Project Baseline Summary Report

Data Source: **EM CDB**
Report Number: **GEN-01b**
Operations/Field Office: **Savannah River**
Print Date: **3/9/2000**
Site Summary Level: **Savannah River Site**
HQ ID: **0115**
Project **SR-DO04 / Ecology Lab Project**

General Project Information

Project Description Narratives

Purpose, Scope, and Technical Approach:

Definition of Scope: SREL`s research activities are divided into four main programs: radioecology, environmental chemistry, ecotoxicology, and ecosystem health. Research in the radioecology program assesses the distribution, movement, fate and ecological risk associated with radionuclides in the environment, including the genetic effects on flora and fauna at SRS in comparison with more highly contaminated sites such as Chernobyl in the Ukraine. The environmental chemistry program addresses the physical, chemical, and biological processes controlling the mobility of organic and inorganic contaminants in the environment, particularly in soils and water of the SRS and other DOE sites. Advanced analytical and spectroscopic methods are used to examine the role of basic variables, such as chemical speciation, that control the behavior, transport and biological effects of contaminants in the environment to enable more efficient, cost-effective, and site-specific cleanup techniques. The ecotoxicology program seeks to measure or predict bioaccumulation of contaminants in natural populations of organisms, and to evaluate genetic and demograraphic markers in various species for use as possible indicators of responses to environmental contaminants and risk assessment. Contaminants under study include mercury, other metals and radionuclides, while biomarkers of various types are being used to detect damage to DNA of organisms exposed to a variety of contaminants in natural settings. Also, new quantitative analytical and statistical methodologies are being developed and evaluated to improve ecological risk assessment by reducing the reliance on conservative estimates. The ecosystem health program seeks to identify the patterns of biodiversity on the SRS, and to understand the natural and anthropogenic processes that maintain or change them, including risks to population viability, biodiversity, and productivity.

Technical Approach: Less than 10% of the SRS is used for industrial purposes. All of the natural sites with their native plants and animals have been the focus of SREL`s field oriented programs which traditionally emphasize the maximum use of research on the SRS while at the same time focusing on data information needs of the Department of Energy. Unique laboratory facilities focus on innovative ecological techniques by using instrumentation such as the Fourier Transform Mass Spectrometer, nuclear magnetic resonance spectroscopy, ion cyclotron mass spectoscopy, and solid state tunable laser spectroscopy. Most of these advanced spectroscopic methods and technologies are not readily available to the science community and it is virtually impossible for a single researcher to have access to such multiple advanced techniques. Thus, these programs have become effective in determining the management of metal and nuclear wastes and the design of novel remediation strategies and the delineation of exposure-bioavavilabolity/toxicity relationships. Also, stable isotope analysis of environmental pollutants and their daughter products provides an unambiguous measure of intrinsic remediation. The unique isotopic fingerprint of organic contaminants allows for the source and fate of contaminants to be determined. Geochemical measurements are vital to DOE as they work to clean up contaminated areas at the SRS and across the DOE complex.

Project Status in FY 2006:

SREL is actively involved in Site remediation and restoration. Data obtained thru SREL research programs is provided to the DOE management involved in the clean-up process. SREL education and outreach activities provide important Site information to our stakeholders.

Post-2006 Project Scope:

All site areas which underwent clean-up activities will continue to be studied for an evaliuation of the success of the process. New techniques will be

Project Description Narratives

developed which will have benfits into the clean-up of other DOE complex facilities.

Project End State

Many remediation studies will be complete and the environment restored to an acceptable level for the sustainabilty of ecological processes. Efforts will continue to review the biological diversity of these sites and to detemine the adequacy of the environment to sustain itself. Data collected from these sites will be used to compare with natural environments to determine whether any additional remediation or restoration would be necessary.

Cost Baseline Comments:

Baseline costs established using OMB inflation rates.

Safety & Health Hazards:

Safety & Health Work Performance:

PBS Comments:

SREL will continue to acquire and communicate knowledge of ecological processes and principles to SRS management with the appropriate data to make informed decisions concerning environmental management strategies and options on the SRS. SREL`s programs have emphasized the maximum use of the SRS as a National Environmental Research Park. The laboratory and its specialize facilities have focused on the data needs of DOE managers in the area of site remediation and restoration, ecosystem stewardship, and site clean-up of contamination. These research programs at all levels fit in with the mission of the Site as stated in the SRS Ten Year Plan. The research conducted by SREL is necessary to meet the applicable statutory requirements and directives from federal, state, and Presidential orders to ensure the protection of the environment. The results of the SREL programs will provide DOE with site specific information which sound risk assessment decisions can be made for various management alternatives. Through these programs DOE will be able to become a better steward to its stakeholders of the land they manage on the SRS.ı
In addition to the research programs, personnel in SREL`s Environmental Education and Outreach group present programs to more than 100,000 people annually in schools and civic organizations. SREL`s Environmental Education and Conference Center, built with UGA Research Foundation funding, enables staff to conduct teacher workshops and expanded educational programs in area schools, in addition to providing facilities for more formal scientific symposia. Many of these programs are funded by outside grants using only SREL personnel costs. This program coordinates the recruitment and program activities of approximately 25 undergraduates, 4-6 high school or middle school teachers, 20-30 graduate level students, and 4-6 visiting faculty who conduct research at SREL each year. In recent years, these visiting researchers have come from all 50 states and several foreign countries.

Baseline Validation Narrative:

SREL underwent a scientific review of its programs in FY98. A panel of experts for outside laboratories and universities provided an in-depth review of all aspects of the lab`s research. This review clearly stated the high caliber of research conducted by SREL scientists. The panel indicated that the research of SREL was responsive to the needs of the Site. There was a strong statement that the education and outreach activities were extremely

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Project Description Narratives

valuable to the public perception of the SRS.

General PBS Information

Project Validated? Yes **Date Validated:** 4/21/1998

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	N	N	Y	Y	Y

Project Identification Information

DOE Project Manager: Dennis P. Ryan

DOE Project Manager Phone Number: 803-725-8162

DOE Project Manager Fax Number: 803-725-8434

DOE Project Manager e-mail address: dennis.ryan@srs.gov

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)	93,300	281,233	374,533	10,802	10,802	8,650	8,650	8,396	8,573	8,994	9,183	9,376	9,573	9,774	9,979
PBS Baseline (constant 1999 dollars)	87,663	188,299	275,962	10,802	10,802	8,650	8,650	8,396	8,348	8,577	8,578	8,578	8,578	8,578	8,578

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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 EM Baseline (current year dollars)	93,300	281,233	374,533	10,802	10,802	8,650	8,650	8,396	8,573	8,994	9,183	9,376	9,573	9,774	9,979
PBS EM Baseline (constant 1999 dollars)	87,663	188,299	275,962	10,802	10,802	8,650	8,650	8,396	8,348	8,577	8,578	8,578	8,578	8,578	8,578

	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)	10,188	10,402	10,621	10,844	57,732	64,054	71,068	46,324	0	0	0	0	0	0	0	0
PBS Baseline (constant 1999 dollars)	8,577	8,577	8,578	8,578	42,924	42,924	42,924	25,217	0	0	0	0	0	0	0	0
PBS EM Baseline (current year dollars)	10,188	10,402	10,621	10,844	57,732	64,054	71,068	46,324	0	0	0	0	0	0	0	0
PBS EM Baseline (constant 1999 dollars)	8,577	8,577	8,578	8,578	42,924	42,924	42,924	25,217	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%	2.70%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

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
2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%	2.10%

Project Reconciliation

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Project Reconciliation

Project Completion Date Changes:

Previously Projected End Date of Project:

Current Projected End Date of Project: 9/30/2028

Explanation of Project Completion Date Difference (if applicable):

New milestone reflects the assumed end of EM's landlord responsibility.

Project Cost Estimates (in thousands of dollars)

Previously Estimated Lifecycle Cost (1997 - 2070, 1998 Dollars):	237,652	**Actual 1997 Cost:**	10,802	**Actual 1998 Cost:**	8,650
Previously Estimated Lifecycle Cost of Project (1999 - 2070, 1998 Dollars):	218,200	**Inflation Adjustment (2.7% to convert 1998 to 1999 dollars):**			5,891
Previously Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	224,091				

Project Cost Changes

	Cost Adjustments	Reconciliation Narratives
Cost Change Due to Scope Deletions (-):		
Cost Reductions Due to Efficiencies (-):		
Cost Associated with New Scope (+):	32,420	Additional research activities in the areas of radioecology and ecotoxicology.
Cost Growth Associated with Scope Previously Reported (+):		
Cost Reductions Due to Science & Technology Efficiencies (-):		
Subtotal:	256,511	
Additional Amount to Reconcile (+):	-1	
Current Estimated Lifecycle Cost (1999 - 2070, 1999 Dollars):	**256,510**	

Milestones

Milestone/Activity	Field Milestone Code	Original Date	Baseline Date	Legal Date	Forecast Date	Actual Date	EA	DNFSB	Mgmt. Commit.	Key Decision	Intersite
test			9/30/2000								

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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
test			9/3/2000								
test			9/30/2001								
EM Landlord Project Completion	SR-DO04-002		9/30/2028								
test	SR-DO05-001		9/30/2028								
test	SR-DO05-001		9/30/2028								
Project Start	SR-DO04-001		10/1/1996								

Milestones - Part II

Milestone/Activity	Field Milestone Code	Critical Decision	Critial Closure Path	Project Start	Project End	Mission Complete	Tech Risk	Work Scope Risk	Intersite Risk	Cancelled	Milestone Description
test										Y	
test										Y	
test										Y	
EM Landlord Project Completion	SR-DO04-002				Y						It is assumed that EM will turn over landlord responsibilities to another HQ program beginning in FY 2029. The Site's landlord is responsible for funding this activity. This activity will be transferred to the new landlord at the beginning of FY 2029.
test	SR-DO05-001									Y	It is assumed that EM will turn over landlord responsibilities to another HQ program beginning in FY 2029.
test	SR-DO05-001									Y	
Project Start	SR-DO04-001			Y							Transition from ADS to PBS began in FY 1997

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