,724	4,639	672	327	524	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	20,839	18,252	15,712	6,136	18,790	7,828	1,295	720	1,318	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	16,548	14,112	11,829	4,498	12,724	4,639	672	327	524	0	0	0	0	0	0	0

## Baseline Escalation Rates

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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%
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: 4/9/2009

Current Projected End Date of Project: 9/30/2038

Explanation of Project Completion Date Difference (if applicable):

### Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	116,392	Actual 1997 Cost:	4,836	Actual 1998 Cost:	5,646
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	105,910	Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):	2,860		
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	108,770				

### Project Cost Changes

#### Cost Adjustments    Reconciliation Narratives

Cost Change Due to Scope Deletions (-):

Cost Reductions Due to Efficiencies (-):

Cost Associated with New Scope (+):

Cost Growth Associated with Scope Previously Reported (+): 9,838    Regulatory changes, updated estimates, & scope changes resulted in a net cost growth.

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

Subtotal: 118,608

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## Project Reconciliation

Additional Amount to Reconcile (+): -3

Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars): **118,605**

### Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
D-Area Ash Basin (488-D), D-Area Coal Pile Runoff Basin (489-D) R (signed ROD)	SR-ER01-017		6/30/2005	6/30/2005			Y			Y	
D-Area Ash Basin (488-D), D-Area Coal Pile Runoff Basin (489-D) R (RA Start)	SR-ER01-020		9/30/2006	9/30/2006			Y				
D-Area Oil Seepage Basin (631-G) Remedial Action Start	SR-ER01-015		9/3/1999	9/3/1999			Y				
D-Area Waste Oil Facility (484-D) Field Start Characterization	SR-ER01-014		3/30/2003	3/30/2003			Y				
D-Area Waste Oil Facility (484-D) Signed ROD	SR-ER01-022		3/30/2006	3/30/2006			Y			Y	
D-Area Waste Oil Facility (484-D) Remedial Action Start	SR-ER01-019		6/30/2007	6/30/2007			Y				
Ditch X-01 Field Start	SR-ER01-023		3/30/2004	3/30/2004			Y				
Ditch X-01 RA Start	SR-ER01-025		6/30/2008	6/30/2008			Y				
Ditch X-01 ROD	SR-ER01-024		3/30/2007	3/30/2007			Y			Y	
Flood Plain Swamp IOU Field Start	SR-ER01-029		6/30/2017	6/30/2017			Y				
Flood Plain Swamp IOU RA Start	SR-ER01-031		6/30/2021	6/30/2021			Y				
Flood Plain Swamp IOU ROD	SR-ER01-030		3/30/2020	3/30/2020			Y			Y	
Flood Plain Swamp IOU Remediated	23		4/1/2009	4/1/2009							
LT S&M Completion (If applicable)	SR-ER01-003		9/30/2038	9/30/2038							
Project Mission Complete	SR-ER01-002		4/9/2009	4/9/2009							
Savannah River IOU Field Start	SR-ER01-026		6/30/2017	6/30/2017			Y				

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Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
Savannah River IOU RA Start	SR-ER01-028		6/30/2021	6/30/2021			Y				
Savannah River IOU ROD	SR-ER01-027		3/30/2020	3/30/2020			Y			Y	
Silverton Road Waste Site (731-3A) 5yr ROD Review	SR-ER01-021		9/16/2002	9/16/2002			Y			Y	
TNX Operable Unit 07 Submit Signed ROD	SR-ER01-018		10/29/2000	10/29/2000			Y			Y	
TNX Operable Unit 07 Remedial Action Start	SR-ER01-016		3/30/2002	3/30/2002			Y				
TNX Operable Unit 07 Revision.0 ROD Submittal	SR-ER01-012		3/20/1999	3/20/1999			Y			Y	
TNX Outfall Delta, Lower Discharge Gully, and Swamp ROD	SR-ER01-034		9/30/2002	9/30/2002			Y				
TNX Outfall Delta, Lower Discharge Gully, and Swamp RA Start	SR-ER01-036		12/30/2003	12/30/2003			Y				
Floodplain Swamp IOU Monitoring Field Start	SR-ER01-051		6/20/2003	6/20/2003			Y				
Savannah River IOU Monitoring Field Start	SR-ER01-131		6/30/2000	6/30/2000							
Project Start	SR-ER01-001		10/1/1996								
Project Completion			9/30/2035								

## 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
D-Area Ash Basin (488-D), D-Area Coal Pile Runoff Basin (489-D) R (signed ROD)	SR-ER01-017										Unfunded at Target
D-Area Ash Basin (488-D), D-Area Coal Pile Runoff Basin (489-D) R (RA Start)	SR-ER01-020										Unfunded at Target
D-Area Oil Seepage Basin (631-G) Remedial Action Start	SR-ER01-015										

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# Project Baseline Summary Report

Data Source: **EM CDB**

Operations/Field Office: **Savannah River**

Site Summary Level: **Savannah River Site**

Project **SR-ER01 / Flood Plain Swamp Project**

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HQ ID: **0051**

## 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
D-Area Waste Oil Facility (484-D) Field Start Characterization	SR-ER01-014									Y	
D-Area Waste Oil Facility (484-D) Signed ROD	SR-ER01-022									Y	
D-Area Waste Oil Facility (484-D) Remedial Action Start	SR-ER01-019									Y	
Ditch X-01 Field Start	SR-ER01-023										
Ditch X-01 RA Start	SR-ER01-025										
Ditch X-01 ROD	SR-ER01-024										
Flood Plain Swamp IOU Field Start	SR-ER01-029										
Flood Plain Swamp IOU RA Start	SR-ER01-031										
Flood Plain Swamp IOU ROD	SR-ER01-030										
Flood Plain Swamp IOU Remediated	23									Y	
LT S&M Completion (If applicable)	SR-ER01-003				Y						
Project Mission Complete	SR-ER01-002										
Savannah River IOU Field Start	SR-ER01-026										
Savannah River IOU RA Start	SR-ER01-028										
Savannah River IOU ROD	SR-ER01-027										
Silverton Road Waste Site (731-3A) 5yr ROD Review	SR-ER01-021									Y	
TNX Operable Unit 07 Submit Signed ROD	SR-ER01-018										
TNX Operable Unit 07 Remedial Action Start	SR-ER01-016										

Dataset Name: **FY 1999 Planning Data**

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HQ ID: **0051**

Project **SR-ER01 / Flood Plain Swamp Project**

## 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
TNX Operable Unit 07 Revision.0 ROD Submittal	SR-ER01-012									Y	
TNX Outfall Delta, Lower Discharge Gully, and Swamp ROD	SR-ER01-034										
TNX Outfall Delta, Lower Discharge Gully, and Swamp RA Start	SR-ER01-036										
Floodplain Swamp IOU Monitoring Field Start	SR-ER01-051										
Savannah River IOU Monitoring Field Start	SR-ER01-131										
Project Start	SR-ER01-001			Y							
Project Completion					Y					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
<b>RS</b>														
Assess.	NR	23.00	6.00	29.00	4.00	4.00	4.00	5.00	1.00	3.00		1.00	1.00	1.00
<b>RS</b>														
Cleanup	NR	14.00	16.00	30.00	2.00	4.00	4.00	4.00	1.00					4.00
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	
<b>RS</b>														
Assess.	NR	1.00	5.00	2.00	1.00	1.00	1.00	2.00	1.00					

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HQ ID: **0051**

Project **SR-ER01 / Flood Plain Swamp Project**

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	
<b>RS</b>														
Cleanup	NR	4.00		1.00	1.00	1.00	5.00	2.00	5.00	2.00				
Category/Subcategory	Units	Planned 2036 - 2040	Planned 2041 - 2045	Planned 2046 - 2050	Planned 2051 - 2055	Planned 2056 - 2060	Planned 2061 - 2035	Planned 2066 - 2070	Exceptions	Lifecycle Total				
<b>RS</b>														
Assess.	NR										40.00			
<b>RS</b>														
Cleanup	NR										40.00			
<b>Release Sites</b>														
Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
SARS	0025		082-G \ TNX GROUNDWATER	Surface and Groundwater/Groundwa ter Plumes	2000	2001	9/30/1996	2004				N		N
SARS	0026		631-G \ D-AREA OIL SEEPAGE BASIN	Above Ground Material / Waste/Scrap Yards	1998	1998	6/16/1998	2004	2000	6/16/1998		N		N
SARS	0032		431-1D \ D-AREA BURNING RUBBLE PIT 431-1D	Waste/Burn Pits	1997		11/13/1996	1997		11/13/1996		N	Pending	N
SARS	0033		431-D \ D-AREA BURNING RUBBLE PIT 431-D	Waste/Burn Pits	1997		11/13/1996	1997		11/13/1996		N	Pending	N
SARS	0041		731-3A \ SILVERTON ROAD WASTE SITE	Above Ground Material / Waste/Debris Piles	1997		11/13/1996	1997		11/13/1996		N	Pending	N
SARS	0068		488-D \ D AREA ASH BASINS NO. O	Liquid Surface Impoundments/Seepage Basins	2005	2005		2009	2005		1993	N		N
SARS	0069		489-D \ D-AREA COAL PILE RUNOFF	Liquid Surface	2005	2005		2009	2005		1993	N		N

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Project **SR-ER01 / Flood Plain Swamp Project**

## Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
			BASIN	Impoundments/Seepage Basins										
SARS	0070		484-D \ D-Area Waste Oil Facility	Spills and Leaks/Surface Spills	2006	2006		2010	2010		1993	N		Y
SARS	0104		904-102G \ NEW TNX SEEPAGE BASIN	Liquid Surface Impoundments/Seepage Basins	2000	2001		2004	2003		1993	N		N
SARS	0106		904-76G \ OLD TNX SEEPAGE BASIN	Liquid Surface Impoundments/Seepage Basins	2000	2001		2004	2003		1993	N		Y
SARS	0125		904-111G \ ROAD A CHEMICAL BASIN	Above Ground Material / Waste/Scrap Yards	2002	2002		2006	2006		1993	N		N
SARS	0127		Spill on 01/12/53 of 1/2 Ton of Uranyl Nitrate	Spills and Leaks/Surface Spills	1993		9/30/1993			9/30/1993	1993	Y	Pending	Y
SARS	0139		643-5T \ TNX BURIAL GROUND	Waste/Landfills	2000	2001		2004	2003		1993	N		Y
SARS	0235		631-8G \ 3G Pumphouse Erosion Control Site	Waste/Trenches / Outfalls	1997		9/25/1997	1997		9/25/1997	1993	N	Pending	N
SARS	0238		488-1D \ D AREA ASH BASINS NO. 1	Liquid Surface Impoundments/Leach Fields	2005			2009			1993	N		N
SARS	0239		Arsenic Treated Wood Storage Area	Above Ground Material / Waste/Storage Yards and Pads	2004	2004		2008	2008		1993	N		N
SARS	0265		483-D \ Combined Spills from 483-D and Associated Areas	Spills and Leaks/Surface Spills	2010	2010		2014	2014		1993	N		Y
SARS	0267		672-T \ Combined Spills from 672-T	Spills and Leaks/Surface Spills	1998	1997	12/8/1997	1998	1997	12/8/1997	1993	N		Y
SARS	0268		674-T \ Combined Spills from 674-T (Boneyard)	Spills and Leaks/Surface Spills	1999	2003	3/16/1999	1999	2007	3/16/1999	1993	Y		N

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Project **SR-ER01 / Flood Plain Swamp Project**

## Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
SARS	0269		679-T \ Combined Spills from 679-T	Spills and Leaks/Surface Spills	2003	2003	12/18/1998	2007	2007	4/1/1999	1993	Y		Y
SARS	0272		488-2D \ D-Area Ash Basin No. 2	Liquid Surface Impoundments/Leach Fields	2005			2009			1993	N		N
SARS	0273		431-2D \ D-Area Rubble Pit	Above Ground Material / Waste/Debris Piles	2006	1999		2010	1999		1993	N		N
SARS	0310		678-T \ Neutralization Sump	Liquid Surface Impoundments/Sumps	2009	2009		2013	2013		1993	N		N
SARS	0320		Parking Lot Type Lights on Wilson Road	Waste/Miscellaneous Surface Debris	2003	2003	9/30/1999	2007	2007	9/30/1999	1993	Y		N
SARS	0333		Road 3 Foundation Rubble Pile	Above Ground Material / Waste/Debris Piles	2004	2004	6/29/1999	2008	2008	6/29/1999	1993	Y		N
SARS	0336		Robbins Station Road Rubble Pile	Above Ground Material / Waste/Debris Piles	2003	2003		2007	2007		1993	N		N
SARS	0349		420-D \ Sandblast Area - 420-D (CMD-002-O&M Plan)	Above Ground Material / Waste/Scrap Yards	2012	1999	9/30/1993	2016	2016		1993	N		N
SARS	0350		672-T \ Sandblast Area - 672-T (CMT-001-O&M Plan)	Above Ground Material / Waste/Scrap Yards	1998	1997	12/8/1997	1998	1997	12/8/1997	1993	N		N
SARS	0351		677-T \ Sandblast Area - 677-T (CMT-002-O&M Plan)	Above Ground Material / Waste/Scrap Yards	1998	1998	6/29/1998	1998	1998	6/29/1998	1993	N		N
SARS	0401		Spill on 03/17/88 of <1 Gal of Sulfuric Acid	Spills and Leaks/Surface Spills	2003	1998	6/30/1998	2003	1998	6/30/1998	1993	N		N
SARS	0430		Spill on 05/27/86 of 2 Gal of Nitric Acid	Spills and Leaks/Surface Spills	2000	1998	6/30/1998	2000	1998	6/30/1998	1993	N		N
SARS	0444		Spill on 07/21/79 of Unknown of Acid in D-Area	Spills and Leaks/Surface Spills	2000	1998	6/30/1998	2000	1998	6/30/1998	1993	N		N
SARS	0448		607-14D \ Spill on 08/31/87 of <100 Gal of	Spills and	1998	1998	9/30/1998	1998	1998	9/30/1998	1993	N		N

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HQ ID: **0051**

Project **SR-ER01 / Flood Plain Swamp Project**

## Release Sites

Site Code	RSF ID	Change Flag	Description	Class/Subclass Name	Planned Assess. Year	Forecast Assess. Year	Actual Assess. Date	Planned Comp. Year	Forecast Comp. Year	Actual Comp. Date	Acc. Year	No Action	Comp. Status	RAD
SARS	0464		Bromocide Soln from 607-14D Un-Numbered Gun Emplacement Rubble Pile	Leaks/Surface Spills Dispersed Surface Contamination/Firing Ranges and Ordnance	2004	1998	9/30/1998	2004	1998	9/30/1998	1993	N		N
SARS	0467		X-001 Outfall Drainage Ditch	Waste/Ditches	2007	2007		2011	2011		1993	N		N
SARS	0468		SANDBLAST AREA CMD-004, NBN	/	2001	2001	9/30/1995	2001	2001	9/30/1995		N		
SARS	0472		GENERAL AREA, OTHER: PROCESS AND SEWER LINES AS ABANDONED, NBN	/	2010	2010		2014	2014			N		
SARS	3005		TNX Outfall Delta, Lower Discharge Gully, and Swamp (INDEX#500)	/	2005	2005		2009	2009			N		N
SARS	3012		Savannah River Integrator Operable Unit (Index# 507)	/	2015	2015		2019	2019			N		N
SARS	3013		Savannah River Floodplain Swamp Integrator Operable Unit (Index#508)	/	2008	2008		2012	2012			N		N

## Technology Needs

Site Need Code: SR99-3018

Site Need Name: Innovative Technologies to Replace Pump and Treat Technologies for Groundwater Remediation

Focus Area Work Package ID: SS-08

Focus Area Work Package: Saturated Zone Treatment Systems

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Both

### Technologies

Dynamic Underground Stripping

In Situ Redox Manipulation

Cost Savings (in thousands of dollars)

Range of Estimate

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## Technology Needs

- Passive Reactive Barrier
- In Situ Chemical Oxidation Using Potassium Permanganate
- Hydrous Pyrolysis/Oxidation
- Geosyphon/Geoflow
- Fenton's Reagent

### Related CCP Milestones

### Related Waste Streams

**Agree?**      **Change?**

02190: AI - LLW Groundwater (F&H Seepage Basin)	Y	N
02214: BS - LLW Groundwater (ETF)	Y	N
02191: AK - Hazardous Groundwater (A/S)	Y	N
02212: BQ - HAZ Groundwater	Y	N

**Site Need Code:** SR99-3020  
**Site Need Name:** Stabilization Technology  
**Focus Area Work Package ID:** SS-03  
**Focus Area:** SCFA  
**Benefits (Cost, Risk Reduction, Both):** Both

**Focus Area Work Package:** Stabilization Technologies

**Agree with Technology Link:** Y

### Technologies

- In Situ Vitrification Bottoms-up
- Innovative Grout (In Situ Stabilization)
- In Situ Stabilization and Retrieval System

**Cost Savings (in thousands of dollars)**

**Range of Estimate**

### Related CCP Milestones

### Related Waste Streams

**Agree?**      **Change?**

02203: BG - Haz Soils/Sludges	Y	N
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Site Summary Level: Savannah River Site

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## Technology Needs

Site Need Code: SR99-3021

Site Need Name: Alternative Sample Collection and Well Installation Technology that Eliminates or Significantly Reduces Aqueous or Non-Aqueous Investigative Derived Waste (IDW)

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: N

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

Site Need Code: SR99-3023

Site Need Name: Non-Intrusive Methods for Locating Buried Solid Waste Boundaries

Focus Area Work Package ID:

Focus Area Work Package:

Focus Area:

Agree with Technology Link: N

Benefits (Cost, Risk Reduction, Both): Cost

Technologies

Cost Savings (in thousands of dollars)

Range of Estimate

# Project Baseline Summary Report

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## Technology Needs

Site Need Code: SR99-3024

Site Need Name: Deploy Phytoremediation or a Passive Technology for Attenuation of VOCs

Focus Area Work Package ID: SS-05

Focus Area Work Package: In Situ Reactive Treatment Barriers

Focus Area: SCFA

Agree with Technology Link: Y

Benefits (Cost, Risk Reduction, Both): Both

### Technologies

Cost Savings (in thousands of dollars)

Range of Estimate