



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Environmental Management Cleanup Program Fiscal Year 2014 Integrated Lifecycle Estimate Update

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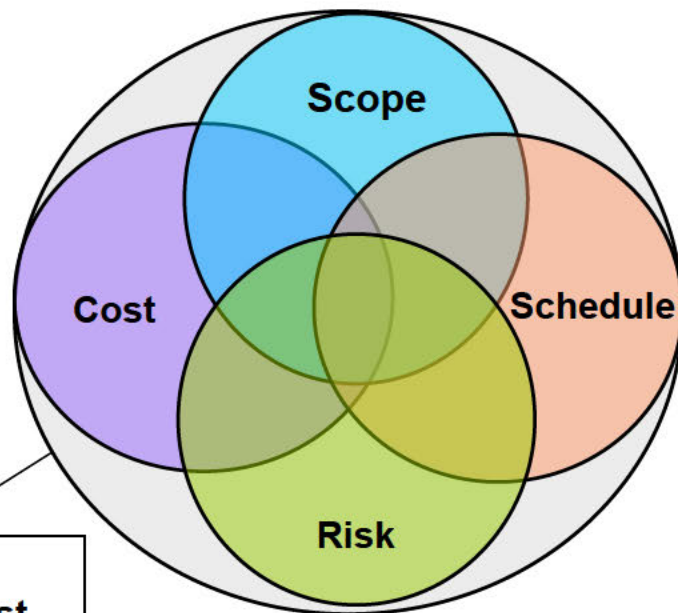
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Strategic & Legacy Management Committee
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- Fulfill a 2014 Strategic & Legacy Management Committee Work Plan topic by providing an annual assessment and update on the Office of Environmental Management (EM) Integrated Lifecycle Cost Estimate (ILCE) for the Savannah River Site (SRS).
 - Define the components of the Environmental Management (EM) Integrated Lifecycle Cost Estimate (ILCE)
 - Identify the major drivers of change

Components of the Lifecycle Estimate

The Lifecycle Estimate is an Integrated Plan describing the remaining Cleanup Programs at Savannah River Site.



Integrated
Lifecycle Cost
Estimate (ILCE)

Four Functional Areas by Program

1. Nuclear Materials
 - Nuclear Materials
 - Spent Nuclear Fuel
2. Waste Disposition
 - Solid Waste
 - Radioactive Liquid Waste
3. Area Completion
 - Soil and Groundwater Remediation
 - Facility Deactivation and Demolition
4. Site Support
 - Safeguards and Security
 - Community and Regulatory Support

Primary Drivers and Assumptions

- No Direct plutonium (Pu) shipments to the Waste Isolation Pilot Plant (WIPP) – Continue plutonium (Pu) blend down operations
- No Idaho Spent Nuclear Fuel (SNF) exchange
- No Spent Nuclear Fuel (SNF) processing except Amended Record Of Decision (AROD) identified limited quantity
- Shipments of Spent Nuclear Fuel (SNF) and High Level Waste (HLW) to National offsite repository planned to begin in 2055 complete offsite disposition by 2060 resulting in Environmental Management remediation lifecycle extending additional 23 years
- Funding constrained at levels close to where we are today
- Interim storage of High Level Waste canisters and dry stored Spent Nuclear Fuel (SNF) will be required until a national repository is assumed to be available in 2048 with shipments from Savannah River Site beginning in 2055
- New technology opportunities will assist in reducing operational risk

Primary Drivers and Assumptions (cont.)

- High Level Waste System Plan Revision 19 serves as the basis for the liquid waste program
- The current Salt Waste Processing Facility (SWPF) construction and operations schedule is assumed
- Nuclear Materials (NM) Processing Operations and Liquid Waste Completion are integrated
- Completion of Liquid Waste and Nuclear Materials operations drives Soil and Groundwater Remediation and Facility Deactivation & Decommissioning (D&D) activities
- Solid Waste Management assumes Surveillance and Maintenance (S&M) responsibility for High Level Waste (HLW) canisters and Spent Nuclear Fuel (SNF) in interim on-site storage after completion of Liquid Waste (LW) and Nuclear Materials (NM) operations through final offsite disposition
- Facility Deactivation & Decommissioning (D&D) and Release Site Remediation impacts Solid Waste E-Area Trench Disposal quantities and schedule
- New regulatory requirement for D-Ash Basins and Landfill Closure project to include geo-synthetic cap installation

- Point-in-Time parametric estimate (-50% to + 100% range)
- Integrated Lifecycle Cost Estimate is operations and logic driven
- Incorporates Management and Operations (M&O) contractor 5 -year Baseline, Liquid Waste System Plan 19, funding impacts, and scope deferrals
- Out-year estimates are developed using contractor operations trends and modeling software
- The Out-year Estimate is developed in Primavera for a logically integrated portrayal of the remaining Environmental Management Lifecycle scope, schedule, cost and performance metric profile

Summary Lifecycle Cost and Schedule Impact

- Extended Environmental Management (EM) Completion Schedule 23 year from Fiscal Year 2042 to Fiscal Year 2065
- Cost increase of \$25.2B
- Lifecycle Estimate Range of \$91B to \$109B with 8.6 year Schedule Contingency
 - Includes \$23B Actual Cost through Fiscal Year 2013

Primary Sources of Cost and Schedule Increase by Program

- Nuclear Materials Stabilization and Disposition
 - Extended Nuclear Material (NM) Operations 7 years
 - Approved Record of Decision for limited quantity Spent Nuclear Fuel (SNF) processing, extending H-Canyon operations 2 years to Fiscal Year 2020
 - H-Canyon/HB Line complete Deactivation by Fiscal Year 2023 – 10 years earlier
 - Moved plutonium (Pu) Blend down operations from HB Line to K-Area
- Spent Nuclear Fuels (SNF) Stabilization and Disposition
 - Spent Nuclear Fuel (SNF) Operations extended 6 years
 - Limited Quantity Spent Nuclear Fuel (SNF) Processing provides needed L-basin space for future Foreign Research Reactor (FRR) and Domestic Research Reactor (DRR) receipts
 - Time phased design and construction of an Interim Dry Storage Facility
 - Transfers dry stored Spent Nuclear Fuel (SNF) management and Surveillance and Maintenance (S&M) to Program Baseline Summary (PBS)13 through offsite disposition after completion of Spent Nuclear Fuel (SNF) Operations in Fiscal Year 2041

Primary Sources of Cost and Schedule Increase by Program (cont.)

- Solid Waste Disposition
 - Extended 23 years to Fiscal Year 2065 due to extension of other Savannah River Site programs
 - Maintained Infrastructure and Historic Preservation and other Waste Management Programmatic scope
 - Proposed offsite National Repository available to Savannah River Site for disposition beginning in 2055 complete by 2060
 - Assumes Surveillance and Maintenance (S&M) responsibility for High Level Waste (HLW) canisters and Spent Nuclear Fuel (SNF) in interim on-site storage after completion of Liquid Waste (LW) and Nuclear Materials (NM) operations through offsite disposition as part of Solid Waste program ongoing operations
- Liquid Waste Stabilization and Disposition System Plan 19 Strategy
 - Extended operations 14 years from Fiscal Year 2028 to Fiscal Year 2042
 - Deferring tank grouting closure for focus on Bulk Waste Removal (BWR)
 - Added 13 years to Saltstone and Defense Waste Processing Facility (DWPF) Operations
 - Suspended implementation of Small Column Ion Exchange (SCIX) due to lack of funding
 - Added 1 additional Saltstone Disposal Unit (SDU) (#13), added additional Melter (#5)
 - Transfers High Level Waste (HLW) management and Surveillance and Maintenance (S&M) to Program Baseline Summary (PBS) 13 through offsite disposition after completion of Liquid Waste Operations in Fiscal Year 2042

Primary Sources of Cost and Schedule Increase (cont.)

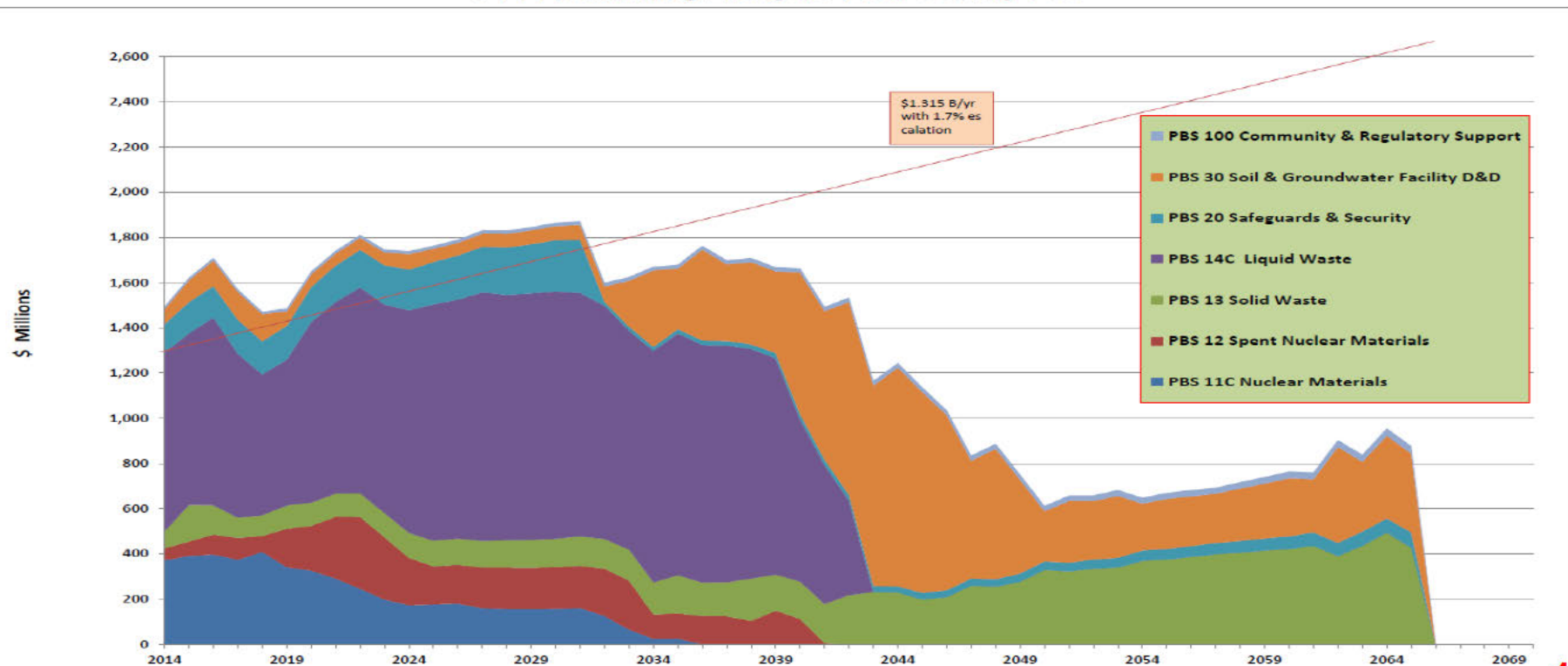
- Soil & Groundwater and Facility Deactivation & Decommissioning (D&D)
 - Extended Operations 23 years to Fiscal Year 2065
 - Extended Post Deactivation Facility Surveillance and Maintenance (S&M) until funding available for Deactivation & Decommissioning (D&D).
 - Reflects Deactivation & Decommissioning (D&D) of 23 additional facilities
 - 11 new facilities from American Recovery and Reinvestment Act (ARRA) project
 - 11 new facilities associated with Salt Waste Processing Facility (SWPF) complex
 - 1 for Modular Caustic Side Solvent Extraction facility, which had been modified significantly from a test facility to a more substantial processing facility to support Liquid Waste processing awaiting startup of Salt Waste Processing Facility (SWPF)
 - Revised estimate for remaining ash basins (C, F, H, K, L) based on P and R ash basin performance
 - Revised Z-Area Closure Cap Surveillance and Maintenance (S&M) due to increased height of mega Saltstone Disposal Units (SDUs).

Primary Sources of Cost and Schedule Increase (cont.)

- Safeguards & Security
 - Extended Operations 23 years to Fiscal Year 2065
 - High security profile reduction aligned with plutonium (Pu) De-inventory in Fiscal Year 2031
- Community & Regulatory Support
 - Extended Operations 23 years to Fiscal Year 2065
- Long Term Stewardship
 - Extended Environmental Management Remediation reduced some Long Term Stewardship (LTS) scope, cost and schedule
 - Added J-Area (Salt Waste Processing Facility complex) In-Situ post closure monitoring
 - Revised Z-Area (SDUs) Closure Cap post closure maintenance due to increased height of mega Saltstone Disposal Units (SDUs)

Overall Lifecycle Cost by Program Baseline Summary Chart

FY14 Remaining Lifecycle Total Cost by PBS



Summary

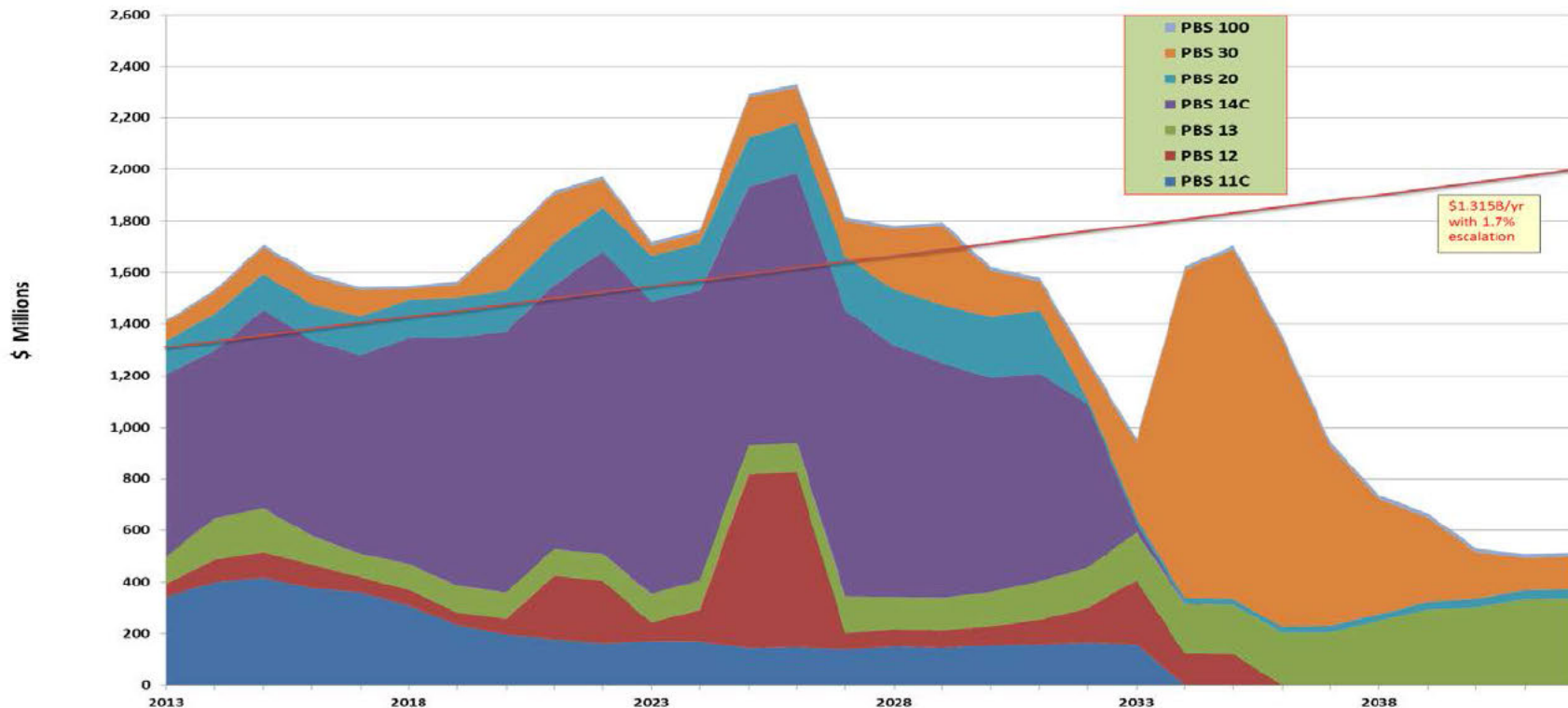
- The fiscal year 2014 Lifecycle Estimate reflects updated point-in-time strategies and fully describes the remaining Savannah River Site scope to the best of our ability.
- The Lifecycle Estimate process results in a high confidence estimate for the remaining lifecycle, fully describing Environmental Management scope at Savannah River Site.
- The Lifecycle Estimate is a key component of the Department of Energy – Savannah River Federal Risk Management Plan annual update and the Environmental Management Environmental Liability Annual Review.
- As a Result of the Strong Lifecycle Estimate Process, Savannah River Site Gained Confidence with the Environmental Management Liability Auditors Resulting in No Findings and Reduced Emphasis on Savannah River Site

Acronyms

AROD	Amended Record of Decision	NM	Nuclear Materials
ARRA	American Recovery and Reinvestment Act	PBS	Program Baseline Summary
BWR	Bulk Waste Removal	Pu	Plutonium
D&D	Deactivation & Decommissioning	S&GW	Soil and Groundwater
DRR	Domestic Research Reactor	S&M	Surveillance and Maintenance
DWPF	Defense Waste Processing Facility	SDU	Saltstone Disposal Unit
EM	Environmental Management	SCIX	Small Column Ion Exchange
FRR	Foreign Research Reactor	SNF	Spent Nuclear Fuel
FY	Fiscal Year	SRNS	Savannah River Nuclear Solutions, LLC
HLW	High Level Waste	SRR	Savannah River Remediation, LLC
ILCE	Integrated Lifecycle Cost Estimate	SRS	Savannah River Site
LTS	Long Term Stewardship	SWPF	Salt Waste Processing Facility
LW	Liquid Waste	WIPP	Waste Isolation Pilot Plant
M&O	Management & Operations		

Overall Lifecycle Cost by Program Baseline Summaries Chart

Fiscal Year 2013 Remaining Lifecycle Total Cost by Program Baseline Summaries



Savannah River Site Environmental Management Program Lifecycle (Fiscal Year 2013-2042)

(American Recovery & Reinvestment Act and Liquid Waste System Plan 18 per Fiscal Year 2013 Integrated Lifecycle Cost Estimate update)

SRS EM PROGRAM LIFECYCLE (FY2013 - FY2042) FY13 Update

