

3.0 Accelerated Cleanup Project Strategies and Baseline

The Savannah River Site (SRS) has developed project-specific strategies to accelerate its cleanup mission. The following section describes these EM Cleanup Project strategies, defines the key assumptions critical to meeting the cleanup objectives, and identifies project risks, alternatives and contingency. It also includes the EM Cleanup Project baseline schedule, which encompasses all EM work scope required to support closure by the end of FY 2025.

3.1 Risk Reduction and Cleanup Strategy

SRS is implementing a cleanup strategy that focuses on using a project approach to accelerate risk reduction and completion of cleanup. SRS has redefined its programs and activities to appropriately align requirements and resources with work to be accomplished. This work is now defined by the Project Baseline Summaries (PBSs) as described in Section 8.0. Upon completion of facility missions, decommissioning and appropriate remediation activities will commence. Aligning risk-based requirements to all cleanup activities will ensure safe and cost-effective completion of the EM Cleanup Project on an expedited basis. SR's approach to cleanup is based on the adoption of a strategy with three primary thrusts to:

- § accelerate elimination of risks through safe stabilization, treatment, and disposition of EM-owned nuclear materials, spent nuclear fuel and waste,
- § significantly reduce the costs of continuing operations and surveillance and maintenance (S&M) required to maintain large, complex nuclear facilities in a safe condition through accelerated deactivation and decommissioning, and,
- § decommission all EM-owned facilities and remediate groundwater and contaminated soils, adopting an area closure approach.

Through the aforementioned strategic approach, SRS believes it has achieved an appropriate balance among reducing lifecycle risk and cost, reduction in nearer term

carrying costs, and near-term investment. For example, accelerated deactivation of F Area operational facilities and spent fuel storage in Receiving Basin for Offsite Fuels (RBOF) is resulting in significant near-term reduction in operations and surveillance and maintenance costs, and these savings are being used to accelerate other cleanup activities.

Success of the EM Cleanup Project is dependent on both the ability to drive performance improvement and the appropriate application of resources. SRS will continue to implement integrated project management and explore innovative opportunities to accelerate cleanup.

3.2 Key Assumptions

The following represents the key underlying assumptions upon which the 2004 PMP is based. These assumptions are consistent with cleanup completion by the end of FY 2025.

General or Site-wide

- Beginning in FY 2026 long-term stewardship activities shall be funded by either Office of Legacy Management or other Program Secretarial Offices.
- Health and safety of the public, workforce, and the environment will be protected.
- End states will be as identified in the *Draft Risk Based End State Vision*.
- Risk reduction will be a consideration in the prioritization of work.
- The Contract Performance Baseline, as modified by updated formal direction or as superceded by these assumptions, will serve as the basis for the current contract period of the PMP lifecycle baseline. The plan will include a best estimate for the work forecast to be completed by the end of the current contract period.
- There will be no transfer of operating or shutdown facilities to other program offices.
- The site boundaries will remain unchanged, and the land will remain under the ownership of the federal government with institutional controls being in place. Land use will be non-residential.

PBS SR-0011A Nuclear Materials Stabilization and Disposition – 2006

- Project completed by 2006 and PBS closed.

PBS SR-0011B Nuclear Materials Stabilization and Disposition – 2012

H Canyon and HB Line:

- Dissolution of nuclear materials completed and facilities ready for deactivation by 2011.

PBS SR-0011C
Nuclear Materials Stabilization and Disposition – 2035

- Surveillance of DOE-STD-3013 containers in storage will be as agreed to in the surveillance plan (40 non-destructive evaluations per year and 15 destructive evaluations per year).
- EM owned plutonium (13 Metric Tons) will be dispositioned through a process to be installed in a to be determined facility at SRS. Construction to begin in 2007 and operations startup in 2011.

PBS SR-0012
Spent Nuclear Fuel Stabilization and Disposition – 2035

- Foreign Research Reactor (FRR) receipts will continue through 2014 and Domestic Research Reactor (DRR) receipts through 2019.
- A Treatment and Storage Facility (TSF) for packaging fuel into standardized canisters and storage will be constructed and operated. Construction to begin in 2008 and operations startup in 2010.
- The Federal Repository at Yucca Mountain will be available to receive Spent Nuclear Fuel by 2011.
- De-inventory of basins and TSF and shipping to Federal Repository at Yucca Mountain to be completed by 2020.

PBS SR-HQ-SNF-0012X
**Spent Nuclear Fuel Stabilization and Disposition -
Storage Operations Awaiting Geologic Repository**

- See SR-0012, Spent Nuclear Fuel Stabilization and Disposition.
- This PBS provides funding to support non-legacy Spent Nuclear Fuel storage and disposition.

PBS SR-0013
Solid Waste Stabilization and Disposition

- EM will only operate solid waste facilities through completion of the EM mission (2025). EM will continue to provide solid waste services to non-EM waste generators at SRS until 2025.
- TRU waste:
 - Nuclear Regulatory Commission will eliminate transportation requirement on 20 curie plutonium limit by second quarter FY2005.
 - Nuclear Regulatory Commission will issue Certificate of Compliance for TRUPACT-III by second quarter FY2005.
 - Nuclear Regulatory Commission will approve TRUPACT-II Safety Analysis Reports for Packaging 20b by third quarter FY2005
 - Non Destructive Analysis and Non Destructive Examination equipment for large container waste will be provided by first quarter FY2006
 - Central Certification Project will operate and fund non-drum container certification beginning in first quarter FY2006 and running through FY2008
 - New Mexico Environmental Division will approve the WIPP Class 3 Permit Modification for elimination of headspace gas sampling and visual examination for High Activity TRU non-drum waste by second quarter FY2006.

Infrastructure

- Infrastructure will be sized and maintained consistent with identified EM needs and requirements.

PBS SR-0014C

Radioactive Liquid Tank Waste Stabilization and Disposition - 2035

- Defense Waste Processing Facility (DWPF) will continue to produce canisters at an average rate of 230 canisters per year (250 canisters per year through FY 2008) with increased waste loading (equivalent of 280 canisters).
- The new Canister Shipping Facility will be designed, constructed, and online to support shipments beginning in 2010.
- The Federal Repository at Yucca Mountain will be available to receive DWPF canisters by 2010.
- Final shipment of DWPF canisters will occur by 2020.
- Full funding will be available in October 2004 for the High Level Waste Program. The waste incidental to reprocessing (WIR) issue will be fully resolved by January 2005, and resulting salt disposition operations and tank closures will commence October 2005.
- Salt Waste Processing Facility (SWPF) will be online by February 2009. Throughput will be maximized for salt treatment prior to completion of HLW sludge vitrification.
- A Solvent Extraction pilot will be online in mid-FY 2006 with approximately 1M gal/year capacity. Actinide processing capability will be installed in 241-96H such that approximately 1M gal/year processing capability exists in combination with 512-S by October 2006. The purpose of these facilities is to prove SWPF technology and engineering and to enable preparation for SWPF feed for startup in February 2009.
- Modifications for Saltstone processing for 0.5 curie/gal feed will be designed in FY2004 and will be online by October 1, 2005.
- Sufficient new Saltstone vault capacity will be designed in FY2004 and will be available to support receipt of feed from 0.5 curie/gal processing from Saltstone by October 1, 2005.
- Tank closure activities will proceed, but no tank will be grouted until resolution of the WIR lawsuit. Tanks 18 and 19 are planned for closure by June 30, 2007 and March 30, 2007, respectively.
- The Glass Waste Storage Building #2 will be available by June 2006 for additional canister storage.

PBS HQ-HLW-0014X

**Radioactive Liquid Tank Waste Stabilization and Disposition -
Storage Operations Awaiting Geologic Repository**

- See SR-0014C, Radioactive Liquid Tank Waste Stabilization and Disposition – 2035.
- This PBS provides funding for costs associated with storage of canisters in the Glass Waste Storage Buildings pending shipment to the National Repository at Yucca Mountain and the cost for operating the Canister Shipping Facility beginning in 2010.

PBS SR-0020
Safeguards and Security

- The site Safeguards and Security footprint will be minimized consistent with nuclear materials storage and disposition schedules developed in the respective PBSs.
- New technologies will be used to minimize the reliance on security manpower.
- Site security upgrades ("9/11 projects") will be completed.
- Improvements described in the Implementation Plan for the DBT guidance will be completed.

PBS SR-0030
Soil and Water Remediation

- An integrated D&D and Soil and Groundwater cleanup approach with cost-effective holistic remedies will be implemented. The approach will be consistent with the Integrated D&D Plan, the Risk Based End State Vision (currently being prepared), and any EM-1 approved variances.
- An area-by-area remediation strategy to bring closure to whole areas of the site will be implemented. This sequencing of areas will be consistent with the latest approved Federal Facilities Agreement, Appendix E.
- All principles, concepts, and goals of the Memorandum of Agreement for Achieving an Accelerated Cleanup Vision (July 8, 2003) will be implemented or met.
- This PBS will include post-closure costs for waste units through 2025.

PBS SR-0040
Nuclear Facility D&D

- An integrated D&D and Soil and Groundwater cleanup approach will be implemented. The approach will be consistent with the Integrated D&D Plan and the Risk Based End State Vision (currently being prepared) with the following exceptions:
 - Any changes to facility readiness for decommissioning defined during schedule development of other PBSs will be incorporated.
 - All 1,013 major facilities currently identified and all associated ancillary facilities and structures will be decommissioned, as well as all new planned EM facilities (e.g., Transfer and Storage Facility, Canister Shipment Facility, Glass Waste Storage Building # 2, Salt Waste Processing Facility).
- Decommissioning will be integrated with soils and groundwater closure activities and contamination in the foundations will be removed to a level that does not create an additional waste unit.
- This PBS will include post-decommissioning costs for facilities through 2025.

PBS SR-0100
Non-Closure Mission Support

- Continued support for identified programs/functions will be at a level consistent with funding target provided.
- Efforts to minimize requirements for these programs/functions should continue in order to focus available EM resources on accelerated cleanup.

PBS SR-0101
Savannah River Community and Regulatory Support

- Continued support for identified programs/functions will be at a level consistent with funding target provided.
- Efforts to minimize requirements for these programs/functions should continue in order to focus available EM resources on accelerated cleanup.

3.3 Project Approach

The fundamental difference between the *2002 PMP* and the *2004 PMP* is the change from an initiatives-based approach to an approach that manages the SRS EM Cleanup as a project. The key change in the way that work scope is planned and executed at SRS is by treating each of the PBSs, as well as the total scope of work, as projects. Specifically, the scope, end state, cost, and schedule for each of the PBSs is clearly defined and managed by a Federal Project Director in a manner consistent with the Department's guidance for project management. The initiatives-based *2002 PMP* identified key activities required to jumpstart progress in certain programmatic areas. For example, prior to the *2002 PMP* very little decommissioning was performed on site. It was assumed that facilities with no programmatic mission would be deactivated and placed into long-term stewardship waiting decommissioning until some later time. The *2002 PMP* identified a need to begin the decommissioning program and did on a limited basis, specifically in three areas, D, T, and M. The remainder of the decommissioning program was not included within the cost profile for completion by the end of FY 2025. The current projectized approach now captures the entire decommissioning effort for EM facilities, increasing the scope from nominally 72 facilities to the entire scope of 1,013 existing EM facilities and three planned facilities, and completes the task by end of FY 2025.

The strategic initiatives depicted in the *2002 PMP* have been included as part of the PBSs. These PBSs include all EM work scope required to complete the SRS EM Cleanup Project by the end of FY 2025. Table 3.3.1 provides a summary crosswalk of the *2002 PMP* Strategic Initiatives to SR's current PBSs in the *2004 PMP*. A more detailed crosswalk is provided in Appendix 1.

Additionally, the "prerequisites to success" identified in the *2002 PMP* for each of the strategic initiatives were considered during the preparation of this *PMP*. The prerequisites have been addressed through the development of Government Furnished Services and Items (GFSI), incorporated in the aforementioned key assumptions, or considered in the preparation of the project descriptions in Section 8.0, Project Baseline Summaries.

Table 3.3.1 Crosswalk of Strategic Initiatives to PBSs

EM PMP Strategic Initiative		PBS/Gold Metric	
No.	Title	No.	Title
MM-1	Accelerated Nuclear Material Facilities Consolidation and Deactivation	SR-0011A	Nuclear Material Stabilization and Disposition - 2006
MM-1	Accelerated Nuclear Material Facilities Consolidation and	SR-0011B	Nuclear Material Stabilization and Disposition - 2012
MM-2	Enhanced/Accelerated Spent Nuclear Fuel Disposition		
MM-3	Optimize Disposition of Complex-Wide Plutonium Bearing Material		
MM-1	Accelerated Nuclear Material Facility Consolidation and	SR-0011C	Nuclear Material Stabilization and Disposition - 2035
MM-2	Enhanced/Accelerated Spent Nuclear Fuel Disposition		
MM-3	Optimize Disposition of Complex-Wide Plutonium Bearing Material		
MM-1	Accelerated NM Facility Consolidation and Deactivation	SR-0012	Spent Nuclear Fuel Stabilization and Disposition
MM-2	Enhanced/Accelerated Spent Nuclear Fuel Disposition		
N/A	Scope not addressed	HQ-SNF-0012X	Spent Nuclear Fuel Stabilization and Disposition Storage Operations Awaiting Geologic Repository
WM-3	Expedite TRU Waste Shipments to WIPP	SR-0013	Solid Waste Stabilization and Disposition
WM-4	Accelerated Risk Reduction through Expedited Management of High Activity TRU Waste		
WM-5	Cost Effective/Risk-Reducing Alternatives to Incineration for PUREX Waste		
WM-1	Expedite HLW Processing	SR-0014C	Radioactive Liquid Tank Waste Stabilization and Disposition - 2035
WM-2	Expedited Risk-Based Tank and Facility Closure		
N/A	Scope not addressed	HQ-HLW-0014X	Radioactive Liquid Tank Waste Stabilization and Disposition - Storage Awaiting Geologic Repository
REM-1	Accelerate Closure of the Old Radioactive Waste Burial Ground	SR-0030	Soil and Water Remediation
REM-2	Accelerate Contaminant Reduction in Fourmile Branch Stream		
REM-3	Accelerate Risk Reduction through Innovative Technologies and Improved Regulatory Processes		
DD-1	Accelerate Facilities Disposition	SR-0040	Nuclear Facility D&D
N/A	Scope not addressed	SR-LTS	SRS Long Term Stewardship
SS-1	Accelerate Required Improvements to General Site Security Infrastructure (No Funding)	SR-0020	Safeguards and Security
SS-2	Centralize Alarm Services at SRS		
N/A	Scope not addressed	SR-00100	Non-Closure Mission Support
N/A	Scope not addressed	SR-00101	Savannah River Community and Regulatory Support

3.4 Project Acceleration

Adopting a cleanup strategy as described in Section 3.1 has resulted in a significant increase in the pace of cleanup at SRS. For example, as of April 2004, more than 89% of the excess nuclear materials have been stabilized (127,355 of 143,311 items) and 49 of the 54 commitments in response to Defense Nuclear Facility Safety Board

(DNFSB) Recommendation 2000-1 had been met. Additionally, SRS has received and stored the contents of 288 spent nuclear fuel (SNF) casks from around the world, while at the same time completing deinventory of the Receiving Basin for Offsite Fuel (RBOF). More than 1,575 high level waste (HLW) canisters have been produced, representing 30% of the total canisters expected to be produced to complete removal of the HLW from the storage tanks. Technical improvements have also permitted an increase in waste loading per canister. SRS was the first site to successfully close HLW tanks. Shipments of transuranic (TRU) waste to the Waste Isolation Pilot Plant (WIPP) have been accelerated, while other wastes are now being sent off-site to Tennessee and Utah. In the Soils and Groundwater Project, 306 of the 515 waste sites have been closed or have Records of Decision (RODs) in place. The *Savannah River Site Integrated Deactivation and Decommissioning Plan* has been issued that provides the basis for scope, cost, and schedule for the decommissioning of all EM facilities. Relationships between SRS and its regulators have focused on additional acceleration through the deployment of new technologies and streamlining the regulatory documentation process.

Implementation of accelerated cleanup will result in the following accomplishments by the end of calendar year 2006:

- § initiate salt waste disposition
- § complete repackaging of Rocky Flats classified metal
- § complete F Canyon and FB Line Deactivation (November 2006)
- § complete processing unirradiated MK-22 fuel in H Canyon
- § select an alternative Pu disposition option
- § disposition 2,217 canisters of HLW glass (44% of total)
- § close two additional HLW tanks
- § complete plutonium packaging of approximately 1,000 3013 containers.
- § complete shipment of 27,000 drums, which is all low-activity TRU waste to WIPP
- § elimination of all legacy low-level radioactive waste
- § operation initiated for Dynamic Underground Stripping at M Basin to remove solvents from groundwater
- § T Area closure achieved
- § decommission up to 242 buildings resulting in a reduction of approximately 3,000,000 square feet

With continued focus on accelerated cleanup, the following accomplishments are projected by 2011.

- § disposition 3,407 canisters of HLW glass (67% of total)
- § complete shipment of 3,000 high activity TRU drums and non-drum TRU waste to WIPP
- § achieve closure of the Old Radioactive Waste Burial Ground (ORWBG)
- § complete operation of H Canyon and HB Line and begin deactivation
- § complete project for 3013 Container Surveillance and Storage Capability
- § begin operation of the Salt Waste Processing Facility
- § begin shipment of HLW canisters to Yucca Mountain
- § begin shipment of SNF canisters to Yucca Mountain

At the completion of the EM Cleanup Project at the end of FY 2025 the following will be accomplished resulting in virtually eliminating the risk, by decommissioning all EM facilities and remediating all waste units:

- § process nearly 36 million gallons of high level waste into approximately 5000 canisters.
- § close 51 high level waste tanks
- § disposition 13 metric tons of plutonium-bearing materials
- § ship 10,400 cubic meters of TRU to WIPP
- § disposition of approximately 339,000 m³ of low-level, low-level mixed waste and hazardous waste
- § remediate 515 environmental remediation waste sites
- § decommission a total of 1,013 major facilities and all planned new EM facilities

The following table highlights the benefits of accelerated cleanup.

Table 3.4.1 Benefit Summary of SRS Cleanup Reform Vision

SRS Strategy before 2002 PMP	Accelerated 2004 PMP Schedule
<ul style="list-style-type: none"> § Complete HLW Project by 2039 § Produce ~6,000 canisters 	<ul style="list-style-type: none"> § Complete HLW Project by 2020 § Produce ~5,000 HLW canisters
<ul style="list-style-type: none"> § Operate F Canyon through 2003 and FB Line through 2006 § Continue operations in H Area until a replacement capability for SNF was available (approximately 2013) § Operate three spent fuel storage basins 	<ul style="list-style-type: none"> § Deactivate F Canyon by 2006 § Operate H Canyon through 2010 § Operate one spent fuel storage basin after 2004
<ul style="list-style-type: none"> § Ship TRU waste to WIPP by 2034 § Treat PUREX waste at SRS incinerator 	<ul style="list-style-type: none"> § Ship all legacy TRU waste to WIPP by 2009 § Treat PUREX offsite
<ul style="list-style-type: none"> § Remediate contaminated soil and water by 2037 	<ul style="list-style-type: none"> § Remediate contaminated soil and water by 2025
<ul style="list-style-type: none"> § Risk mitigation and long term stewardship of EM excess facilities until 2070 	<ul style="list-style-type: none"> § Decommissioning of all EM major facilities by 2025

3.5 Alternatives, Trade-offs, and Risk Management

During the development of any plan of this duration (20+ years), numerous opportunities and challenges present themselves for consideration as alternatives or trade-offs in formulating the scope, schedule, and cost. These items are usually developed based on the risks that are identified while establishing such a baseline. This section will provide a brief discussion on the overall risks identified as well as several alternatives that have been selected for inclusion in the plan, risk mitigation strategies, and some of the open issues still to be resolved.

Alternatives and Trade-offs

Alternatives and Trade-offs included in this plan

- § Accelerated deinventory of building. 235-F and K Area Materials Storage – During review of the nuclear materials storage program, it was identified that

the lifecycle operation of both the 235-F and K Area Materials Storage (KAMS) facilities could be reduced. With the assumption that an EM plutonium disposition capability will be developed onsite, plutonium that could not be transferred to the NNSA MOX program could be dispositioned and would not require extended storage awaiting such a capability. As a result, needed storage capacity is reduced earlier in the program than had previously been assumed. Therefore, it is now expected that building 235-F will be deinventoried by the end of FY 2014 and KAMS will be deinventoried by the end of FY 2017. This will reduce the operational and security costs for these two facilities by five and two years, respectively.

§ Streamline Soil and Groundwater Project remediation – DOE, Environmental Protection Agency (EPA) Region 4, and South Carolina Department of Health, Environment and Control (SCDHEC) develop approaches to streamline Soil and Groundwater Project (SGP) remediation activities, while protecting human health and the environment. The agencies collaborate using a core team approach to identify protective, streamlined, risk-reducing, and cost-effective remedial processes. This approach to managing the remediation program has been in place for nearly a decade. Area closure is a recent example of an alternative approach that was adopted in 2003 and is currently being developed. By streamlining documentation processes, the area closure approach allows the program to proceed at an accelerated pace while maintaining its protectiveness.

§ Alternative end state options – The following alternative end state options have been identified in the *SRS Risk Based End State Vision*, assumed in this plan, and will be further pursued with EPA and SCDHEC through the SGP Core Team:

§ All soil hazard source terms will be remediated such that any residual hazards or contaminants will be consistent with 10 E-04 to 10 E-06 risk based on a “less than industrial” (Maintenance Long-Term Stewardship) exposure scenario for former industrial land areas with no planned industrial reuse.

§ All facility hazard source terms and any contamination (hazardous or radiological) will be removed in the deactivation process to ensure another inactive waste unit is not created for the *National Priorities List*. All EM facilities will be demolished or decommissioned in situ such that any residual hazards or contaminants will be consistent with 10 E-04 to 10 E-06 risk based on a “less than industrial” (Maintenance Long-Term Stewardship) exposure scenario for land areas with no planned industrial reuse.

Cost and schedule for both SGP and decommissioning activities would be impacted if these alternatives are not implemented.

Alternatives and Trade-offs under consideration but not included in this plan

§ Integrating SNF Treatment and Storage and HLW Canister Shipping Facilities – Both the Spent Nuclear Fuel and High Level Waste programs will require a packaging and shipping facility to prepare the fuel elements and canisters, respectively, for transport to the Federal Repository. To reduce overall costs, consideration is being given to combining the storage and loadout facilities for the items that have been packaged and awaiting shipment.

§ Transfer of facilities to other programs – The *2004 PMP* assumes that no transfer of facilities from EM to another DOE program office will occur prior to the end of FY 2025. Although no transfers are assumed, some may

occur. If so, the EM lifecycle cost at SR will be reduced accordingly. This is a change from the 2002 PMP in which transfers were assumed in the SRS baseline resulting in certain aspects of the program being unfunded within the DOE budget (e.g., H Canyon operations post-FY 2006).

Risk Management

Cross-Cutting Program Risks

Cross-cutting programmatic risks have been identified which could have a significant impact to the site's overall cleanup scope, schedule, and cost. Cleanup acceleration impacts and potential mitigation strategies are discussed for each specific risk. These will be further developed as the EM Cleanup Project is implemented.

- **Funding may not be provided in the amounts or on the schedule requested.**

Impact: Schedule acceleration and associated EM lifecycle cost reductions may be jeopardized.

Mitigation Strategy: The project execution strategy would have to be adjusted to accommodate the lack of required funding. Three different strategies will be pursued to avoid or reduce the impacts:

- (1) Review the PMP on an annual basis and revise as required.

SR senior management has committed to the annual review of the PMP and revision as deemed necessary. This nominally will be done in the late winter and early spring timeframe to coincide with the outyear budget development. At that time, all programmatic assumptions and funding expectations, as well as actual performance, will be reviewed to determine whether changes to the PMP are necessary.

- (2) Execute an effective Change Control process.

SR has implemented a change control process that evaluates proposed activities to avoid unforeseen impacts to the lifecycle baseline. This is described in Section 4.4.

- (3) Maintain effective working relationships with customers, regulators, and stakeholders

One of the most important actions that SR can take is to keep customers, regulators and stakeholders apprised of any expected impacts to the program should funding reductions occur. For example, this will assist HQ in making informed decisions if faced with budget reductions within the EM program. Through demonstrated efficiencies and cost-effectiveness, SR expects to receive funding support as required to achieve EM cleanup by the end of FY 2025.

- **Cost Reduction Objectives May Not be Realized**

Impact: Funding request will be inadequate to achieve program objectives, impacting the site's ability to achieve schedule acceleration and EM cost baseline reductions.

Mitigation Strategy: SR has assumed an aggressive cost reduction program in this *PMP*. An assumed across-the-board reduction of approximately 20% has been assessed on most lifecycle estimates in order to accomplish the revised baseline (exclusive of newly identified scope, discussed elsewhere).

- (1) Revised contracting strategy

As discussed in several places within this plan, the recent contract modification incentivizes the contractor to achieve significantly greater workscope than would otherwise be expected for the given funding. After approximately 18 months operating under this modification, the contractor is exceeding the expected level of performance. As discussed in Section 4.2, similar arrangements could be utilized in the future to ensure these cost reduction efforts continue in subsequent periods of the lifecycle.

- (2) External lessons learned, review, and validation

The site will continue to use external sources to review its activities and to review programs and actions taken by other sites to continue to improve efficiencies. As an example, a baseline review team was onsite in September 2003. This team identified a number of recommendations and observations which we have addressed in this plan. A review of the *2004 PMP* is planned subsequent to submittal of this document to HQ. In addition, discussions with other sites have occurred and SR will continue to learn what other sites are doing in identifying cost reduction opportunities.

- (3) Internal lessons learned, review, and validation

The site will continue to self-evaluate progress made to date and implement any changes as appropriate. For instance, in estimating the cost to decommission facilities, an algorithm identified as the ROM Model has been used at different sites across the complex and adapted for use at SR. This model has been accepted as a standard for use in the development of decommissioning costs. Now that SR has begun a significant decommissioning program, a review of the assumptions and cost development process used by that model will be performed to revise it as necessary to better reflect actual cost and schedule performance.

- (4) Contingency for cost reduction objectives

Establish a Cleanup Project Contingency, held by EM-HQ, if cost reduction objectives are not met. This contingency concept is discussed in Section 3.7.

- **Cost Estimate Pricing Assumptions**

Impact: Significant changes in baseline pricing assumptions outside of SR control, such as escalation rates, cost of subcontract services, contractor pension contributions, etc., would result in funding requirements being inadequate to achieve program objectives, impacting ability to achieve schedule acceleration and EM cost baseline reductions.

Mitigation Strategies: Two mitigation strategies are available that could be taken individually or in combination to address this risk:

- (1) Establish a Cleanup Project Contingency, held by EM-HQ, for changes outside of SR control. This contingency concept is discussed in Section 3.7
- (2) Adjust project performance baseline cost estimates through formal change control and adjust activity schedules to stay within the established funding.

- **Adjustment of Workforce Skill Mix Consistent with Project Resource Requirements**

Impact: External constraint on exercising workforce adjustments for full service employees (consistent with DOE policy), may result in an increase in project execution cost and/or delay in project schedules.

Mitigating Strategies: Three mitigation strategies are available that could be taken individually or in combination to address this risk:

- (1) Maximize cost effective re-assignment, re-training, and use of other workforce management options to minimize skill mix issues.
- (2) Leverage use of subcontract personnel, where cost effective.
- (3) Develop multi-year staffing plans to anticipate workforce transitions and facilitate stakeholder communications.

Program-specific Risks

Program-specific risks which could have a significant impact to individual PBS's and may impact the site's overall clean-up scope, schedule, and cost have been identified. For example, since the HLW program including operation, decommissioning, and environmental remediation is on the site's critical path, any impact to the HLW disposition program will delay completion of the site's cleanup project. This section provides a brief summary of some of the program-specific risks and potential mitigation strategies that have been identified in this plan. These are further discussed in the individual PBS descriptions in Section 8.

- **Loss of a major process facility for an extended period of time**

Impact: Any one of the site's programs could experience a major process facility loss for an extended time.

Mitigation Strategy: Due to the unique nature of several SRS facilities, there is no viable mitigation strategy for the loss of a major facility. SR's strategy will continue

to be to maintain the facilities to standards and levels necessary to reduce the probability of a major outage.

- **Integration of H Canyon, HB Line, Spent Nuclear Fuel Treatment and Storage Facility, and Plutonium Disposition programs**

Impact: Timing for the deactivation of H Canyon and HB Line is currently dependent on the startup of the Treatment and Storage Facility (TSF) and Pu disposition capabilities. Since both TSF and Pu disposition are on compressed schedules, there is a risk that H Canyon and HB Line may need to remain operational beyond the current date of FY 2011. The impact of maintaining H Canyon and HB Line in an operational mode is approximately \$200,000,000 per year. In addition, delays in the Pu disposition project could result in delayed deinventory of the KAMS and 235-F facilities, requiring an additional \$80,000,000 per year in additional costs.

Mitigation Strategy: Several options may be considered in mitigating this concern.

Ensure timely completion of the two projects. TSF design and construction is assumed to occur on a very accelerated pace commencing in FY 2007 and completing in FY 2010. Pu disposition options are currently being evaluated with the start of conceptual design beginning late this year or early in FY 2005.

(1) DOE would develop a strategy which would enable deactivation of H Canyon and HB Line without the full completion of TSF and Pu disposition projects. This would require discussion and agreements with SR's customers and stakeholders.

- **Delays in the availability of the Federal Repository at Yucca Mountain**

Impact: The HLW and SNF disposition programs are dependent on the availability of the Federal Repository at Yucca Mountain. The 2004 PMP assumes that the repository will begin receipt of HLW canisters and SNF containers in FY 2010 and FY 2011, respectively and both programs will complete by FY 2020. Although operation of the DWPF and the TSF will not be extended, interim storage of this material awaiting shipment will be required.

Mitigation Strategy: No mitigation action is planned at this time. After construction of GWSB II, sufficient storage should be available on site to accommodate a several year delay in the repository. Storage capability on site should be adequate. It is expected that any extended delays in the repository will result in the construction of additional canister and container storage capacity similar to the existing capability provided by GWSB II.

- **Implementation of new Design Basis Threat guidance**

Impact: New Design Basis Threat (DBT) guidance has been provided to the site which may result in significant additional security costs.

Mitigation Strategy: The full impact of this program has not yet been identified. Preliminary cost estimates for the program have been included in this PMP; however, there is a risk that additional resources may be required. A complete mitigation strategy will be developed after the impacts have been determined.

- (1) Vulnerability Assessments and other reviews are being accelerated to the extent practical to determine the overall impacts to the security program as early as possible.

- **Uncertainties within the HLW Disposition program**

Impact: Any delay in the completion of the HLW program could impact completion of the EM Cleanup Project. The potential issues listed here are further described in Section 8.0:

- § Delays in implementation of Waste-on-Wheels (WOW), an innovative technical alternative to the HLW Removal Baseline for bulk waste removal from the HLW tanks
- § Timely resolution of the Waste Incidental to Reprocessing issue
- § Availability and success of the Salt Waste Processing Facility and interim technology and process development facilities

Mitigation Strategy: Inability or significant delay in resolving these concerns will result in significant impact to the entire EM Cleanup Project. Mitigation strategies are being developed.

3.6 EM Cleanup Project Baseline Schedule, Milestones and Metrics

The SRS EM Cleanup Project baseline schedule is provided in Figure 3.6.1. More detailed PBS-specific schedules are provided in Section 8.0. Also provided in Section 8.0 are milestones and metrics for each PBS.

3.7 Contingency

SR recognizes that there is a risk that some of the assumptions and program plans established to achieve accelerated cleanup of SRS may not be realized. If these risks materialize SR will identify alternative program options to minimize impact to cost or schedule baselines. However, significant adverse changes in scope, schedule or cost may greatly affect the site's overall baseline.

Consistent with project management practices the *2004 PMP* includes a contingency for the lifecycle baseline cost. This contingency will be 'held' by HQ. This contingency recognizes the potential risk associated with two aspects of the cleanup project: the management challenge to perform more efficiently and traditional project risks for which contingency is established.

As detailed in Section 6.2, SR, in the development of this plan, has assumed a management challenge to perform approximately 20% more efficiently. This challenge is based on the recent modification of the site M&O contract and the early success demonstrated in achieving cost savings by both SR and the contractor. Assuming the continuation of these savings throughout the lifecycle is a recognized risk. As funding and personnel resources decrease in the future, there will be fewer opportunities to identify and achieve similar cost savings. In addition, these savings have been applied to the lifecycle baseline and across all programs, including

programs with significant uncertainties such as the HLW and SNF disposition programs. Consequently, the management challenge established as SR's goal, may be overly optimistic.

As summarized in Section 3.5, and further detailed in Section 8.0, many traditional project risks exist for the EM Cleanup Project. For programs currently underway, the HLW disposition program contains the greatest risk, and it drives the critical path for completion of EM work at SRS. Uncertainties in the settlement of legal and regulatory issues, and in technologies still under development, may result in higher project costs and extended schedules. For programs currently in the pre-conceptual phase, the plutonium disposition program has the greatest risk due to the size of the task and its early stage of development.

Because of the significant management challenge and project risks, this plan proposes a contingency as shown in Table 3.7.1.

Table 3.7.1 Total Project Contingency

Years	Contingency Percentage	Contingency (\$000,000)
2004-2006	10%	TBD
2007-2010	15%	TBD
2011-2015	20%	TBD
2016-2020	25%	TBD
2021-2025	30%	TBD
Total Project Contingency		TBD