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Solid Waste Stabilization & Disposition Project

(PBS-SR-0013)

Risk Management Plan (U)

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Washington Savannah River Company
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SUMMARY OF REVISIONS

Issue Date	Revision	Description
July 6, 2006	0	Initial Issue

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LIST OF ACRONYMS / ABBREVIATIONS - DEFINITIONS

Acronym/Abbreviation	Definition
AB	Authorization Basis
BSRI	Bechtel Savannah River, Inc.
CCP	Central Characterization Project
CIF	Consolidated Incinerator Facility
D&D	De-inventory and Decommissioning for Closure
DOE	U. S. Department of Energy
EM	Environmental Management
ETP	Effluent Treatment Project
FY	Fiscal Year
GFSI	Government Furnished Services & Items
HA	High Activity
HW	Hazardous Waste
IPT	Integrated Project Team
LLW	Low Level Waste
MRS	Modular Repackaging System
MW	Mixed Waste
NDA	Non-Destructive Assay
NDE	Non-Destructive Examination
NNSA	National Nuclear Security Administration
P^2	Pollution Prevention
PBS	Project Baseline Summary
PEG	Program Execution Guidance
PEP	Project Execution Plan
PUREX	Pu Reduction Extraction
RH	Remote Handled
R&O	Risk & Opportunity
ROAR	Risk & Opportunity Analysis Report
ROMP	Risk & Opportunity Management Plan
SE	Systems Engineering
SME	Subject Matter Expert
SR	Savannah River
SRNL	Savannah River National Lab
SRS	Savannah River Site
STARS	Site Tracking and Reporting System
SW	Solid Waste
SWMF	Solid Waste Management Facility
SWSD	Solid Waste Stabilization and Disposition
SWSDP	Solid Waste Stabilization & Disposition Project
SW&I	Solid Waste & Infrastructure
T&PRA	Technical & Programmatic Risk Assessment

TBD	To Be Determined
TRU	Transuranic
TVEF	TRU Visual Examination Facility
WIPP	Waste Isolation Pilot Plant
WM	Waste Minimization
WMAP	Waste Management Area Project
WSMS	Washington Safety Management Solutions
WSRC	Washington Savannah River Company

EXECUTIVE SUMMARY

The Solid Waste Stabilization and Disposition (SWSD) Integrated Project Team has initiated the risk and opportunity review of the Solid Waste Stabilization & Disposition Project (PBS-SR-0013) and has established a baseline for future project risk and opportunity management activities at the PBS level. To date, a team of Solid Waste personnel representing Department of Energy – Savannah River (DOE-SR), Energy Solutions, and Washington Savannah River Company (WSRC) has quantified 25 program risks and 3 opportunities in the Project Baseline Summary elements of Sanitary Waste, Mixed Waste, Hazardous Waste, Low Level Waste, Site Infrastructure, TRU Waste, Pollution Prevention, and Waste Minimization.

A previous PBS-SR-0013 Risk & Opportunity Management Plan (ROMP) [Reference 7] summarized and presented the results of a review of risk and opportunity assessments performed for project activities as a required element of the project management process at the Savannah River Site (SRS). This report implements the recommendations of the previous PBS-SR-0013 RMP report by updating and expanding the scope of the assessment to include the entire PBS-SR-0013 scope through completion at a commensurate level of detail. To ensure full implementation of risk handling strategies, an action item list will be prepared as an integral part of the electronic risk database. This list will identify the organizations responsible for implementing risk handling strategies and will be used by management to track the progress. A tool known as a “risk-o-meter” is also part of the integrated risk management process and has been developed as a management status tool to provide a condensed “snap shot” of project risk management status at any point in time.

Successful execution of individual projects and completion of the Solid Waste Stabilization & Disposition Project (SWSDP) requires reduction of risk levels to that of residual and funding of technical and programmatic risk assessment contingencies to combat remaining residual risk. Reductions in risk level depend on successful implementation of identified risk handling strategies. The strategies identified in this assessment are not fully funded at this time. This assessment defined near-term PBS-SR-0013 activities as those up to and including 2012. Contingency analysis evaluated the near-term funding contingency required to establish an 80% confidence in project completion as $715 Million. Out-year life cycle funding contingency required to establish an 80% confidence in project completion is $545 Million. During evaluations, it became apparent that although contingency funding was an acceptable assurance of near-term PBS-SR-0013 success, many risks, if realized created significant delays to completion of the overall PBS-SR-0013 scope.

The results show a relatively high level of risk for the project in that almost 44% of risks (11 out of 25) were identified as High risks, 48% (12 out of 25) Moderate risks and 8% (2 out of 25) Low risks, which were reduced to 6 High risks, 4 Moderate risks and 1 Low risk after the application of risk handling strategies. One risk was avoided completely. 54% (6 out of 11) of High risks remained High, 58% (7 out of 12) of Moderate risks remained Moderate. However, because 52% of risks were characterized as external programmatic to the project (i.e., source of risk is outside the direct control of the project), handling strategies identified by the Team were not as effective in reducing risk levels as they could have been if the sources of risk were within the project’s control. In many cases, these handling strategies were actually contingency plans for dealing with the risks when they occur.

Also of note is:

- 64% (16 out of 25) of risks are related to the TRU Waste element of the project, including half (8 out of 16) of the High risks and almost half (6 out of 16) of the Moderate risks.

In summary, the following project actions are recommended based upon the discussions above:

1. Take action to fund handling strategies not currently funded;

2. Implement all risk and opportunity handling strategies and develop action items for each of the strategies that can be tracked to completion via a system which has visibility and accountability at the PBS level;

3. Consider further development of risks and opportunities to allow an analysis of handling strategy cost and schedule impacts and determination of project risk-based contingency needs.

1.0 INTRODUCTION

1.1 Management Approach

Savannah River Site (SRS) was constructed during the early 1950s to produce basic materials such as plutonium and tritium used for nuclear weapons production. The site covers approximately 310 square miles in South Carolina and borders the Savannah River. Chemical and radioactive wastes are by-products of nuclear material production processes. These wastes are treated, stored and, in some cases, disposed at SRS. The primary Department of Energy (DOE) programs at SRS are the Environmental Management (EM) and the National Nuclear Safety Administration (NNSA) Programs. The DOE EM Program work has been organized into Project Baseline Summaries (PBSs). The PBSs have been projectized so the management principles contained in DOE Manual 413.3-1, *Project Management for the Acquisition of Capital Assets*, (Reference 4) can be applied.

This Risk management Plan (RMP) defines the plan for managing specific project and programmatic risks identified and assessed as part of the risk management process associated with the SWSDP, PBS-SR-0013 (hereafter referred to as PBS) throughout its life cycle such that there is minimal and acceptable impact on the project's cost, schedule, and operational performance. This PBS funds the treatment, storage, and disposal of solid wastes generated at the Savannah River Site (SRS). Risk management will be performed jointly with appropriate oversight by DOE-SR and contractor management. The purpose of utilizing the R&O management process is to increase overall effectiveness of EM work associated with this project so risks are managed to acceptable levels and opportunities can be realized to enhance PBS scope completion.

This document will consider potential sources of project related risks and opportunities[a], including programmatic and technical risks, risks to the facility performance, risks from project integration into the SRS infrastructure and risks from interfaces with other projects and organizations. This RMP also describes the roles and responsibilities of project personnel in performing risk and opportunity management functions; defines reporting and tracking requirements and results for related data and information; and the results of the above activities.

Risk and Opportunity Management will be implemented throughout the life of the project. The requirements and guidance established in this RMP are tailored to the SWSD Integrated Project and are consistent with the implementing guidance contained in:

[a] Risks are issues, which, if not adequately handled, can lead to detrimental project cost and schedule impacts. They can also result in unsatisfactory facility operational performance. Opportunities are issues which, if realized, provide cost savings and/or schedule improvement.

- Manual E7, Procedure 2.05 (Reference 1)
- Manual E11, Procedure 2.62 (Reference 2)
- WSRC-IM-98-00033, Systems Engineering Methodology Guidance Manual, Appendix B, Risk Analysis & Management (Reference 3)
- DOE Order 413.3 (Reference 4)
- DOE Manual 413.3-1 (Reference 5).

1.2 Management Approach & Strategy

The primary strategy of this assessment was to identify foreseeable risks to the SWSD Project associated with successful completion of the mission defined in PBS-SR-0013 within planned cost and schedule budgets. A secondary strategy of the assessment was to capture opportunities that may be exploited to reduce project costs/schedules and/or provide cost effective performance improvements. To support this strategy, the focus of this assessment was limited to the identification of risks and opportunities having potential impacts at the PBS level rather than at lower levels, such as individual facilities.

2.0 PROJECT SUMMARY

2.1 Project Scope Description

This PBS scope covers storage, treatment and disposal functions for transuranic, low-level, mixed low-level, hazardous, and sanitary wastes, as well as pollution prevention, waste minimization, waste certification, and other waste management support functions.

In addition, this PBS covers surveillance and maintenance for the Consolidated Incinerator Facility (CIF) project, until closure (D&D) of the facility in FY 2008.

This PBS also includes general infrastructure “landlord” functions, which are necessary for general operation of the site, and care of the site's shared infrastructure components and centralized support activities. Procurement and installation of capital equipment/general plant projects, which support “landlord” facilities and operations, are also covered by this project.

The PBS also includes Cold War Historic Preservation scope.

Waste management scope includes both disposition of legacy wastes, which have been generated by historical activities at SRS and have been stored for years awaiting disposal, and disposition of newly generated waste, which are being and will be generated by current and future EM and non-EM activities at SRS. Elimination of the legacy inventory of low-level, hazardous and mixed low-level wastes will be completed in the short term (by the end of FY 2006). Transuranic waste legacy will be dispositioned by the end of FY 2012. Newly generated wastes of all types will be disposed of in real time, in accordance with DOE Order 435.1, until completion of the EM mission at SRS, ensuring that a legacy waste issue is not created for the future. Waste management programs will continue to support waste disposal and reduce volumes of newly generated wastes so far as possible.

The CIF will remain under minimal surveillance and maintenance until FY 2008. Alternative disposal options for one particular waste stream (spent PUREX solvent waste) are being developed to allow the CIF to undergo closure (D&D) beginning in FY 2008. The scope associated with the actual closure (D&D) of CIF is not part of this PBS.

It is anticipated some level of general "landlord" functions, and procurement and installation of capital equipment/general plant projects will continue until completion of the EM mission, along with the Cold War Historic Preservation scope. The Effluent Treatment Project (ETP) is not part scope of the PBS-0013; it is contained in PBS-0014C.

The end-state for this project will be shipment of all legacy transuranic waste to the Waste Isolation Pilot Plant (WIPP); treatment and disposal of PUREX waste; elimination of all legacy inventories and steady-state disposition of newly-generated wastes for as long as EM missions continue at SRS. This project includes current and future waste disposition support for the National Nuclear Security Administration (NNSA) and other programs performing work at SRS.

2.2 Goals and Objectives

Listed below are goals and objectives of the PBS.

- Legacy hazardous waste dispositioned by the end of FY 2006.
- Legacy mixed low-level waste dispositioned by the end of FY 2006 with exceptions as specified in *Contract Modification M120*.
- Legacy PUREX mixed waste dispositioned by the end of FY 2007.
- Legacy low activity TRU drum waste dispositioned by end of FY 2008.
- CIF surveillance and maintenance activities will maintain the facility in readiness to begin D&D in FY 2008.
- Legacy high activity TRU waste boxes and drums dispositioned by end of FY 2012.
- After the disposition of legacy waste is complete, SRS newly generated wastes will be disposed of normally within one year of receipt by Solid Waste to prevent a legacy waste problem from being created for future generations.
- Waste facilities will be deactivated with the possible exception of portions of the Solid Waste Management Facility (SWMF) needed for on going NNSA missions. Once deactivated, facilities will be maintained in a minimal surveillance and maintenance condition until transferred to PBS SR-0040 for final decommissioning or to PBS SR-0030 for final area closure.
- EM mission complete for this PBS is driven by newly generated waste forecasts from other EM missions.
- Executive Orders on waste reduction and minimization shall be met.
- Site infrastructure programs are maintained at levels commensurate with the completion of EM mission.

2.3 Assumptions

Assumptions necessary to support the PBS strategy include the following:

- EM will only operate Solid Waste facilities through completion of the EM mission.
- EM will continue to provide Solid Waste services to non-EM waste generators at SRS through completion of the EM mission.
- No new waste-stream from non-EM waste generators will be dispositioned by EM other than those currently planned.

- Infrastructure and Site Services should be assumed to be sized and maintained consistent with identified EM needs and requirements.
- Infrastructure support to DOE users will continue to be provided through completion of the EM mission.

The following are Government Furnished Services & Items (GFSI) assumptions that are part of the strategy:

- Non-destructive assay (NDA) and non-destructive examination (NDE) equipment for large container waste will be provided by June 30, 2007 with funding from EM-HQ Office of Environmental Cleanup and Acceleration
- Nuclear Regulatory Commission will issue Certificate of Compliance for TRUPACT-III by Dec 31, 2007.
- Central Characterization Project (CCP) will continue to operate and fund SRS TRU drum characterization through FY 2008.
- CCP will operate and fund SRS TRU non-drum container characterization beginning no later than Sept 30, 2007 and running through Sept 30, 2010. After FY 2010, the equipment is retained at SRS and is operated by SRS resources to process newly generated TRU waste until the completion of the EM mission.
- New Mexico Environmental Division will approve the WIPP Class 3 Permit Modification for elimination of headspace gas sampling and visual examination for high activity non-drum waste.
- DOE will identify receiver sites for LLW, MW, and HW.
- SRS shipping schedule will align with WIPP (Carlsbad) schedule.

2.4 Assessment Scope

Requirements and guidance used in planning and executing this program-level risk assessment comply with DOE Order 413.3, Program and Project Management for the Acquisition of Capital Assets. Individual project risk management activities performed will be consistent with SRS procedures, guidelines and practices referenced below:

- Manual E7, Conduct of Engineering and Technical Support (Reference 1);
- WSRC Systems Engineering Guidance Manual - Appendix B: Risk and Opportunity Analysis and Management (Reference 3).

This report addresses PBS-SR-0013 risks and opportunities through completion of the Project. The report documents the assessment of risks and opportunities associated with implementation of the overall completion of PBS-SR-0013. The risks identified, analyzed and documented in this report will be reviewed on an annual basis or more frequently as warranted by major changes to scope for PBS-SR-0013 as driven by technical complexity, policy, funding, litigation, or legislation. This report will also provide the input for PBS-SR-0013 to the SRS PBS rollup risk assessment and support the SRS Project Execution Plan (PEP).

3.0 RISK & OPPORTUNITY MANAGEMENT TEAM ROLES & RESPONSIBILITIES

The Risk & Opportunity (R&O) Management Team will be comprised of individuals selected to participate based upon their diverse knowledge and subject matter expertise. The Team may include personnel who are core team members with additional independent subject matter experts participating as appropriate in the risk and opportunity assessment process. The Team is responsible for performing R&O activities shown below in Figure 1.

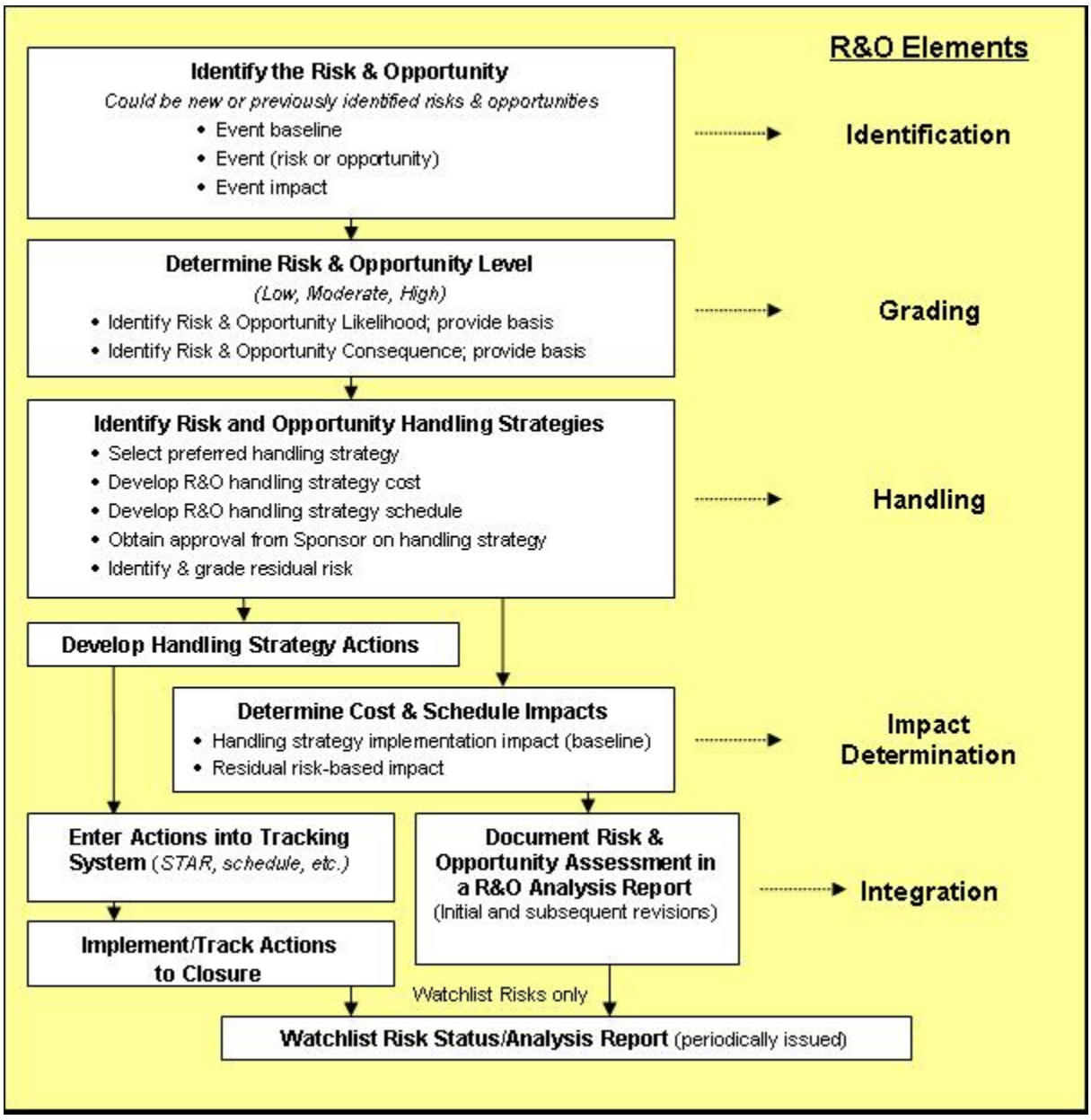


Figure 1 - Risk & Opportunity Management Team Responsibilities

The DOE-SR Federal Project Director for Solid Waste Stabilization and Disposition has overall responsibility for implementation of this RMP. The activities required for the implementation of the RMP may be delegated; however, the responsibility remains with the identified function. Specific responsibilities of participating Team members are listed below.

3.1 DOE-SR Federal Project Director for Solid Waste Stabilization and Disposition

- Identifies and assigns DOE risk analysis participants;
- Approves Core Team members;
- Approves the RMP and its revisions;
- Approves the transfer of risk from facility, project, or modification activities to the PBS;
- Provides oversight of risk and opportunity management process to ensure implementation and integration between DOE and contractors.

3.2 WSRC Solid Waste Stabilization and Disposition R&O Manager

- Chairs formal project risk and opportunity assessment meetings;
- Ensures risk and opportunity management process steps specified in this RMP are implemented;
- Identifies and defends the budget and resources necessary to support the risk and opportunity management process;
- Defines scope and schedule of program risk assessments;
- Nominates Core Team members;
- Assigns responsibility for implementing risk and opportunity handling strategies;
- Actively engages in monitoring and addressing project risks and opportunities, and ensures that they are identified and managed;
- Proposes the assessment likelihood and consequence/benefit thresholds and any changes to those criteria;
- Ensures risk and opportunity status is reviewed and updated on an annual basis, or more frequently as warranted by major PBS lifecycle phase transition;
- Ensures that risk and opportunity handling strategies are implemented and tracked to closure;
- Ensures that configuration control is maintained for the SWSD Project (PBS-SR-0013) Risk / Opportunity Management Database.

3.3 WSRC Solid Waste Stabilization and Disposition R&O Lead

- Provides training and guidance to the R&O Team on applying the risk and opportunity management process;
- Recommends planning and priorities for risk and opportunity management activities;
- Facilitates formal risk and opportunity assessment meetings as required;
- Performs the risk and opportunity analysis and prepares and maintains the RMP;
- Prepares status/tracking/closure reports as requested;
- Ensures that risks / opportunities and their handling strategy responsibilities transferred to the PBS from facilities, projects, and modifications are approved, documented, and reflected in subsequent risk and opportunity analyses;
- Maintains configuration control of the SWSD Project (PBS-SR-0013) Risk / Opportunity Management Database.

3.4 Risk and Opportunity Team Members

The Risk and Opportunity Team members have the responsibility for identifying and managing programmatic and technical risks such as:

- Identifying candidate risks and opportunities;
- Screening candidate risks and opportunities for further consideration;
- Grading risks to determine risk levels (i.e., high, moderate, or low) by defining risk probabilities and risk consequences;
- Developing strategies for handling selected risks and opportunities;
- Developing risk (opportunity) handling costs, and technical and programmatic risk (opportunity) based contingencies;
- Implementing risk (opportunity) handling for assigned tasks;
- Reviewing progress of risk handling strategies and redefining residual risk levels;
- Reviewing progress of opportunity handling strategies;
- Report impacts to probability of success.

Individual responsibilities and approval process for the RMP is specified by Reference 2.

3.5 Risk/Opportunity Assessment Team

A team of senior Solid Waste personnel representing DOE-SR, Energy Solutions, and WSRC was assembled to serve as the Risk/Opportunity Assessment Team hereafter referred to as the Team. The individuals who comprised the Team are listed below in Table 1.

Table 1 - PBS-SR-0013 Risk & Opportunity Assessment Team

Name	Organization	Name	Organization
Herbert (Bert) Crapse	DOE, TRU Waste Program Manager	Tony Maxted	EnergySolutions, WMAP
Doug Hintze	DOE, Federal Project Director	Howard Pope	DOE, Low Level Waste Program Manager
William Morrison	EnergySolutions, WMAP	Luke Reid	WSRC, WMAP
David Swale	EnergySolutions, WMAP	Jonathan (Mike) Simmons	DOE, Mixed Waste Program Manager
Lee Fox	WSRC, WMAP	Thomas Thome	WSRC, WMAP
Jeffrey Stevens	EnergySolutions, WMAP	Kenneth Harrawood	EnergySolutions, WMAP
Holt Moran	WSRC, WMAP	James Harris	Energy Solutions, WMAP
Subhash Sethi	BSRI, Systems Engineering	Alexcia Delley	WSRC, Systems Engineering
Daniel Racki	WSRC, Systems Engineering	Cathy Flavin	WSRC, Area Engineering Manager
Steve Mackmull	DOE, Waste Minimization Program Manager		

4.0 RISK & OPPORTUNITY MANAGEMENT PROCESS EXECUTION

The methodology to be employed in managing risks and opportunities for the PBS is based on current methodology described in Appendix B of the *Systems Engineering Methodology Guidance Manual* (see Reference 3). The process includes the following six elements, which are shown below in Figure 2 along with a brief description of the activities performed in each of the elements:

- Planning
- Identification
- Grading
- Handling/Response
- Impact Determination
- Integration

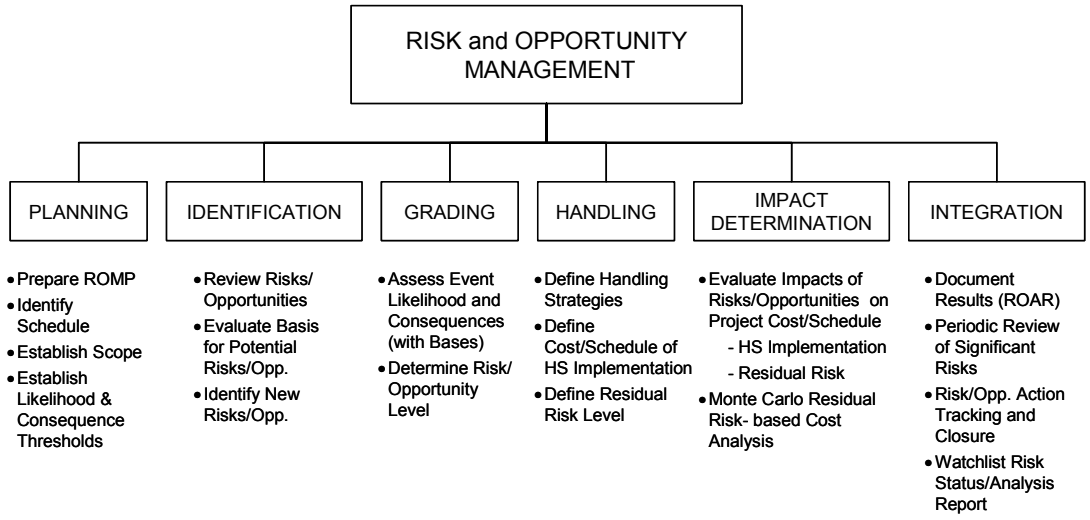


Figure 2 - Risk and Opportunity Management Elements

A functional flow diagram of the entire risk and opportunity management process is shown below in Figure 3 and in additional detail in Figure 4. As shown in the diagram, the process is a repetitive process that depends on periodic assessments.

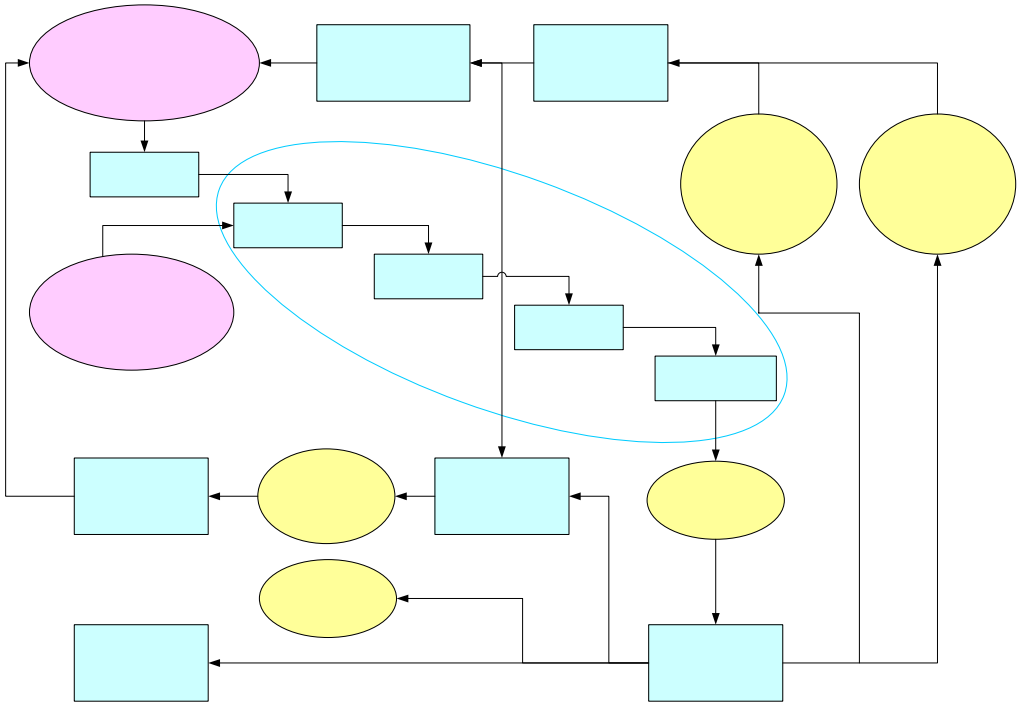
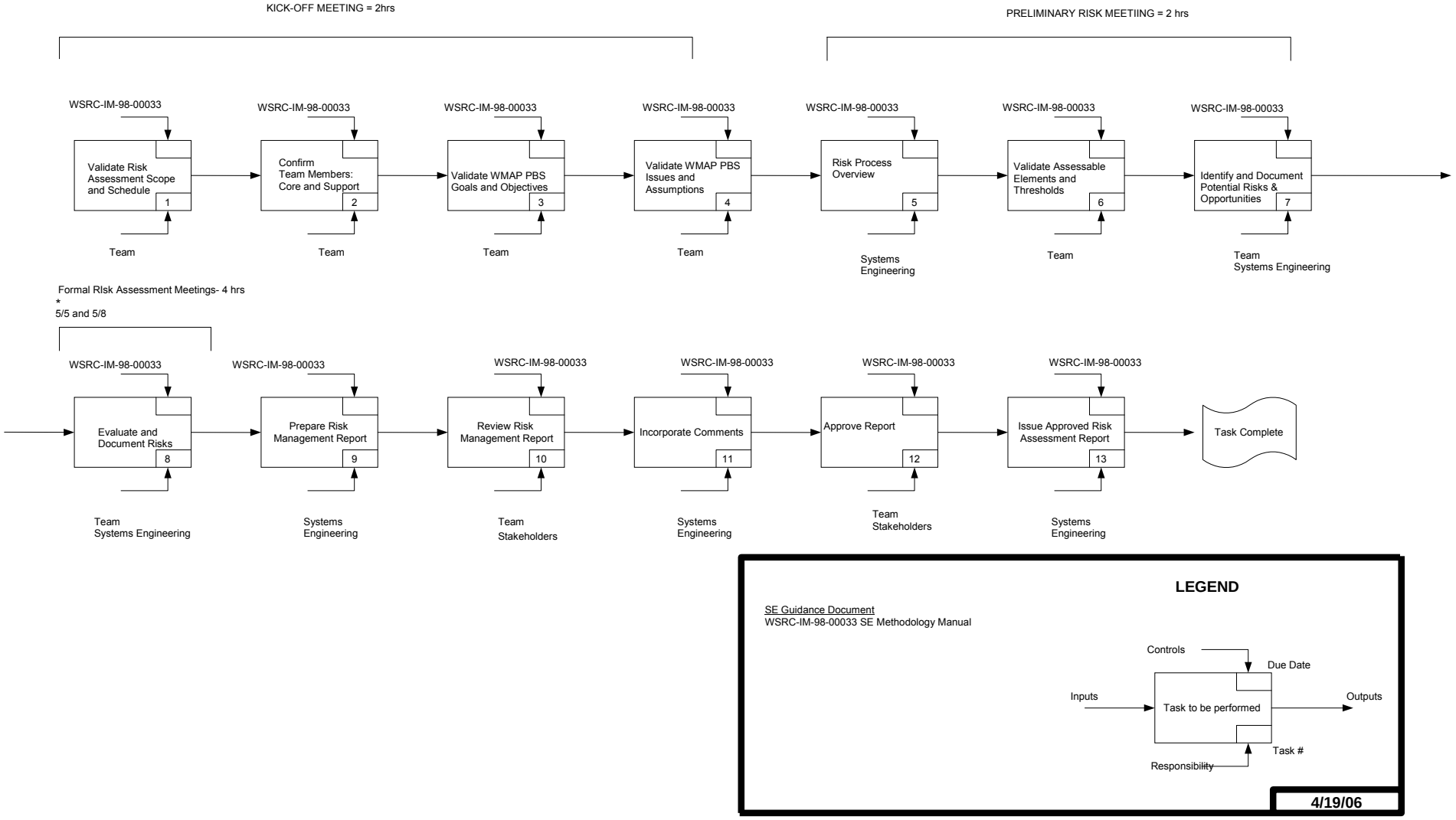


Figure 3 - Risk & Opportunity Management Process Functional Flow Diagram

Figure 4 - Waste Management Area Projects PBS-SR-0013 Risk Update Planning Model



4.1 Planning

Risk and opportunity management planning provides an approach for screening an activity for potential risks and opportunities, and for preparing a plan to assess and manage these events throughout the life cycle of the activity. In addition to the elements of this plan that have already been addressed (e.g., scope, issues and assumptions, R&O Team), there are several other parameters that must be defined in this plan. Planning involves tailoring the R&O management elements to the scope of the specific PBS assessment. Planning is the responsibility of the team members identified in Section 3. The following activities are performed and documented during the planning phase:

- Confirm the R&O management elements to be performed,
- Define the PBS-SR-0013 Assessment Scope (documented in Section 2.0)
- Develop planning model for the assessment process,
- Develop assessable elements to envelope the PBS,
- Develop Categories for risk types,
- Define the risk likelihood and consequence criteria definitions to be used for the PBS assessments,
- Define the Opportunity Likelihood and Benefit Criteria definitions to be used for the PBS assessments,
- Select key Operations, Engineering and other Subject Matter Experts,
- Determine frequency of assessments, and
- Determine method for tracking and reporting progress on handling strategy actions.

Additional information on the parameters is provided below; information on tracking and reporting may be found under Section 4.6 of this plan.

4.1.1 Assessable Elements

To facilitate complete and thorough assessments, large projects/programs are normally screened for risks/opportunities at lower levels with smaller scopes typically referred to as assessable elements. For the initial assessment under this plan, the PBS work breakdown structure (WBS) as shown in Appendix A will be used as the assessable elements. The Team may determine that other assessable elements are more appropriate for future assessments. Those different elements may be used; however, the revisions must be documented in a revision to Appendix A.

4.1.2 Likelihood and Consequence/Benefit Criteria

Criteria defining the likelihood and consequence/benefit ranges to be used for all assessments conducted under this plan will be developed by the R&O Team and documented as an appendix to this RMP (Ref. Appendix B). Once established, any changes to the criteria will require a revision to this RMP.

4.1.3 Frequency of Assessments

At a minimum, risk and opportunity assessments of the PBS will be conducted on an annual basis. Additional assessments may be scheduled at the discretion of the R&O Manager.

4.2 Identification

Identification is an organized approach for determining the events likely to affect the PBS scope and for documenting the characteristics of those events through a description of the event, which may happen, how it could affect the task under consideration, and a basis explaining why this event is considered a "risk" or an "opportunity." A risk is the potential outcome of an event, with detrimental impacts to an activity such as failure of a program to achieve mission objectives, exceeding cost and schedule constraints or negative impacts to environment and personnel safety. An opportunity is the potential outcome of an event to improve performance, cost, or schedule of an activity or process.

R&Os were identified by review of existing risk data, identified issues, project assumptions, project uncertainties, brainstorming, and by eliciting team discussion.

The team identified and documented new risks and/or opportunities by answering the following questions:

- What is the baseline? – the normal situation for the element containing the risk or opportunities (e.g., assumption, design basis)
- What is the event? – The incident, occurrence, circumstance, etc., which may happen and is different from the normal situation.
- What is the impact? – a statement of what effect or result the event will or could have on the normal situation (including performance, cost, and schedule impact)

Tools such as brainstorming; past reviews; the Risk Screening Form; lists such as assessable elements, goals and objectives and issues and assumptions; and any other resources that deem appropriate may be used to elicit Team discussion and to provide consistency throughout this step. Issues considered risk are then documented on the Risk and Opportunity Assessment Form, Appendix H. This information will be used to create a database that will be maintained for this project as a core resource in managing risks and opportunities for the PBS. In addition, each risk is assigned a unique number for tracking purposes.

In addition to the identification of new risks, project team members may identify and submit risks/opportunities to the Risk Coordinator at any time. The Risk Coordinator will compile these new risks and include these risks in the upcoming planned risk assessment or may bring these risks to the attention of the Project Manager to decide if a risk meeting should be held.

This information was documented on the Risk and Opportunity Assessment Form shown in Appendix H. This information will create the PBS-SR-0013 R&O database and will provide the basis for managing R&O.

4.3 Grading

Grading is the process of evaluating the likelihood that the risk or opportunity event will occur, assessing the range of possible outcomes (consequences or benefits), and combining these two elements to establish a risk or opportunity level. These grading results may then be used to prioritize risks and opportunities. Using the definitions for likelihood and consequence (or benefit) defined in Tables B-1and B-2 (B-3 and B-4) in Appendix B, the Team will evaluate all identified risks and opportunities and determine a risk or opportunity level of High, Moderate, or Low for each event. Risk levels will be determined by simply plotting the likelihood and consequence values for each risk on the matrix shown in Figure B-1 in Appendix B. In a similar fashion, opportunity levels will be determined by using the matrix shown in Figure B-3 in Appendix B.

For each determination of Likelihood and Consequence/Benefit, the Team will provide a statement that defines the basis for the Team's selection of those particular criteria ranges (i.e., what is the basis for believing that Event ID is *Very Likely* to occur, with *Significant* consequences?). Each evaluation of risk Consequence will also include an estimate of the most significant cost and schedule impacts to the PBS assuming that the risk occurs. In a similar fashion, each evaluation of opportunity Benefit will include an estimate of the most significant cost and schedule reductions, assuming that the opportunity can be brought to fruition.

4.4 Handling/Response

After Risk Levels/Opportunity Factors are determined, Handling Strategies are developed. Risk handling strategies are developed for the purpose of eliminating or at least reducing, the probability and/or consequences of a risk. Risks with risk levels of "Moderate" or "High" will have strategies that reduce, transfer, mitigate, or avoid the risk. The Team should consider ease and effectiveness of implementation (cost and schedule impacts) when selecting a handling strategy. In special circumstances as agreed to by the Team, risks with a risk level of "Moderate" may have a handling strategy of accept. Low risks should be evaluated for simple and cost effective handling strategies. Low risks may be accepted with no further action. Proper definition and execution of risk handling strategies optimize the success of the end product. Risk handling strategies (see Figure B-2 in Appendix B) are grouped into the following four categories and in the order of preference to eliminate/minimize the risk:

- Risk Avoidance: A handling strategy that prevents the risk from occurring. This type of strategy essentially drives to zero the probability or the consequences of the risk occurring, eliminating the risk.

- Risk Reduction: A handling strategy that reduces risk likelihood, but does not eliminate it. This type of strategy reduces the likelihood. The risk remains, but at a reduced level.

- Risk Mitigation: A handling strategy that reduces risk, but does not eliminate it. This type of strategy mitigates the consequences of a risk. The risk remains, but at a reduced level.

- Risk Transfer: A handling strategy that transfers the risk to a new owner (e.g., a different project). The new owner must accept the risk before it can be transferred. See Appendix E for the methodology for transferring risks.

- Risk Acceptance: A handling strategy that accepts the risk "as is". This type of strategy does not attempt to reduce the risk level. Low level risks are examples of the types of risks that are normally subject to being accepted.

An opportunity handling strategy (See Figure B-4) is just the opposite of a risk handling strategy in that the goal is to make rather than prevent something from happening. Similar to risk, opportunity handling strategies should be considered based on the ability to achieve the greatest overall benefit. Opportunity handling strategies can be grouped into the following four categories and in the order of preference to maximize the opportunity:

- Exploit: A handling strategy that eliminates the uncertainty associated with a particular opportunity by making it definitely happen.

- Share: A handling strategy involves allocating ownership of an opportunity to a third party who is best able to handle it, both in terms of maximizing the likelihood of occurrence, and increasing potential benefits should the opportunity be realized.

- Enhance: A handling strategy that aims to increase the Opportunity Factor to make it more acceptable by increasing the likelihood of occurrence and/or consequences (benefits), by identifying and maximizing key opportunity drivers.

- Ignore: A handling strategy that does not take any special measures to address opportunities.

Following the identification of handling strategies, the handling strategy is documented on the Risk Assessment Form. Based on the Risk Handling Strategy, the likelihood and consequences are re-evaluated to determine "how much" the risk level is anticipated to be lowered, e.g., from a high to moderate level by taking credit for the defined risk handling strategy. If the risk is not completely eliminated through implementation of the Risk Handling Strategy, the residual or remaining likelihood, consequence(s), associated uncertainties (in terms of cost or schedule impacts), and risk level are documented on the Risk and Opportunity Assessment Form to facilitate the development of project cost, schedule and contingency analysis.

Risk Handling Strategy is normally implemented via one or several action items. These Risk Handling Strategy action items along with the responsible organization and individuals, and forecasted completion date are documented in the risk database.

4.5 Impact Determination

Risk and opportunity impact determination is an evaluation of cost and schedule impacts of the risks and/or opportunities on the PBS. It includes not only the cost and schedule impacts of implementing risk and opportunity handling strategies, but also the residual risk cost and schedule impacts.

To facilitate this process, the Team will provide estimates for the cost and schedule impacts of implementing the recommended handling strategies for each risk and/or opportunity assessed. Each risk handling strategy impact will be reviewed by the responsible PBS Manager, or designee, and the Cost Estimator, against the existing PBS cost and schedule baselines to ensure that the uncertainty associated with the risk has not already been factored into the cost estimate range and schedule. If the risk/opportunity handling strategy costs are not already integrated into the PBS cost baseline, then handling strategy costs must be added. If risk/opportunity handling strategy schedule impacts are not already integrated into the PBS schedule, then the impacts must be factored into that schedule as well.

In addition, the Team will provide estimates for cost and schedule impacts of the residual risks (best, most likely, and worst case) to facilitate the generation of a risk-based cost exposure estimate that may be used by the PBS Manager in planning future year PBS budgets.

4.6 Integration

Integration is simply the incorporation of risk and opportunity management actions into the PBS baseline. It includes the elements of:

- Making decisions on courses of actions to pursue;
- Adding necessary funding to PBS budgets;
- Adding required time to PBS schedules;
- Reporting results;
    - Periodic assessment results via RMP;
    - Ongoing status via periodic Integrated Project Team (IPT) meetings.
- Developing handling strategy action items;
- Tracking to facilitate efficient management of all risks and opportunities;
- Trending to ensure that existing risk levels are decreasing and opportunities are being realized.

Additional information is provided below on how reporting, tracking, and trending are to be implemented under this plan:

4.6.1 Reporting

The results of all regularly scheduled assessments will be documented (see Section 5.0) in a formal report following the general guidelines provided in Appendix B of the Systems Engineering Methodology Guidance Manual (see Reference 3). Follow up assessments may be documented in a revision to the initial assessment report, or they may be documented in separate reports, at the discretion of the R&O Manager.

4.6.2 Tracking and Trending

Current risk and opportunity status and the status of their handling strategy action items will be reported at regularly scheduled IPT meetings. An example format for reporting risk / opportunity status may be found in Appendix F. To ensure that action items are completed as planned and on a timely basis, all action items will be entered into a tracking system, such as the Site Tracking and Reporting System (STARS), which has visibility and accountability at the PBS level.

Although this was the first effort at putting together a SWSDP contingency, it provides a management tool for Federal Project Directors to manage program risk. Key to maintaining this as an effective tool is updating the PBS risk assessments to current assumptions and direction, and increasing the scrutiny of out-year risk event possibilities to better populate the number of out-year risks. The following recommendations are provided to ensure continuing compliance with DOE Order 413.3.

- Establish risk coordinator function: track risk changes and schedule annual updates.
- Review with DOE management the risk status on a periodic basis, keeping track of any changes or new risks. Integrate with current monthly reporting.
- Hold an annual PBS risk workshop to
  - o share risk status, trends, and lessons-learned
  - o update PBS risk assessments and contingency estimates at the discretion of Federal Project Directors
  - o update SWSDP contingency and integrate contingency estimates.
- Use the PMP/PEP programmatic assumptions for PBS risk assessments and assessment of cross-cutting risks. These assumptions are developed annually through the process to update the PMP/PEP and to support budget formulation.
- Benchmark the SRS PBS risk management process with that of other DOE sites.

5.0 RISK MANAGEMENT IMPLEMENTATION

5.1 Risk Categories

Prior to starting the PBS-SR-0013 risk management update, a planning model was developed. This planning model is shown in Figure 4. The model was developed to ensure appropriate R&O management elements were included in the PBS-SR-0013 risk update activities and logically ordered and scheduled to optimize the efficiency of the team and minimize iterations. Confirmation of the planning model was obtained from DOE Federal Project Management as the initial step in the PBS-SR-0013 risk update process.

The following 10 risk categories were developed and a rollup of previous risks relative to these categories was performed. The SWSDP Risk Categories are defined in Table 2:

Table 2 - PBS-SR-0013 Risk Groupings

Risk Category #	Risk Category Title	Risk #	Description
001	Regulatory, Stakeholder and AB Concerns	006, 012, 018	Risks relating to Federal, State and local stakeholder actions such as external legislative changes, lawsuits and stakeholder approvals such as permitting, licensing and authorization bases.
002	Funding, Priorities, Resources	005, 011	Risks relating to funding shortfalls for the SWSDP brought about by shifting priorities within Federal Government, DOE, and SRS Contractor(s). Includes cross-cutting resource issues such as demographics and availability of specialist resources.
003	Waste Characterization	002, 003	Risks relating to waste disposal issues, either from significant technical mischaracterization or from poor estimates of waste volume leading to exceedance of disposal capacity.
004	External Events	021, 022, 024	Risks relating to the effects of weather events: e.g. earthquake, hurricane, tornado, fires. or a terrorist or other national security event.
005	External Vendor/ Interface Events	019, 025	Risks related to issues at external vendors or other DOE sites used for waste treatment and disposal. Includes vendor non-availability and liability issues for emergent discovery conditions.
006	TRU Waste Program can not be completed by 2012	008, 009, 010 ,013, 014, 015, 016, 017, 020,	Risks related to the inability to complete the disposition of legacy TRU waste by 2012.
007	Waste with No Path to Disposal	001	Risks related to the generation of wastes with no path to disposal.
008	End State	007	Risks associated with the uncertainty of end-state for on-site storage, treatment and disposal facilities at SRS.
009	Process / Operation Upset	004	Risks associated with an operational event (explosion, deflagration, spill, equipment malfunction) leading to a period of inability to operate normally.
010	Transportation	023	Risks related to a significant transportation event leading to either a shutdown of transportation of wastes or a significant impact to operations.

5.2 Brainstorming by Assessable Element

After validation of the planning model, the team closely defined the scope and implementation assumptions of PBS-SR-0013 (this information can be found in Section 2 of this plan). After the scope and assumptions were defined, assessable elements were developed for the scope. The assessable elements cover the entire scope of PBS-SR-0013 and were derived by performing a simplistic functional analysis on the PBS. The assessable elements were used to guide the team through the brainstorming sessions to ensure all elements of PBS-SR-0013 had been assessed.

5.3 Analysis of Risk Grouping

The team determined the residual risk, i.e. the risk remaining after the risk strategy was applied. This risk took the form of a best case, most likely case and worst case residual impact and a likelihood of occurrence. When determining this impact it was necessary to estimate the dollar value (best case, most likely case and worst case) of the portion of the residual impact, which would affect PBS-SR-0013. These values would form the input to the T&PRA Monte Carlo model. The residual impact therefore took the form of a total residual impact (used to determine the residual risk level) a portion of which may be (in certain cases) near-term impact.

The profile of risks, risk handling strategies and residual risk was then reviewed by the team and a further grouping applied. Some risks could be realized in the near term and handled in the near term, (near term being defined as up to and including FY 2012). Other risks could be realized in the out-years (being defined as after 2012) and handled either near term or in the out-years. Other risks could be realized in the out-years and only handled in the out-years. It was necessary to develop groupings to reflect these differences as the groups would have differing priorities for implementation of risk handling strategies rather than being simply based on their residual risk level. The groupings shown in Table 3 were developed and applied to the risk population:

Table 3 - PBS-SR-0013 Risk Groupings

Group	Near Term Risk	Out-year Risk	Near Term RHS	Out-year RHS	Near Term Consequences	Out-year Consequences
1	X		X		002, 004, 006, 017, 018, 019, 021, 022, 023, 024	*
2	X		X			008, 009, 010, 012, 013, 014, 015, 016, 020
3		X	X			001, 003, 005, 007, 011, 025
4		X		X		X

* Some Group 1 risks may have both near term and out-year consequences.

In total **11** High risks, **12** Moderate risks and **2** Low risks were reduced to **6** High risks, **4** Moderate risks and **1** Low risks after the application of risk handling strategies. **1** risk was avoided completely.

The following is an inventory by risk group:

Table 4 - PBS-SR-0013 Risk Total by Risk Group

	Before RHS	After RHS
Group 1		
High Risks	**1** (Risk # 002)	**0**
Moderate Risks	**8** (Risk # 004, 006, 017, 018, 019, 021, 023, 024)	**5** (Risk # 002, 004, 017, 018, 019)
Low Risks	**1** (Risk # 022)	**5** (Risk # 006, 021, 022, 023, 024)
Risks Avoided	**0**	**0**
Group 2		
High Risks	**7** (Risk # 008, 009, 010, 013, 014, 015, 020)	**4** (Risk # 008, 009, 010, 015)
Moderate Risks	**2** (Risk # 012, 016)	**3** (Risk # 013, 014, 016)
Low Risks	**0**	**1** (Risk # 012)
Risks Avoided	**0**	**1** (Risk # 020)
Group 3		
High Risks	**3** (Risk # 003, 005, 011)	**2** (Risk # 005, 011)
Moderate Risks	**2** (Risk # 001, 007)	**3** (Risk # 001, 003, 007)
Low Risks	**1** (Risk # 025)	**1** (Risk # 025)
Risks Avoided		
Group 4		
High Risks	None	None
Moderate Risks	None	None
Low Risks	None	None
Risks Avoided	None	None

5.4 Action Items

The risk handling strategies developed by the team were then broken down into Action Items. Each action item was described in detail and the organization or individual responsible for its execution assigned. An estimate of the risk handling strategy cost and schedule was also made. The cost estimates for risk handling strategies which will be implemented should be added to the PBS-SR-0013 cost baseline if not already included.

The Monte Carlo analysis provided a near term cost contingency value of $ 715 Million and out-year life cycle cost contingency value of $ 545 Million at an 80% probability. This cost contingency should be included in the PBS-SR-0013 baseline.

The status of PBS-SR-0013 risk will be summarized in a “risk-o-meter” which integrates project confidence in risk handling strategy success with the currently planned risk management activities and risk levels to show which risks specifically are of high, moderate or no concern to management. The risk-o-meter is shown in Appendix F.

6.0 COST CONTINGENCY ANALYSIS SUMMARY

The results of the cost contingency Monte Carlo analysis for an 80% confidence level required to cover the SWSDP risk potential cost impact are as follows. Risk impacts were determined for two separate cost contingency analysis:

- Near Term Cost Resulting from T&PRA Risks @ 80/20 Confidence $715 Million
- Out-year Life Cycle Cost Resulting from T&PRA Risks @ 80/20 Confidence $545 Million
- Cost Resulting from Schedule Risks impacts to T&PRA @ 80/20 Confidence $0

Figure 6.1 – Near Term Risk Contingency Profiles

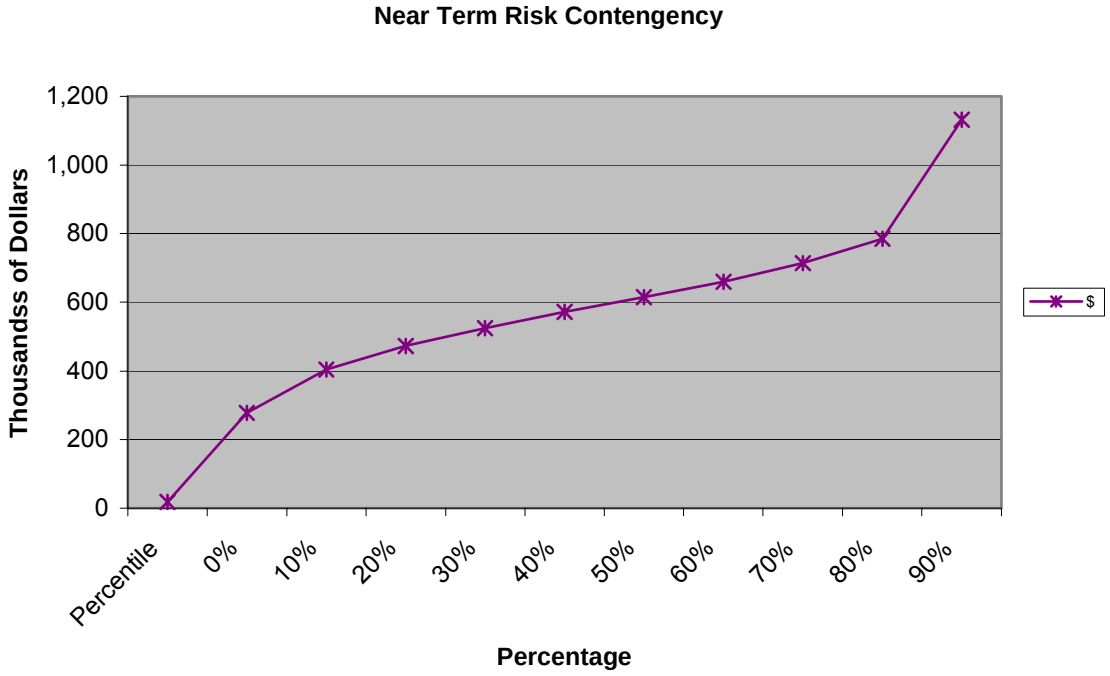
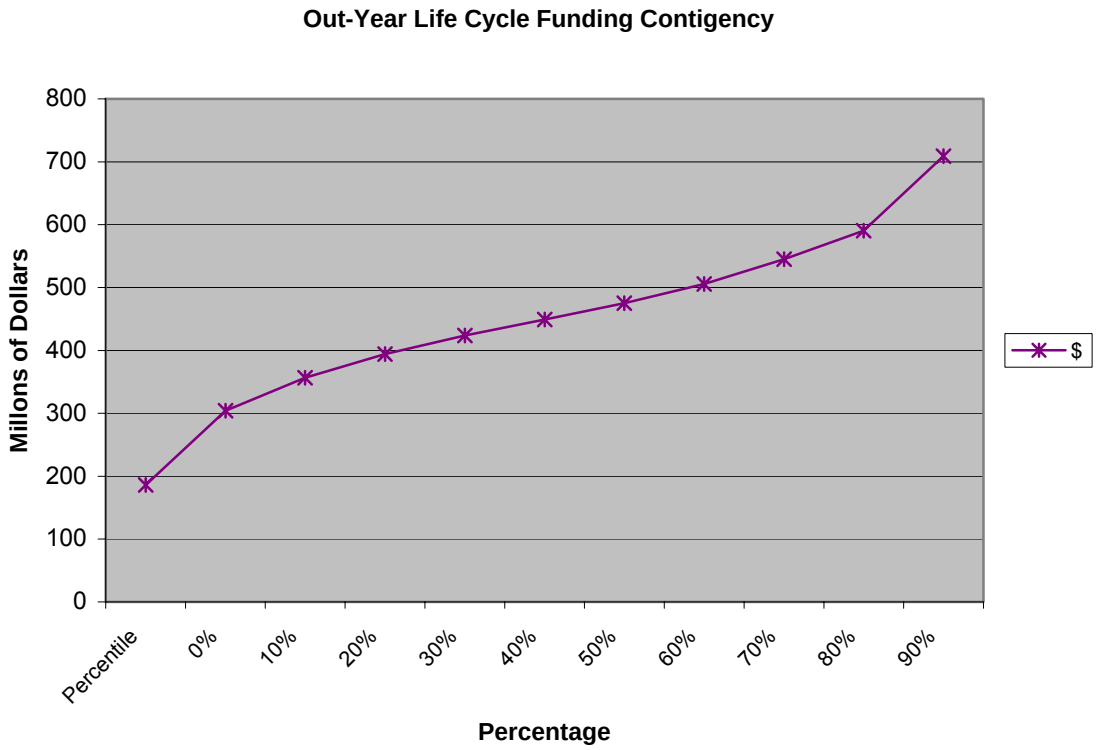


Figure 6.2 – Out-Year Life Cycle Risk Contingency Profiles



7.0 RESULTS OF ANALYSIS

7.1 Risk Progress

This RMP will be reviewed and concurred by the team prior to issuance. This RMP is intended to be revised periodically when appropriate and will be formally reviewed and revised annually.

Risk/Opportunity Handling Strategies are actions performed by the Team to mitigate a risk or improve the likelihood of an opportunity. Each risk and opportunity will be assigned to a Project team member as the Risk/Opportunity Point of Contact. Actions will be tracked to completion by existing data management systems.

In between formal risk assessments, if a risk probability and/or consequence changes the Risk Point of Contact is responsible for informing the Risk Coordinator of these changes. The Risk Coordinator will assess and report if there is any impact to the risk grade and handling strategies.

The risk/opportunity status will be discussed at least quarterly. Data for this status will come from project schedule status and communications with responsible person/organization. The Risk Coordinator will generate and communicate to Project Team in the following Matrix known as a Risk-O-Meter located in Appendix F.

7.2 Risk Data

Complete information on any risks may be found on appropriate Risk Summary Sheet located in Appendix H

7.3 Assessment Results

The *High, Moderate,* and *Low* risks are summarized in Tables 7.3.1, 7.3.2, 7.3.3, and 7.3.4 respectively. For each of these risks, the Risk Assessment Team developed a preferred handling strategy that either reduced the event probability or mitigated the event consequence. Three opportunities (see Table 7.3.4) were identified during this assessment.

Table 7.3.1 - Summary of High Risks

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
002	(2) Funding Priorities / Resources	Waste Mischaracterized Near Term Risk	1. The waste certification program must invest in oversight, training and direction to waste generators. (Luke Reid) 2. SW must serve as a single point of focus for all offsite shipments. (Jeff Stevens)	Reduce	Moderate	
003	(3) Waste Characterization	Poor Waste Forecasts (Volume, Ci, Category) Out-year / Life Cycle Risk	1. Maintain contact with generators and require frequent forecast updates. (Luke Reid) 2. Fund non-forecasted treatment and disposal costs within the waste generating project. (Tony Maxted)	Reduce & Transfer	Moderate	
005	(5) External Vendor / Interfaces	SRS Funding Impacts Outside of this PBS Out-year / Life Cycle Risk	1. Reprioritize and rebase line strategic plan and PBS end states. Annual forecasts and PEG would be utilized to reprioritize out-year funding. (Tony Maxted) 2. Maintain interface with National TRU program. (Dave Swale)	Accept	**High**	
008	(6) TRU Waste Program can not be completed by 2012	Remediation Performance Does Not Meet Execution Schedule Near Term Risk	1. Monitor production trends, respond aggressively to negative trends, and maintain spare capacity in F&H Labs, TVEF, MRS, SRNL, and F-Canyon facilities. (Ken Harrawood) 2. Identify the problems drums as early as possible to develop and implement the remediation strategy. (Lee Fox) 3. Alternative strategy may be to transfer to the TRU HA Program. (Tony Maxted)	Accept	**High**	

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
009	(10) Transportation	High Activity TRU Waste Processing Throughput Does Not Meet Execution Schedule Near Term Risk	1. Pursue the opportunities for Pu-238 disposal. – (Sonny Goldston) 2. Pursue relief from WIPP transportation and disposal requirements for prohibited items. There is a small volume of waste outside the capability of planned facilities that will require relief. - (Dave Swale) 3. Continue efforts to influence TRUPACT-III requirements prior to requesting relief. – (Bert Crapse)	Mitigate & Reduce	**High**	
010	(6) TRU Waste Program can not be completed by 2012	Remote-Handled TRU Waste Near Term Risk	1. Fund staffing to bound the scope of the problem and define/develop SRS remote-handled characterization and certification program. (Tony Maxted) 2. Investigate options such as ship to Oak Ridge or repackage to meet the lower concentration requirements of contact-handled TRU waste. (Dave Swale) 3. Disposition of SRS RH-TRU wastes along side Battle RH-TRU that must be completed by the end of FY08. (Dave Swale)	Mitigate	**High**	
011	(2) Funding Priorities / Resources	No Defined Certification Program for New TRU Waste Post FY 2012 Out-year Risk / Life Cycle	1. Develop a long-term strategy for management of ongoing generation of TRU wastes. (Tony Maxted)	Accept	**High**	
013	(6) TRU Waste Program can not be completed by 2012	Vent and Purge Operations Do Not Meet Throughput Requirements Near Term Risk	1. Monitor production trends, respond aggressively to negative trends. (Lee Fox) 2. Engineering initiatives to improve throughput, such as the 24 hrs purging and no purge options. (W. Morrison)	Mitigate & Reduce	Moderate	

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
014	(6) TRU Waste Program can not be completed by 2012	Culvert Retrieval Operations Do Not Meet Throughput Requirements Near Term Risk	1. Resolve issues that are preventing the drum retrieval. (Lee Fox) 2. Mining strategy for retrieval needs to be firmed up. (Lee Fox)	Reduce	Moderate	
015	(6) TRU Waste Program can not be completed by 2012	Technical Performance of NDA/NDE/HSG Does Not Meet Requirements Near Term Risk	1. Work with WSMS to develop AB solutions. (Lee Fox) 2. Obtain different NDA equipment. (Dave Swale) 3. Remediate the drum. - (Ken Harrawood) 4. Place drum into the high activity group. (Tony Maxted) 5. Regulatory exemptions. (Dave Swale)	Reduce	**High**	
020	(6) TRU Waste Program can not be completed by 2012	High Wattage Drums That Can Not Be Shipped Near Term Risk	1. Make sure that TRUPACT-III can handle high wattage shipments. (Bert Crapse) 2. Identify drums and wattage of the drums as early as possible. (Lee Fox) 3. Repackage the drums. (Ken Harrawood) 4. Incorporate into baseline. (Tony Maxted)	Avoid	Zero	

*For T&PRA cost contingency considerations, it is assumed that any residual risk schedule consequence impacts have already been factored into the normal project schedule contingency. Consequently, the cost equivalents of the residual risk schedule consequence impacts will not be included in the T&PRA cost contingency.

Table 7.3.2 - Summary of Moderate Risks

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
001	(7) Waste with No Path to Disposal	No Path to Disposal Out-year / Life Cycle Risk	1. Continue to investigate new treatment or disposal options or expand the capability of existing options. (Jeff Stevens) 2. An annual evaluation is performed to status waste streams for no path for disposal. (Sonny Goldston) 3. Requirements to preauthorize the generation of waste. (Sonny Goldston)	Accept	**Moderate**	
004	(4) External Events	Process / Operating Envelope Upsets Near Term Risk	1. Margins built into facility limits, safety Controls to protect the worker, and redundant equipment for key systems should mitigate the impact of any process/operating envelope upset. (W. Morrison)	Reduce	**Moderate**	
006	(1) Regulatory Stakeholders and AB Concerns	Regulatory Impacts Near Term Risk	1. Actively engage in the comment period for any proposed regulatory changes. (Luke Reid) 2. Successful waste programs will enhance negotiating position on implementation and compliance schedules. (Dave Swale) 3. Maintain an effective working relationship with regulators and stakeholders. (Sonny Goldston)	Mitigate & Reduce	Low	
007	(6) Waste with No Path to Disposal	Closure of Solid Waste Facilities to Meet End State Out-year / Life Cycle Risk	1. Maintain an effective working relationship with regulators and stakeholders. (Sonny Goldston) 2. Continual maintenance of performance assessments and waste certification programs. (Luke Reid)	Reduce	**Moderate**	

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
012	(1) Regulatory Stakeholders and AB Concerns	Fragmented Safety Basis Near Term Risk has some Outer -years Impacts	1. Good safety compliance analytical support for day to day operation. (W. Morrison) 2. Safety compliance support for ongoing DSA programmatic improvement efforts e.g. DSA upgrade and update. (W. Morrison) 3. Training the operational and engineering personnel and robust self assessment to ensure compliance. (W. Morrison)	Mitigate & Reduce	Low	
016	(6) TRU Waste Program can not be completed by 2012	Availability of a Certified Large Box Characterization System Near Term Risk	1. Manage the GFSI provisions closely. (Bert Crapse) 2. Ensure proper design basis and testing is done prior to hand over to SRS. (John Pierpoint) 3. Possibilities of taking over the project after phase II completion. (John Pierpoint)	Accept	**Moderate**	
017	(6) TRU Waste Program can not be completed by 2012	Availability of TRUPACT III Shipping Container Near Term Risk	1. Minimize the number of packages requiring TRUPACT III (future generated waste). (Dave Swale) 2. Maintain communications with Carlsbad. (Dave Swale)	Accept	**Moderate**	
018	(1) Regulatory Stakeholders and AB Concerns	Safety Analysis (DSA) Is Not All Encompassing Near Term Risk	1. Programmatic upgrade and annual updates of safety basis documents. (W. Morrison) 2. Periodic assessments to ensure key inputs and assumptions are protected. (W. Morrison)	Reduce	**Moderate**	

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
019	(5) External Vendor / Interfaces	CCP Resources Are Redeployed due to DOE Complex Priorities Near Term Risk	1. SRS trains in-house staff to assume critical CCP roles in the event that CCP resources are redeployed. (Lee Fox) 2. CCP provides some strength in depth to allow for turnover and retain key staff at SRS. Dave Swale. Project is progressively getting closer and closer to the end date. (Jeff Stevens)	Reduce	**Moderate**	
021	(4) External Events	External Events Cause Infrastructure Requirements to Exceed Budget Near Term Risk	1. Gradually shrinking the site footprint and consolidating missions in geographical areas to minimize the number of areas of concern. (Chuck Campbell) 2. Reducing the need for long inter-area connectivity such as roads, rail, steam and utilities. (Chuck Campbell)	Reduce	Low	
023	(10) Transportation	Transportation Issues Near Term Risk	1. Use certified transportation agencies whenever possible to reduce the exposure to poor transportation practices. (Luke Reid) (2) Limit the transportation of wastes by maximizing payloads and avoiding the need for multiple shipments. (Ken Harrawood) (3)Ensure that waste is packaged properly in compliance with DOT regulations to be safe in the event of accident scenarios. (Luke Reid)	Mitigate & Reduce	Low	
024	(4) External Events	External Weather & Fire Events Near Term Risk	1. Reduce the legacy TRU inventory as fast as possible by shipping off-site. (Jeff Stevens) 2. Limit the volume of waste, which is, stored above ground waiting to be disposed to as low a volume as possible. (Jeff Stevens)	Reduce	Low	

Table 7.3.3 - Summary of Low Risks

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Mitigation Strategy	Residual Risk	Comments / Status
022	(4) External Events		1. Reduce legacy waste inventories (particularly TRU waste) as fast as possible to reduce reliance on off-site vendors in the long term. (Jeff Stevens) 2. Dispose of waste on-site whenever possible to avoid the need to transport waste off-site. (Tony Maxted)	Reduce	Low	
025	(5) External Vendor / Interfaces	External Vendor Liability Outyear / Life Cycle Risk	1. Dispose of wastes on-site whenever possible. (Tony Maxted) 2. Ship TRU waste to WIPP as expeditiously as possible so that exposure to externally generated risk is minimized. (Jeff Stevens)	Reduce	Low	

Table 7.3.4 - Summary of Opportunities

Opportunity Risk ID	Responsibility	Opportunity Title	Mitigation Strategy	Residual	Comments / Status 5/31/06
027	Tony Maxted	Non-EM Generators Pay for Waste Management (TRU, Low Level, and Mixed Waste)	Enhance	Most Significant Cost Impact ($k): $200M	
028	Tony Maxted	Certification of TRU Waste Generators at SRS	Enhance	Most Significant Cost Impact ($k): $2,500	
029	Tony Maxted	Disposal of PAD 1 Pu238 Waste on Site	Enhance	Most Significant Cost Impact ($k): 20,000	

Table 7.3.5 - Summary of Risks Requiring Funding to Ensure Implementing Handling Strategies in Near Term

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Implementation Cost in K	Residual Risk	Comments / Status
004	(4) External Events	Process / Operating Envelope Upsets Near Term Risk	1. Margins built into facility limits, safety Controls to protect the worker, and redundant equipment for key systems should mitigate the impact of any process/operating envelope upset. (W. Morrison)	100	Moderate	
010	(6) TRU Waste Program can not be completed by 2012	Remote-Handled TRU Waste Near Term Risk	1. Fund staffing to bound the scope of the problem and define/develop SRS remote-handled characterization and certification program. (Tony Maxted) 2. Investigate options such as ship to Oak Ridge or repackage to meet the lower concentration requirements of contact-handled TRU waste. (Dave Swale) 3. Disposition of SRS RH-TRU wastes along side Battle RH-TRU that must be completed by the end of FY08. (Dave Swale)	100	**High**	
011	(2) Funding Priorities / Resources	No Defined Certification Program for New TRU Waste Post FY 2012 Out-year Risk / Life Cycle	1. Develop a long-term strategy for management of ongoing generation of TRU wastes. (Tony Maxted)	100	**High**	
013	(6) TRU Waste Program can not be completed by 2012	Vent and Purge Operations Do Not Meet Throughput Requirements Near Term Risk	1. Monitor production trends, respond aggressively to negative trends. (Lee Fox) 2. Engineering initiatives to improve throughput, such as the 24 hrs purging and no purge options. (W. Morrison)	3,000	Moderate	

Risk ID	Risk Category #	Risk Title / Grouping	Handling Strategy Implementation (Responsible Org / Manager)	Implementation Cost in K	Residual Risk	Comments / Status
015	(6) TRU Waste Program can not be completed by 2012	Technical Performance of NDA/NDE/HSG Does Not Meet Requirements Near Term Risk	1. Work with WSMS to develop AB solutions. (Lee Fox) 2. Obtain different NDA equipment. (Dave Swale) 3. Remediate the drum. - (Ken Harrawood) 4. Place drum into the high activity group. (Tony Maxted) 5. Regulatory exemptions. (Dave Swale)	2,000	**High**	
016	(6) TRU Waste Program can not be completed by 2012	Availability of a Certified Large Box Characterization System Near Term Risk	1. Manage the GFSI provisions closely. (Bert Crapse) 2. Ensure proper design basis and testing is done prior to hand over to SRS. (John Pierpoint) 3. Possibilities of taking over the project after phase II completion. (John Pierpoint)	12,000	**Moderate**	
020	(6) TRU Waste Program can not be completed by 2012	High Wattage Drums That Can Not Be Shipped Near Term Risk	1. Make sure that TRUPACT-III can handle high wattage shipments. (Bert Crapse) 2. Identify drums and wattage of the drums as early as possible. (Lee Fox) 3. Repackage the drums. (Ken Harrawood) 4. Incorporate into baseline. (Tony Maxted)	2,000	Zero	

8.0 CONCLUSIONS AND RECOMMENDATIONS

Successful execution of the individual projects and completion of the Solid Waste Stabilization & Disposition Project (SWSDP) requires the reduction of risk levels to that of residual and funding of technical and programmatic risk assessment contingencies to combat the remaining residual risk. Reductions in risk level depend on successful implementation of the identified risk handling strategies. The strategies identified in this assessment are not fully funded at this time. This assessment defined near-term PBS-SR-0013 activities as those up to and including 2012. The contingency analysis evaluated the near term funding contingency required to establish an 80% confidence in project completion for this time as $715 Million. Out-year life cycle funding contingency required to establish an 80% confidence in project completion at this time as $545 Million. During the evaluations, it became apparent that although the contingency funding was an acceptable assurance of near-term PBS-SR-0013 success, many risks, if realized created significant delays to completion of the overall PBS-SR-0013 scope.

The results show a relatively high level of risk for the project in that almost 44% of those risks (11 out of 25) total High risks, 48% (12 out of 25) Moderate risks and 8% (2 out of 25) Low risks were reduced to 6 High risks, 4 Moderate risks and 1 Low risks after the application of risk handling strategies. 1 risk was avoided completely. 54% (6 out of 11) High remained High, 58% (7 out of 12) Moderate remained Moderate. However, because 52% of the risks were characterized as external programmatic to the project (i.e., source of risk is outside the direct control of the project), the handling strategies identified by the Team were not as effective in reducing risk levels as they could have been if the sources of risk were within the project's control. In many cases, these handling strategies were actually contingency plans for dealing with the risks when they occur.

One other observation is provided below:

- 64% (16 out of 25) of the risks are related to the TRU Waste element of the project, including half (8 out of 16) of the High risks and almost half(6 out of 16) of the Moderate risks;

In summary, the following project actions are recommended based upon the discussions above:

1. Take action to fund handling strategies that are currently not funded;

2. Implement all risk and opportunity handling strategies and develop action items for each of the strategies that can be tracked to completion via a system which has visibility and accountability at the PBS level;

3. Consider further development of risks and opportunities to allow an analysis of handling strategy cost and schedule impacts and determination of project risk-based contingency needs.

9.0 REFERENCES

1. WSRC Manual E7, Procedure 2.05, Modification Traveler

2. WSRC Manual E11, Procedure 2.62, Project Risk and Opportunity Analysis

3. Systems Engineering Methodology Guidance Manual, Appendix B – Risk & Opportunity Analysis & Management. WSRC Manual WSRC-IM-98-00033, Revision 10 Savannah River Site, Aiken, SC 29808 (February 26, 2004)

4. DOE 413.3, Project Management for the Acquisition of Capital Assets

5. DOE Manual 413-1 Project Management for the Acquisition of Capital Assets

6. Y-RAR-E-00005, Revision 0, SWS&D Project S-SR-0013, Risk & Opportunity Analysis Report, November 2004

7. Y-RMP-E-00003, Revision 0, SWS&D Project S-SR-0013, Risk & Opportunity Management Plan, October 2004

10.0 APPENDICES

Appendix A - Assessable Elements Used for Screening

Appendix B - Risk & Opportunity Grading Guidelines

Appendix C - Example Risk / Opportunity Category List

Appendix D - Identification of New Risks & Opportunity Methodology

Appendix E - Handling - Methodology for Transferring Risks

Appendix F - Integration - Risk Reporting and Tracking

Appendix G - PBS Risk & Opportunity Management History

Appendix H - Risk and Opportunity Forms

Appendix I - Risk and Opportunity Analysis Results

APPENDIX A - ASSESSABLE ELEMENTS USED FOR SCREENING

The WBS for PBS-SR-0013 is shown below and will be used as the assessable elements for the initial risk and opportunity assessment activities. These elements may or may not be appropriate for subsequent assessment activities. The determination will be made by the R&O Team, and any changes to the assessable elements will be documented in this appendix.

Assessable Elements in WBS

(*The elements in **bold** are considered the assessable elements for the R&O Activities.)

WBS	Title
01.30.16	Solid Waste Stabilization & Disposition
01.30.16.01	Solid Waste Operations
01.30.16.01.01	Waste Certification
01.30.16.01.02*	**Sanitary Waste***
01.30.16.01.03	**Hazardous Waste**
01.30.16.01.04	**Mixed Waste**
01.30.16.01.05	**Low Level Waste**
01.30.16.01.06	**TRU Waste**
01.30.16.01.06.01	**TRU Waste Receipt and Storage**
01.30.16.01.06.02	**Low Activity TRU Waste**
01.30.16.01.06.03	**High Activity TRU Waste**
01.30.16.01.07	**Waste Minimization**
01.30.16.01.08	Waste Stream Support
01.30.16.02	**Infrastructure**
01.30.16.03	Business & Programmatic
01.30.16.04	**Cold War Historic Preservation**

Waste Stream Support, Business, Programmatic, and Waste Certification are crosscutting support activities that will be adequately assessed by the risks and opportunities of the remaining assessable elements that they support.

TRU waste will be split into three assessable elements, in order to provide adequate granularity for the Risk Management Assessment.

APPENDIX B - RISK AND OPPORTUNITY GRADING GUIDELINES

Table B-1 - Guidelines for Assigning Risk Likelihood

Likelihood of Occurrence (L)	Criteria[b]
Non-Credible[c]	Determined (through formal probability calculations) to have a probability of occurrence of ≤ 10^{-6} (or other non-credible probability defined for the activity)
Very Unlikely	• Will not likely occur anytime in the life cycle of the SW Program; or • Estimated recurrence interval > 20 years (or perceived life of program); or • Estimated recurrence frequency < 1 (i.e., event not expected to recur); or • 0% < Likelihood of single event occurrence < 15%.
Unlikely	• Will not likely occur in the life cycle of the SW Program; or • 10 years < Estimated recurrence interval ≤ 20 years; or • 1 ≤ Estimated recurrence frequency < 2 (i.e., event expected to recur but not more than once); or • 15% ≤ Likelihood of single event occurrence < 45%.
Likely	• May occur sometime during the life cycle of the SW Program; or • 5 years < Estimated recurrence interval ≤ 10 years; or • 2 ≤ Estimated recurrence frequency < 5 (i.e., event expected to recur from 2 to 4 times); or • 45% ≤ Likelihood of single event occurrence < 75%.
Very Likely	• Will likely occur sometime during the life cycle of the SW Program; or • Estimated recurrence interval ≤ 5 years; or • Estimated recurrence frequency ≥ 5 (i.e., event expected to recur more than five times); or • 75% ≤ Likelihood of single event occurrence < 100%.

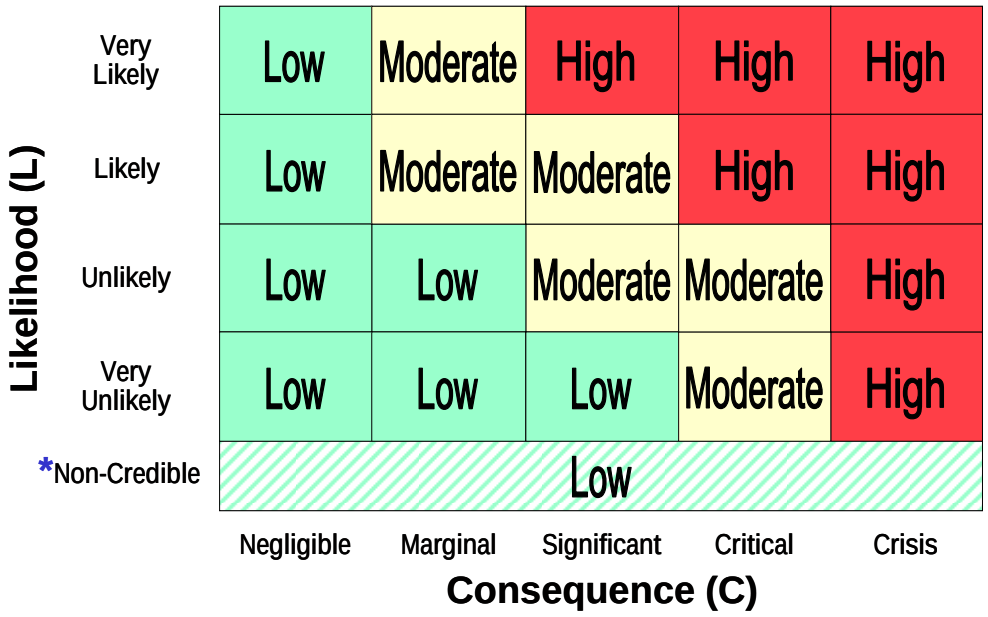
[b] All likelihood ranges are strictly qualitative – no numeric precision is implied.
[c] This category is normally reserved for the evaluation of residual risks associated with *Crisis* consequences.

Table B-2 - Guidelines for Assigning Risk Consequences

Consequence of Occurrence (C)	Criteria[d]
Negligible	• Minimal consequences; unimportant. • Cost estimates exceed planned budget (≤ $1M) • Negligible impact on program; minimal potential for schedule change; compensated by available schedule float.
Marginal	• Small reduction in SW Program technical performance. • Moderate threat to mission; may require minor facility redesign or repair, or regulatory noncompliance with monetary fines. • Cost estimates exceed planned budget (> $1M, but ≤ $10M) • Impact to PBS schedule (6 months to less than 12 months) • Impact to legacy TRU project through FY12: o Not able to ship to WIPP (≤ 3 months) o Slip in schedule (less than 3 months)
Significant	• Significant degradation in SW Program technical performance. • Significant threat to mission; requires some facility redesign or repair. • Regulatory noncompliance shuts down facility for ≤ 6 months • Cost estimates exceed planned budget (> $10M, but ≤ $100M) • Impact to PBS schedule (12 months to 24 months) • Impact to legacy TRU project through FY12: o Not able to ship to WIPP (> 3 months, but ≤ 6 months) o Slip in schedule (3 months to less than 6 months)
Critical	• Technical goals of SW Program cannot be achieved. • Serious threat to mission; possibly completing only portions of the mission or requiring major facility redesign or rebuilding. • Regulatory noncompliance shuts down facility for > 6 months • Cost estimates exceed planned budget (> $100M) • Impact to PBS schedule >24 months) • Impact to legacy TRU project through FY12: o Not able to ship to WIPP (> 6 months) o Slip in schedule (> 6 months)
Crisis	• Catastrophic threat to program mission; possibly causing loss of other site missions. • Requires instant response with low chance of success.

Total Life Cycle Cost = 2.5B

[d] Any one or more of the criteria in the five levels of consequence may apply to a single risk. The overall consequence level for the risk being evaluated must be based upon the highest level for which a criterion applies.



* Normally limited to assessing residual risks with Crisis consequences

Figure B-1 Risk Grading Matrix

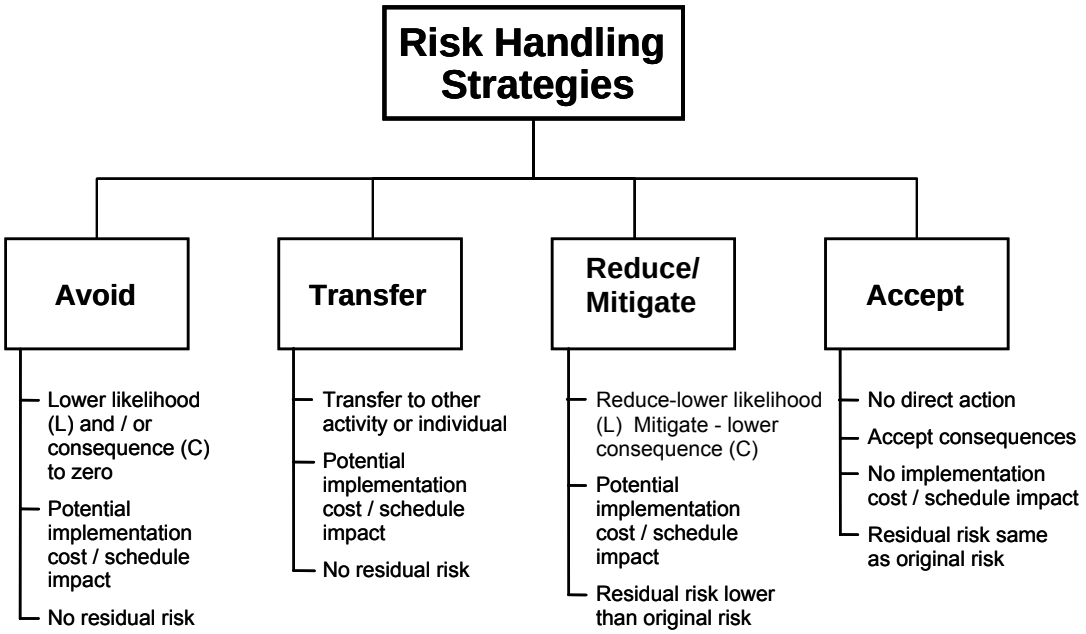


Figure B-2 - Risk Handling Strategies

Table B-3 - Guidelines for Assigning Opportunity Likelihood

Likelihood of Realization (L)	Criteria
Very Unlikely	• 0 < Likelihood of benefit realization < 0.15.
Unlikely	• 0.15 ≤ Likelihood of benefit realization < 0.45.
Likely	• 0.45 ≤ Likelihood of benefit realization < 0.75.
Very Likely	• 0.75 ≤ Likelihood of benefit realization < 1.

Table B-4 - Criteria for Assigning Opportunity Benefits

Benefit of Implementation (B)	Criteria[e]
Negligible	• Minimal benefit; unimportant. • Some potential transfer of money, but budget estimates not changed. • Negligible impact on program; slight potential for reduction in schedule.
Marginal	• Small improvement in SW Program technical performance. • Moderate improvement to SW Program mission, environment, or people. • Cost estimates marginally reduced (> $500K, but ≤ $1M). • Minor reduction in schedule (≤ 6 months) with some potential adjustment to milestones required.
Significant	• Significant improvement in SW Program technical performance. • Significant improvement to SW Program mission, environment, or people. • Cost estimates significantly reduced (> $1M, but ≤ $10M). • Significant reduction in schedule (> 6 months, but ≤ 1 year) with resulting milestones changes.
Exceptional	• Technical goals of SW Program improved. • Exceptional improvement to SW Program mission, environment, or people. • Cost estimates exceptionally reduced (> $10M). • Exceptional reduction in schedule (> 1 year) with resulting milestone changes.

[e] Any one or more of the criteria in the four levels of benefits may apply to a single opportunity. The overall benefit level for the opportunity being evaluated must be based upon the highest level for which a criterion applies.

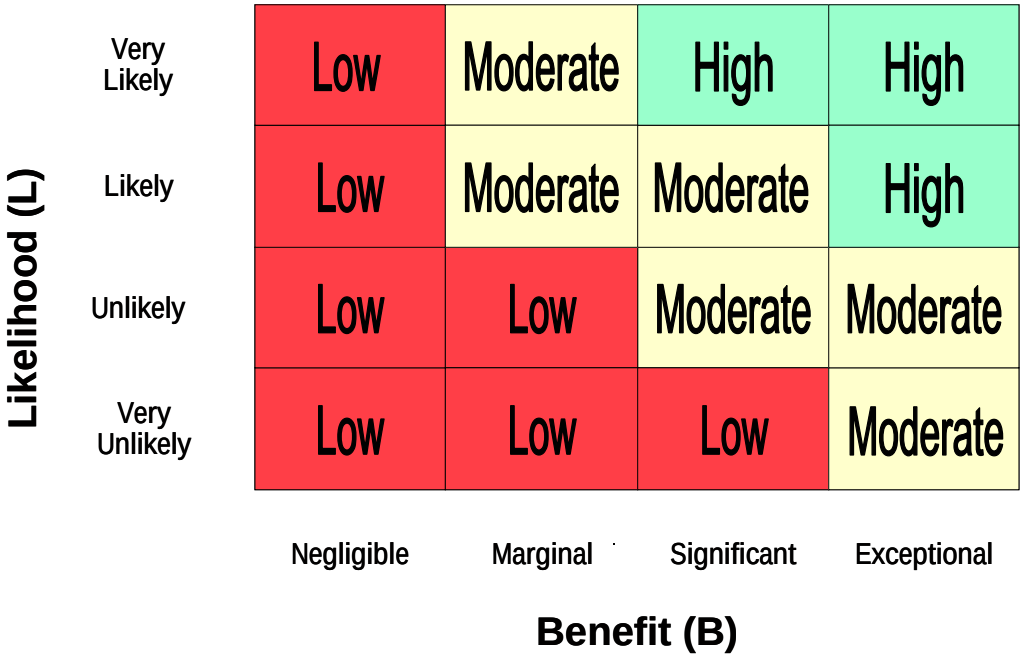


Figure B-3 - Opportunity Grading Matrix

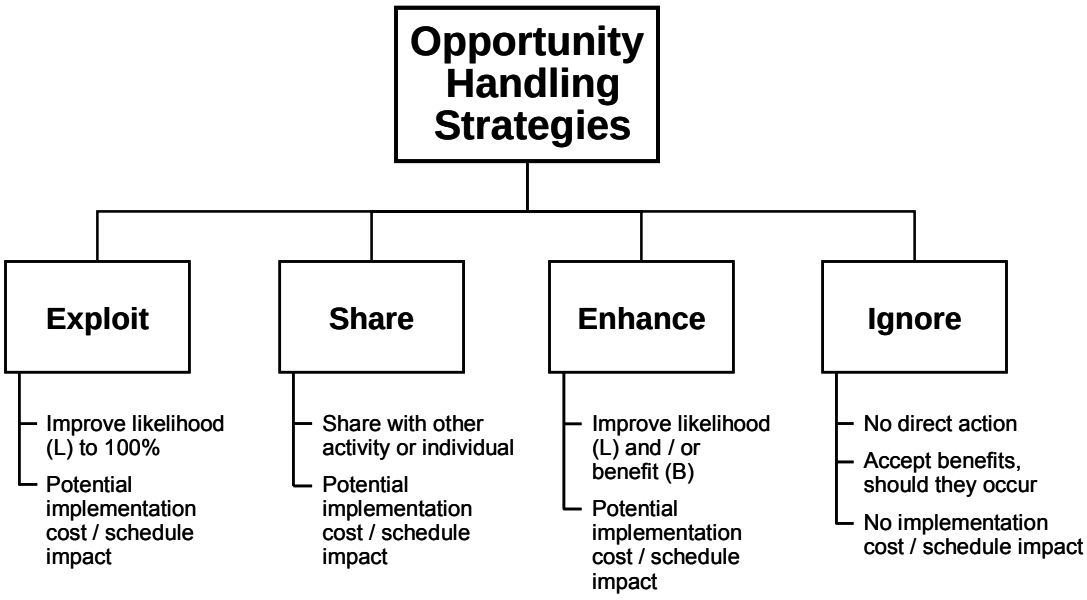


Figure B-4 - Opportunity Handling Strategies

APPENDIX C - EXAMPLE RISK / OPPORTUNITY CATEGORY LIST

Design

- Undefined, Incomplete, Unclear Functions or Requirements
- Complex Design Features
- Numerous or Unclear Assumptions or Bases
- Reliability
- Inspectability
- Maintainability
- Safety Class
- Availability
- Errors and Omissions in Design

Regulatory & Environmental

- Environmental Impact Statement Req'd. (EIS)
- Additional Releases
- Undefined Disposal Methods
- Permitting
- State Inspections
- Order Compliance
- Regulatory Oversight

Resource/Conditions

- Material/Equipment Availability
- Specialty Resources Required
- Existing Utilities Above and Underground
- Support Services Availability
- Geological Conditions
- Temporary Resources (Power, Lights, Water, etc.)
- Resources Not Available
- Construction Complexities
  - Transportation
  - Critical Lifts
  - Population Density
- Escorts
- Personnel Training & Qualifications
- Tools, Equipment Controls & Availability
- Experience with system/component (design, operations, maintenance)
- Work Force Logistics
- OPC Resources
  - Operations Support
  - Health Physics
  - Facility Support
  - Facility Maintenance Centralized Maintenance
  - Construction Support Post Modifications
- Training
- Research and Development Support
- Multiple Project/Facility Interface
- Facility Work Control Priorities
- Lockout Support

Safeguards & Security

- Category I nuclear materials
- Classified process / information

Technology

- New Technology
- Existing Technology Modified
- New Application of Existing Technology
- Unknown or Unclear Technology

Procurement

- Procurement Strategy
- First-use Subcontractor/Vendor
- Vendor Support

Construction Strategy

- Turnover/Start-up Strategy
- Direct Hire/Subcontract
- Construction/Maintenance Testing
- Design Change Package Issues

Testing

- Construction
- Maintenance
- Operability
- Facility Startup
- System Startup

Safety

- Criticality Potential
- Fire Watch
- Exposure Contamination Potential
- Authorization Basis Impact
- Hazardous Material Involved
- Emergency Preparedness
- Safeguards & Security
- Confinement Strategies

Interfaces

- Multiple Agencies, Contractors
- Special Work Control/Work Authorization Procedures
- Operating SSCs Including Testing
- Multiple Customers
- Co-Occupancy
- Outage Requirements
- Multiple systems
- Radiological Conditions (Current and Future)
  - Contamination
  - Radiation
- Multiple Projects
- Proximity to Safety Class Systems

Management

- Funding uncertainties
- Stakeholders Program Strategy Changes
- Errors and Omissions in Estimates
- Fast track/critical need
- Infrastructure influence

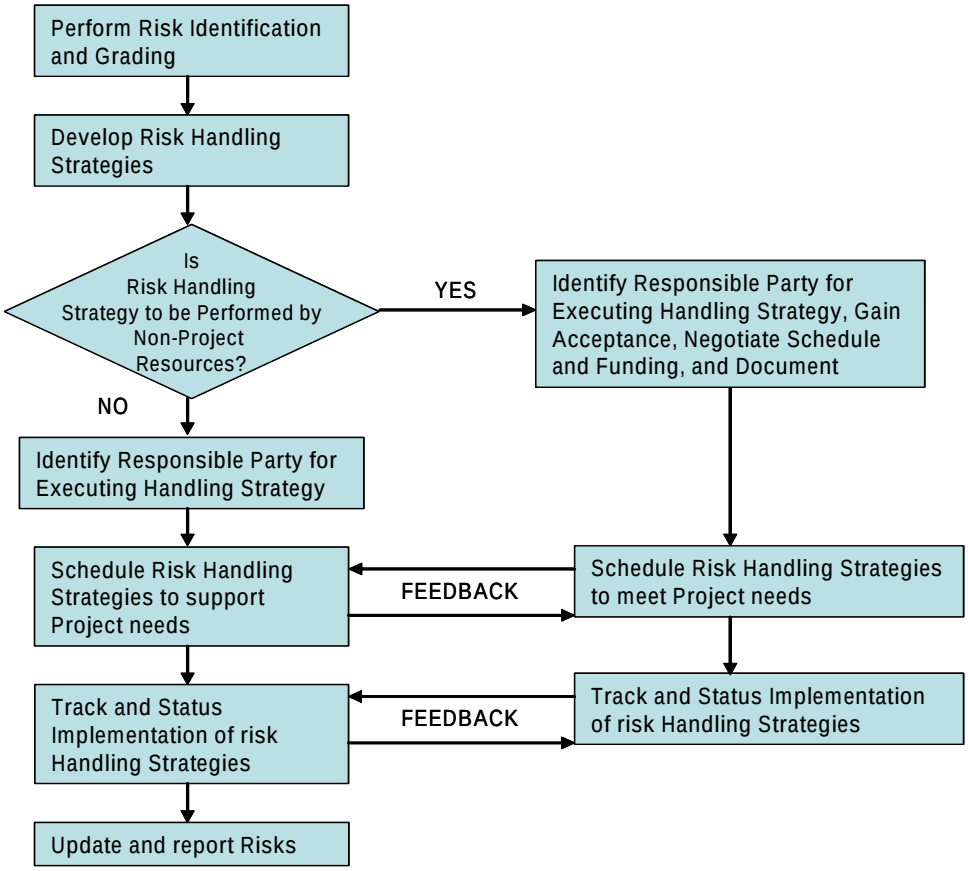
APPENDIX D - IDENTIFICATION OF NEW RISKS & OPPORTUNITY METHODOLOGY

During the planned project phases, new risks will be identified and the results of the team assessment will be documented on Risk Forms. In addition to the identification of new risks during the planned project phase assessments, project team members may identify and submit risks/opportunities to the Risk Coordinator at any time. The Risk Coordinator will compile these new risks and include these risks in the upcoming planned risk assessment or may bring these risks to the attention of the Project Manager to decide if a risk meeting should be held.

New Risk
Name of Submitter:
Statement of Risk: Baseline (normal situation): Information of what is planned to occur in the Project Event: Describe the event that could cause the baseline to change from planned. Statement of affect (impact): Describe what the impact occurs to the Project if the event happens.
Likelihood: Provide a concept of what the likelihood of occurrence is and why.
Consequence/Benefit: Provide a concept of what the consequence is and why. (e.g. cost and schedule)

APPENDIX E - HANDLING - METHODOLOGY FOR TRANSFERRING RISKS

For transferring risks to non-project resources (i.e., Program, Operations) the project is to identify the responsible party and work with them to establish an action plan. The figure below identifies the steps in the process for identifying and tracking handling strategies.



APPENDIX F - INTEGRATION - RISK REPORTING AND TRACKING

Although Risk Management is the responsibility of the entire Project Team, a central point of contact, a Risk Coordinator, may be identified by the Area Project Manager. The role and responsibility of the Risk Coordinator are in facilitating assessments, coordination of risk reporting/ tracking and identification of new risks. Risk Coordinator will be cognizant of current risk status to communicate risk trends to the Area Project Manager and team.

Following each Risk Assessment Phase, the Risk Coordinator will compile risk/opportunity management planning changes and new/updated risk/opportunity sheets into a Risk Analysis Report.

In between formal risk assessments, if a risk probability and/or consequence changes, the Risk Point of Contact, is responsible for informing the Risk Coordinator of these changes. The Risk Coordinator will assess and report if there is any impact to the risk grade and handling strategies.

Risk/Opportunity Handling Strategies are actions performed by the Project Team to mitigate a risk or improve the likelihood of an opportunity. Each risk and opportunity will be assigned to a Project team member as the Risk/Opportunity Point of Contact.

Risk/opportunity status will be discussed at least quarterly. Data for this status will come from project schedule status and communications with responsible person/organization. The Risk Coordinator will generate and communicate to Project Team in the following Matrix known as a Risk-O-Meter.

PBS0013 July 05 2006 Risk Assessment

Risk No	Risk Title	Risk Level	Closed	Handling Strategy Adequate	Minor Concern	Major Concern	Remarks
			●	●	●	●	
1	No Path to Disposal (Outyear Risk / Life Cycle)	Moder		●			Risk is adequately addressed by the need for pre-authorization to generate such wastes.
2	Waste Mischaracterized (Near Term Risk)	Moder		●			Waste Certification continues to assess generators. Legacy risk is decreasing.
3	Poor Waste Forecasts - Out-year / Life Cycle Risk	Moder			●		Still a concern for D&D and ER programs. Non-EM forecasts are of concern too.
4	Process / Operating Envelope Upsets (Near Term Risk)	Moder			●		Continued start-up of new equipment and processes that increase the risk of upsets.
5	SRS Funding Impacts Outside of this PBS (Outyear Risk / Life Cycle)	High				●	Federal budget are unlikely to increase. Post 2012 (legacy TRU) the risk is much reduced.
6	Regulatory Impacts (Near Term Risk)	Low			●		Risk is pretty stable, but relationship with regulators is strained due to HLW.
7	Closure of SW Facilities to Meet End State (Outyear / LC)	Moder		●			Risk is adequately addressed by existing plans.
8	Remediation Perf. Not Meet Execution Sch (Near Term Risk)	High			●		Remediation is one key to success with legacy drummed TRU.
9	High Activity TRU Waste Processing Throughput (Near Term)	High				●	Less of a concern than TRUPACT III or NDE/NDA remediation but still potential to impact 2012
10	Remote-Handled TRU Waste (Near Term Risk)	High		●			Low volumes compared to all legacy TRU
11	No Certifica Program for New TRU Waste Post 2012 (Outyear)	High		●			Adequately addressed by handling strategy
12	Fragm Safety Basis (Near Term Risk some Outer Years Impacts)	Low		●			Will be addressed somewhat by the DSA upgrade.
13	Vent and Purge Operations Do Not Meet Throughput (Near Term)	Moder				●	Critical path to completion of legacy TRU drums
14	Culvert Retri Ops Do Not Meet Throughput Require (Near Term)	Moder		●			Not as big a concern as vent and purge.
15	Tech Perform of NDA/NDE/HSG Not Meet Requi (Near Term Risk)	High			●		Likely to have some outliers. Small volume. Will know more by end of FY07
16	Availabi of a Certified Large Box Character Systm (Near Term)	Moder				●	GFSI history. Technical challenges.
17	Availability of TRUPACT III Shipping Container (Near Term Risk)	Moder				●	This risk is the deal-breaker for completion of TRU legacy within a rerasonable timescale.
18	Safety Analysis (DSA) Is Not All Encompassing (Near Term Risk)	Moder			●		Will be addressed by DSA upgrade.
19	CCP Resources Are Redeployed DOE Complex Priori (Near Term)	Moder			●		Risk is stable to decreasing with time.
20	High Wattage Drums That Can Not Be Shipped (Near Term Risk)	Low		●			Alternatives will be baselined according to the risk handling strategy.
21	External Events Cause Infrastru Requi to Exceed (Near Term Risk)	Low			●		Much reduced post 2012
22	Security Acts or Acts of Terrorism (Near Term Risk)	Low			●		Much reduced post 2012
23	Transportation Issues (Near Term Risk)	Low			●		Much reduced post 2012
24	External Weather & Fire Events (Near Term Risk)	Low			●		Much reduced post 2012
25	External Vendor Liability (Outyear Risk / Life Cycle)	Low			●		Much reduced post 2012
27	Non-EM Generators Pay for Waste Management	Enhn					
28	Certification of TRU Waste Generators at SRS	Enhn					
29	Disposal of PAD 1 Pu238 Waste on Site	Enhn					
	Overall Project						

Legend

- ● Risk has been closed
- ● Not a problem, no issues at this time
- ● **Minor** concern
- ● **Major** concern
- ⇄ Change from last month

APPENDIX G - PBS RISK & OPPORTUNITY MANAGEMENT HISTORY

G-1 Y-RAR-E-00005, REVISION 0, SWS&D PROJECT S-SR-0013, RISK & OPPORTUNITY ANALYSIS REPORT

APPENDIX H - ACTIVE RISK AND OPPORTUNITY FORMS

Risk / Opportunity Assessment Form

ID Number: 001 Revision: 00 Last Date Evaluated: 12-Jun-06 Status: Active

Event Title: No Path to Disposal (Outyear Risk / Life Cycle)				
Type: **Risk** Internal Programmatic		Category: 7 No Path to Disposal (Outyear Risk / Life Cycle)		
Assess. Element: 01.30.16.01	Title: Solid Waste Operations			
Responsible Org: -		Contact: Jonathan Simmons		Date Identified: 26-Apr-06
Statement of Event: All wastes must be dispositioned by FY 2030. To utilize existing treatment and/or disposal options, wastes must meet the appropriate acceptance criteria of that disposal method. Currently, wastes have been identified that have no path for disposal, and those issues are being worked. There is a risk that newly generated wastes will exceed acceptance criteria of existing treatment and/or disposal options, and consequently, a viable disposal path will not exist, and that wastes with no path for disposal will exist at the end of the project. If this occurs, the affected wastes will have to be stored on site until a viable disposal path is identified.				
Likelihood:	Very Likely	Basis: Waste streams with no path to disposal have already been identified.		
Consequence / Benefit:	Marginal	Basis: Financial or regulatory risks are minimal as disposal volumes are small and regulator has demonstrated willingness to work with site on difficult waste stream. Most significant cost is $5M for continued storage; most significant schedule impact is beyond FY06 but within Site Treatment Plan (STP) / PBS.		
Most Significant Cost Impact ($k): 5,000		Most Significant Schedule Impact (Mos): See Basis		
Level:	**Moderate**	Event Trigger: DOE Order 435.1 Requirement to preauthorize the generation of wastes with no path to disposal.		
Handling Strategy:	Accept	Description: 1. Continue to investigate new treatment or disposal options or expand the capability of existing options. - Jeff Stevens. 2. An annual evaluation is performed to status waste streams for no path for disposal. - Sonny Goldston. 3. Requirements to preauthorize the generation of waste. - Sonny Goldston		
HS Implementation Cost ($K):	0	Basis: This handling strategy is already funded in the baseline.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Regardless of actions taken, there is always a risk that newly generated wastes will exceed acceptance criteria of existing treatment and/or disposal options, and consequently, a viable disposal path will not exist. If this occurs, the affected wastes will have to be stored on site until a viable disposal path is identified.				
Residual Likelihood:	Very Likely	Basis: Waste streams with no path to disposal have already been identified.		
Residual Consequence:	Marginal	Basis: Waste volumes should be lower, but it is anticipated that there will always be some.		
Residual Risk Level:	**Moderate**			Residual Impact Basis: Cost based on additional storage and requirement to identify a new disposition path.
Residual Cost Impact ($K):	Best Case 500	Most Likely 1,000	Worst Case 5,000	
Residual Schedule Impact (Mos):	N/A	N/A	N/A	
Impacted Scope of Work:				
Evaluation Comments: Group 3 Risk (Out-year Risk, RHS Need to be Implemented in Near Term, Out-year Consequences)				
Event Comments: Includes following brainstormed Events : BS045 - Venting Tritiated Waste, BS046 - Already Treated Waste, BS047 - Legacy PUREX - Vendor Issues.				

Risk / Opportunity Assessment Form

ID Number: 002 | Revision: 00 | Last Date Evaluated: 2-May-06 | Status: Active

Event Title: Waste Mischaracterized (Near Term Risk)				
Type: **Risk** Internal Programmatic		Category: 3 Waste Mischaracterized (Near Term Risk)		
Assess. Element: 01.30.16.01	Title: Solid Waste Operations			
Responsible Org: -		Contact: Luke Reid		Date Identified: 26-Apr-06
Statement of Event: The Waste Management Area Project currently has one approved Documented Safety Analysis, Technical Safety Requirements and two Justifications for Continuing Operations in place. Having multiple Safety Analysis can lead to confusion, which could result in multiple TSR Violations. Multiple TSR violations will cause a management concern, which will cause a safety pause for all WMAP operations. This safety pause will be a direct impact to throughput and fee earned and will reduce the confidence our customer has with regards to operating safely and compliantly.				
Likelihood:	Likely	Basis: Frequency of Occurrence = One event per 2 year is expected		
Consequence / Benefit:	Critical	Basis: Mischaracterizations marginally impacts mission objectives, beyond contract and STP milestones. Impact beyond PBS end-state is very unlikely. Most significant cost impact based on past experience with mischaracterization of shipment offsite (fines, investigation and cleanup, etc.).		
Most Significant Cost Impact ($k): 24,000		Most Significant Schedule Impact (Mos): 6-12 PBS Schedule		
Level:	**High**	Event Trigger: Treatment and/or disposal of mischaracterized waste.		
Handling Strategy:	Reduce	Description: 1. The waste certification program must invest in oversight, training and direction to waste generators. (Luke Reid). 2. SW must serve as a single point of focus for all offsite shipments. (Jeff Stevens)		
HS Implementation Cost ($K):	0	Basis: Handling strategy is funded in PBS baseline.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies: Work to administrative limits which are reasonably below actual limits (i.e., maintain margin).				
Statement of Residual Risk: Even though efforts are made to educate waste generators, there is still a risk that mischaracterization will occur.				
Residual Likelihood:	Unlikely	Basis: Event has occurred on several occasions in the past five years.		
Residual Consequence:	Critical	Basis: Mischaracterizations marginally impacts mission objectives, beyond contract and STP milestones. Impact beyond PBS end-state is very unlikely. Most significant cost impact based on past experience with mischaracterization of shipment offsite (fines, investigation and cleanup, etc.).		
Residual Risk Level:	**Moderate**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 1,000	Most Likely 2,500	Worst Case 24,000	
Residual Schedule Impact (Mos):	6	9	12	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments: - Includes following brainstormed Events : BS007- Waste Mischaracterized - to WIPP, - Certified Program, BS021 - Waste Mischaracterization - High Fliers, BS036 - Waste Mischaracterization, BS038 - Components in Grout, BS115 - Contract Strategy - Multiple Generators, Adequate Compliances.				

Risk / Opportunity Assessment Form

ID Number: 003 Revision: 00 Last Date Evaluated: 3-Mar-06 Status: Active

Event Title: Poor Waste Forecasts (Volume, Ci, Category) - Out-year / Life Cycle Risk				
Type: **Risk** Internal Programmatic		Category: 3 Poor Waste Forecasts (Volume, Ci, Category) - Out-year / Life Cycle Risk		
Assess. Element: 01.30.16		Title: Solid Waste Stabilization & Disposition		
Responsible Org: -			Contact: Tony Maxted	Date Identified: 26-Apr-06
Statement of Event: All wastes must be dispositioned by FY 2030. In order to plan for the proper disposition of site generated wastes, forecasts are routinely developed based on projected site activities. There is a risk that actual volumes or activity levels will significantly differ from the forecast plan, resulting in a lack of facility capability or capacity to manage the waste or inefficient use of resources (e.g., human resources, cost to other TSDs). If this occurs, facilities and resources may not be available to dispose of the wastes to meet regulatory and/or DOE requirements.				
Likelihood:	Very Likely	Basis: Future environmental remediation and D&D missions are largely undefined and could result in widely varying waste forecasts in both volumes and types of wastes to be generated.		
Consequence / Benefit:	Significant	Basis: A waste forecast shift could reasonably defer the system's ability to achieve final disposition within the regulatory and/or DOE requirements. Most significant cost impact based on additional treatment, storage, and disposal costs.		
Most Significant Cost Impact ($k): 40,000			Most Significant Schedule Impact (Mos): 6-12 PBS Sched	
Level:	**High**	Event Trigger: New information from generators at the Waste Management Council. Unforeseen waste generation significantly beyond system capability or capacity.		
Handling Strategy:	Reduce & Transfer	Description: 1. Maintain contact with generators and require frequent forecast updates. (Luke Reid). 2. Fund non-forecasted treatment and disposal costs within the waste generating project. (Tony Maxted)		
HS Implementation Cost ($K):	0	Basis: Forecasting is already funded in the PBS baseline.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Because of the fluctuation of the mission, priorities, and funding continue, differences between actuals and forecasts are expected to occur.				
Residual Likelihood:	Likely	Basis: Future environmental remediation and D&D missions are open to change and could result in widely varying waste forecasts in both volumes and types of wastes to be generated.		
Residual Consequence:	Significant	Basis: Efforts to link waste disposal cost to the generating project should reduce the impact to the PBS.		
Residual Risk Level:	**Moderate**			Residual Impact Basis: The residual cost consists of Off site treatment $ or Expansion of onsite disposal capability
Residual Cost Impact ($K):	Best Case 10,000	Most Likely 15,000	Worst Case 40,000	
Residual Schedule Impact (Mos):	6	6	6	
Impacted Scope of Work:				
Evaluation Comments: Group 3 Risk (Out-year Risk, RHS Need to be Implemented in Near Term, Out-year Consequences)				
Event Comments: Forecasts are reviewed quarterly by SW. Includes following brainstormed Events : BS028 - Run Out of the Storage Capacity (RCRA), BS031 - Weight Volume Changes, BS039 - Facility Capacity is Exceeded, BS052 - Massive Change in Waste Volume, BS116 -m Generator Resources / Priorities.				

Risk / Opportunity Assessment Form

ID Number: 004 Revision: 00 Last Date Evaluated: 29-Jun-06 Status: Active

Event Title: Process / Operating Envelope Upsets (Near Term Risk)				
Type: **Risk** Internal Programmatic	Category: 4 Process / Operating Envelope Upsets (Near Term Risk)			
Assess. Element: 01.30.16.01	Title: Solid Waste Operations			
Responsible Org: -	Contact: David Swale	Date Identified: 26-Apr-06		
Statement of Event: All wastes must be dispositioned by FY 2030. The proper disposition of wastes relies on the availability of the appropriate facility required for that disposition. There is a risk that a process / operating envelope upset will occur such that onsite or offsite facility limits are exceeded or a major equipment outage is experienced, resulting in sustained outage of facility operations.				
Likelihood:	Likely	Basis: Process upsets have been experienced (i.e., past history). Two type A/B events have been experienced over the last fifteen years.		
Consequence / Benefit:	Significant	Basis: Experience has shown that the significant /process upset can take up to 6 months to resolve.		
Most Significant Cost Impact ($k): 40,000		Most Significant Schedule Impact (Mos): 12 PBS Schedule		
Level:	**Moderate**	Event Trigger: Facility AB or performance limits are exceeded or sustained unplanned equipment outage is experienced.		
Handling Strategy:	Reduce	Description: 1. Margins built into facility limits, safety Controls to protect the worker, and redundant equipment for key systems should mitigate the impact of any process/operating envelope upset. W. Morrison.		
HS Implementation Cost ($K):	100	Basis: Additional funding must be allocated for the evaluation and management plan mentioned in item 2 above.		
HS Implementation Schedule (Mos):	24	Basis: Handling strategy will require approximately six months completing.		
Other Handling Strategies:				
Statement of Residual Risk: Even though actions are taken to minimize process / operating envelope upsets, there is still a risk that they will occur. However, with appropriate planning, the consequences should be less severe.				
Residual Likelihood:	Unlikely	Basis: Process upsets have been experienced (i.e., past history). Two type A/B events have been experienced over the last fifteen years.		
Residual Consequence:	Significant	Basis: Planning should reduce the time and cost to respond to an upset condition.		
Residual Risk Level:	**Moderate**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 5000	Most Likely 20000	Worst Case 40000	
Residual Schedule Impact (Mos):	3	6	12	
Impacted Scope of Work: Pay for schedule slippage / Trade off scope due to schedule slippage / Include additional cost.				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments: - Includes following brainstormed Events : BS003 - Drum Explosion in Vent & Purge, BS0023 - Drum Pressurization / Explosion, BS026 - Regulatory, BS057 - Occupational Exposure - Some Time in the Future, BS070 - Emergent Radioactivity / Chemical Discovery, BS073 - Operational Issues, BS082 - Box Integrity (Water etc).				

Risk / Opportunity Assessment Form

ID Number: 005 Revision: 00 Last Date Evaluated: 12-Jun-06 Status: Active

Event Title: SRS Funding Impacts Outside of this PBS (Outyear Risk / Life Cycle)				
Type: **Risk** External Programmatic		Category: 5 SRS Funding Impacts Outside of this PBS (Outyear Risk / Life Cycle)		
Assess. Element: 01.30.16		Title: Solid Waste Stabilization & Disposition		
Responsible Org: -			Contact: Doug Hintze	Date Identified: 26-Apr-06
Statement of Event: The successful completion of the missions and objectives in this project depends on an adequate and continuous level of funding from DOE. There is a risk that a funding shortfall will occur, which extends the scope of mission completion date (for waste generators waste) for this project. If this occurs, costs for maintaining the current infrastructure would be extended.				
Likelihood:	Very Likely	Basis: Fiscal climate and recent history indicate funding shortfalls should be anticipated.		
Consequence / Benefit:	Critical	Basis: Worst case cost and schedule estimates are for five additional years of budget and less than 60 months to the overall PBS schedule equating to $650M.		
Most Significant Cost Impact ($k): 650,000			Most Significant Schedule Impact (Mos): 60 PBS Schedule	
Level:	**High**	Event Trigger: Decision to under fund key site mission activities.		
Handling Strategy:	Accept	Description: 1. Reprioritize and rebase line strategic plan and PBS end states. Annual forecasts and PEG would be utilized to reprioritize out year funding. Tony Maxted. 2. Maintain interface with National TRU program. - Dave Swale.		
HS Implementation Cost ($K):	N/A	Basis: N/A for Accept handling strategy.		
HS Implementation Schedule (Mos):	N/A	Basis: N/A for Accept handling strategy.		
Other Handling Strategies: Maintain program visibility and demonstrate success to those responsible for funding prioritization.				
Statement of Residual Risk: Same as initial evaluation for Accept handling strategy.				
Residual Likelihood:	Very Likely	Basis: Same as initial evaluation for Accept handling strategy.		
Residual Consequence:	Critical	Basis: Same as initial evaluation for Accept handling strategy.		
Residual Risk Level:	**High**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 130,000	Most Likely 390,000	Worst Case 650,000	
Residual Schedule Impact (Mos):	12	36	60	
Impacted Scope of Work:				
Evaluation Comments: Group 3 Risk (Out-year Risk, RHS Need to be Implemented in Near Term, Out-year Consequences)				
Event Comments: - Includes following brainstormed Events : BS006 - Fund Emergent Drum Issues, BS088 - Contractual Issues - Hard to Administer, Compliances, Priorities, BS089 - Specialists AB Resources go Away, BS103 - Demographics, BS104 - Brain Drain, BS109 - Personnel Not Available / Training.				

Risk / Opportunity Assessment Form

ID Number: 006 Revision: 00 Last Date Evaluated: 2-May-06 Status: Active

Event Title: Regulatory Impacts (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 1 Regulatory Impacts (Near Term Risk)		
Assess. Element: 01.30.16	Title: Solid Waste Stabilization & Disposition			
Responsible Org: -		Contact: Luke Reid		Date Identified: 26-Apr-06
Statement of Event: The successful completion of the missions and objectives of this project depends on an understanding and compliance with all regulatory requirements. There is a risk that regulatory requirements or interpretation of requirements shift such that missions and commitments are jeopardized. If this occurs, additional storage costs and / or higher than anticipated treatment and disposal costs could be incurred.				
Likelihood:	Likely	Basis: Based on recent history, the site has experienced shifts in regulatory requirements every five to ten years.		
Consequence / Benefit:	Significant	Basis: Shifts in requirements would likely incur schedule delays and unplanned costs, but not jeopardize the overall success of the project within either the contract or PBS period of performance. Regulators have demonstrated a willingness to work with the site to achieve waste disposition objectives.		
Most Significant Cost Impact ($k): 10,000			Most Significant Schedule Impact (Mos): 12 PBS Schedule	
Level:	**Moderate**	Event Trigger: Significant change in regulatory requirements or interpretations.		
Handling Strategy:	Mitigate & Reduce	Description: 1. Actively engage in the comment period for any proposed regulatory changes. - Luke Reid. 2. Successful waste programs will enhance negotiating position on implementation and compliance schedules. - Dave Swale. 3. Maintain an effective working relationship with regulators and stakeholders. - Sonny Goldston.		
HS Implementation Cost ($K):	0	Basis: Handling strategy already funded in PBS baseline.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Even though SW&I is proactive in dealing with regulatory changes, there is still a risk that regulatory requirements or interpretation of requirements shift such that missions and commitments are jeopardized.				
Residual Likelihood:	Unlikely	Basis: Being actively engaged with regulators should reduce the likelihood that this risk will occur.		
Residual Consequence:	Marginal	Basis: Cost impacts would be expected to be significantly lower - more in the range of $10M.		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 6,000	Most Likely 8,000	Worst Case 10,000	
Residual Schedule Impact (Mos):	6	8	<12	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences). Need to maintain good interface with WSRC Environmental Services Section and South Carolina regulators.				
Event Comments: - Includes following brainstormed Events : BS004- DNSFB Change in Regulatory Posture, BS030 - Performance Assessment Exceedance, BS032 - Fire Exemptions Go Away, BS037 - Vadose Zone Monitoring Failure, BS040 - Regulatory Changes - EPA / SCDHEC, BS042 - New Regulation, BS051 - Regulatory Risks at our own facilities.				

Risk / Opportunity Assessment Form

ID Number: 007 Revision: 00 Last Date Evaluated: 2-May-06 Status: Active

Event Title: Closure of Solid Waste Facilities to Meet End State (Outyear Risk / Life Cycle)				
Type: **Risk** Internal Programmatic		Category: 7 Closure of Solid Waste Facilities to Meet End State (Outyear Risk / Life Cycle)		
Assess. Element: 01.30.16		Title: Solid Waste Stabilization & Disposition		
Responsible Org: -			Contact: Luke Reid	Date Identified: 26-Apr-06
Statement of Event: Final Closure Plans for SWMF have not been developed or approved by regulators. There is a risk that when these closure plans are developed, implementation costs and schedules will exceed forecasts, potentially delaying the closure of those facilities. Additionally, there are risks associated that operating facilities, such as LLW disposal facilities, could exceed Performance Assessment limits thereby greatly impacting end state closure requirements.				
Likelihood:	Likely	Basis: Past experience with RCRA Closures		
Consequence / Benefit:	Significant	Basis: It is the anticipated difference between what the regulators will require and what we expect to implement for closure could impact schedule by 12 months and up to 20 Million Dollars.		
Most Significant Cost Impact ($k): 20,000			Most Significant Schedule Impact (Mos): 12 PBS Schedule	
Level:	**Moderate**	Event Trigger: State imposes unanticipated closure requirements on SWMF facilities.		
Handling Strategy:	Reduce	Description: 1. Maintain an effective working relationship with regulators and stakeholders. - Sonny Goldston. 2. Continual maintenance of performance assessments and waste certification programs. - Luke Reid.		
HS Implementation Cost ($K):	0	Basis:		
HS Implementation Schedule (Mos):	0	Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Event though a baseline for closure of SW facilities is established (FY 2030), there is still a risk that implementation costs and schedules will exceed forecasts, potentially delaying the closure of those facilities.				
Residual Likelihood:	Unlikely	Basis: Developing a baseline will reduce the cost and schedule uncertainty, and thus reduce the likelihood that this risk will occur.		
Residual Consequence:	Significant	Basis: It is the anticipated difference between what the regulators will require and what we expect to implement for closure could impact schedule by 12 months.		
Residual Risk Level:	**Moderate**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 6000	Most Likely 8000	Worst Case 20000	
Residual Schedule Impact (Mos):	6	8	12	
Impacted Scope of Work:				
Evaluation Comments: Group 3 Risk (Out-year Risk, RHS Need to be Implemented in Near Term, Out-year Consequences). Main concern is lack of program for RCRA facilities. The boundary between SW and ER regarding closure needs to be better defined.				
Event Comments: - Includes following brainstormed Events : BS068 - Facility Closure - Three Rivers, C&D Landfill, BS069 - Discovery of Issues Post Closure.				

Risk / Opportunity Assessment Form

ID Number: 008 | Revision: 00 | Last Date Evaluated: 28-Apr-06 | Status: Active

Event Title: Remediation Performance Does Not Meet Execution Schedule (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 6 Remediation Performance Does Not Meet Execution Schedule (Near Term Risk)		
Assess. Element: 1.30.16.1.06.02	Title: Low Activity TRU Waste			
Responsible Org: -		Contact: Lee Fox		Date Identified: 26-Apr-06
Statement of Event: Legacy low activity TRU drum waste will be dispositioned by end of FY 2008. There is a risk that additional remediation facilities such as (SRNL and/or F Canyon) will not be operational and existing capabilities will not meet expected production rates to meet FY2008 end date. There is a risk that some number of drums will be identified that can not be remediated based on facility waste acceptance criteria. This would result in production objectives not be met for low activity (LA) TRU waste disposition resulting in an extension of the program.				
Likelihood:	Likely	Basis: It is likely that some number of drums will be identified that can not be remediated based on facility waste acceptance criteria. Reliance on new facilities and uncertainties associated with novel waste streams makes it likely production objectives may not be met.		
Consequence / Benefit:	Critical	Basis: Failure to meet production objectives could challenge the near-term contract and PMP objectives. Remediation facilities are F&H Labs, TVEF, MRS, SRNL, and F-Canyon. Cost and schedule impacts based on carrying the LA TRU program for another year.		
Most Significant Cost Impact ($k): 20,000			Most Significant Schedule Impact (Mos): 12 TRU Though FY 12	
Level:	**High**	Event Trigger: During preparation for RTR. LA TRU waste disposition objectives fall > 20% below production targets.		
Handling Strategy:	Accept	Description: 1. Monitor production trends, respond aggressively to negative trends, and maintain spare capacity in F&H Labs, TVEF, MRS, SRNL, and F-Canyon facilities. Ken Harrawood. 2. Identify the problems drums as early as possible to develop and implement the remediation strategy. - Lee Fox. 3. Alternative strategy may be to transfer to the TRU HA Program. - Tony Maxted		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies: Alternative remediation strategies should be identified and readied for implementation as a contingency for inadequate capability and capacity in planned production facilities.				
Statement of Residual Risk: Same as initial evaluation for Accept handling strategy.				
Residual Likelihood:	Likely	Basis: Same as initial evaluation for Accept handling strategy.		
Residual Consequence:	Critical	Basis: Same as initial evaluation for Accept handling strategy.		
Residual Risk Level:	**High**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 10,000	Most Likely 15,000	Worst Case 20,000	
Residual Schedule Impact (Mos):	8	10	12	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences). Assumptions: F&H Labs, TVEF, MRS, SRNL, and F-Canyon available for remediation of 3000 drums.				
Event Comments: - Includes following brainstormed events : BS010 - Super Hot Drum with Problems, BS012 - Drum Disintegrated (Suspect Drums), BS015 - Contamination of Persons in Remediation, BS016 - AB Exceedance in Remediation.				

Risk / Opportunity Assessment Form

ID Number: 009 Revision: 00 Last Date Evaluated: 28-Apr-06 Status: Active

Event Title: High Activity TRU Waste Processing Throughput Does Not Meet Execution Schedule (Near Term Risk)				
Type: **Risk** Internal Programmatic		Category: 10 High Activity TRU Waste Processing Throughput Does Not Meet Execution Schedule (Near Term Risk)		
Assess. Element: 1.30.16.1.06.03	Title: High Activity TRU Waste			
Responsible Org: -		Contact: Lee Fox		Date Identified: 26-Apr-06
Statement of Event: Legacy high activity TRU waste boxes and drums will be dispositioned by end of FY 2012. HA TRU baseline is for repackaging black boxes to create ~1000 compliant boxes over 2 years, and remediation of between 300 to 500 over 2 years. There is a risk that production objectives for feedstock operations with planned facilities will not be met for high activity (HA) TRU waste disposition resulting in extension of program.				
Likelihood:	Very Likely	Basis: Reliance on new facilities and uncertainties associated with new waste streams makes it very likely production objectives may not be met.		
Consequence / Benefit:	Critical	Basis: Failure to meet production objectives could challenge near-term PMP objectives, but would not likely impact the ability to achieve PBS objectives. Worst case cost impact based on new HA TRU Waste Facility at $140M plus additional storage. Worst case schedule impact based on six years for a new facility.		
Most Significant Cost Impact ($k): 250,000		Most Significant Schedule Impact (Mos): 72 TRU Through FY 12		
Level:	**High**	Event Trigger:		
Handling Strategy:	Mitigate & Reduce	Description: 1. Pursue the opportunities for Pu-238 disposal. - Sonny Goldston. 2. Pursue relief from WIPP transportation and disposal requirements for prohibited items. There is a small volume of waste outside the capability of planned facilities that will require relief. - Dave Swale. 3. Continue efforts to influence TRUPACT-III requirements prior to requesting relief. - Bert Crapse.		
HS Implementation Cost ($K):	0	Basis: Handling strategies #3 is already included in PBS baseline. HS #1 is covered by Event ID 018, HS #2 will not happen until HA TRU processing is operational at SRS for some period of time to determine what relief, if any, is necessary.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: A small volume of HA TRU waste remains that can not be remediated or characterized in existing facilities which would require relief from WIPP WAC and transportation requirements. There is a risk the relief would not be approved.				
Residual Likelihood:	Likely	Basis: The E Area demonstrations are firming up baseline assumptions. It is likely that the future political climate may not allow approval of relief requests.		
Residual Consequence:	Critical	Basis: The volume is reduced such that impacts on the PBS mission are significant.		
Residual Risk Level:	**High**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 50,000	Most Likely 100,000	Worst Case 250,000	
Residual Schedule Impact (Mos):	12	36	60	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments: Includes following brainstormed Events : None.				

Risk / Opportunity Assessment Form

ID Number: 010 Revision: 00 Last Date Evaluated: 30-Jun-06 Status: Active

Event Title: Remote-Handled TRU Waste (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 6 Remote-Handled TRU Waste (Near Term Risk)		
Assess. Element: 1.30.16.1.06.01	Title: TRU Waste Receipt and Storage			
Responsible Org: -		Contact: Lee Fox		Date Identified: 26-Apr-06
Statement of Event: Legacy high activity TRU waste boxes and drums will be dispositioned by end of FY 2012. Wastes that will require remote handling have been identified in the current TRU waste inventory. WIPP requirements for remote-handled waste have not been fully defined or approved, and funding for implementation of a remote-handled waste program is not included in the PBS baseline. There is a risk that PBS funding and/or schedules will be exceeded.				
Likelihood:	Very Likely	Basis: Remote-handled wastes have been identified in the current TRU waste inventory. Development and implementation of a remote-handled characterization and certification program is not included in the existing PBS baseline.		
Consequence / Benefit:	Critical	Basis: The volumes of remote-handled waste are expected to be very low such that continued storage would not significantly impact the PBS baseline. The most significant cost impact is based on 1 to 2 years of continued storage.		
Most Significant Cost Impact ($k): 2,000			Most Significant Schedule Impact (Mos): 120 TRU Through FY 12	
Level:	**High**	Event Trigger: Remote-handled waste requirements are not approved at WIPP or CCP characterization/certification implementation is not funded by CBFO.		
Handling Strategy:	Mitigate	Description: 1. Fund staffing to bound the scope of the problem and define/develop SRS remote-handled characterization and certification program. - Tony Maxted. 2. Investigate options such as ship to Oak Ridge or repackage to meet the lower concentration requirements of contact-handled TRU waste. - Dave Swale. 3. Disposition of SRS RH-TRU wastes along side Battle RH-TRU which must be completed by the end of FY08. - Dave Swale.		
HS Implementation Cost ($K):	100	Basis: Fund FTE to monitor developments in remote-handled requirements and develop SRS implementation strategy for compliance.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: There is still a risk that SW&I will not be able to move a majority of the material offsite or repackage for contact handling, and the remote handling TRU program at SRS will still not be funded.				
Residual Likelihood:	Very Likely	Basis: Remote-handled wastes have been identified in the current TRU waste inventory. Development and implementation of a remote-handled characterization and certification program is not included in the existing PBS baseline.		
Residual Consequence:	Critical	Basis: The volumes of remote-handled waste are expected to be very low such that continued storage would not significantly impact the PBS baseline. The most significant cost impact is based on 5 to 10 years of continued storage.		
Residual Risk Level:	**High**			Residual Impact Basis: Best case - this waste can be handled in the contact handled program.
Residual Cost Impact ($K):	Best Case 1,000	Most Likely 1,500	Worst Case 2,000	
Residual Schedule Impact (Mos):	8	60	120	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 011 Revision: 00 Last Date Evaluated: 1-Jul-06 Status: Active

Event Title: No Defined Certification Program for New TRU Waste Post FY 2012 (Outyear Risk / Life Cycle)				
Type: **Risk** Internal Programmatic		Category: 2 No Defined Certification Program for New TRU Waste Post FY 2012 (Outyear Risk / Life Cycle)		
Assess. Element: 1.30.16.1.06.01	Title: TRU Waste Receipt and Storage			
Responsible Org: -		Contact: Jonathan Simmons		Date Identified: 26-Apr-06
Statement of Event: The current baseline assumption is that GFSI equipment stays at SRS and the contractor at SRS operates the equipment. There is a risk that the GFSI will not remain at SRS and will be deployed elsewhere in the complex. We would not be able to ship any waste to WIPP				
Likelihood:	Likely	Basis: There are other demands within the complex for this capability (e.g., Hanford, LANL).		
Consequence / Benefit:	Critical	Basis: The SRS contractor would have to purchase and install their own characterization capability at a cost of at least $10M. There would be a minimum 12 months since SRS will have to complete WIPP Certification audit. SRS could wait for GFSI equipment to become available again.		
Most Significant Cost Impact ($k): 20,000		Most Significant Schedule Impact (Mos): 18 TRU Through FY 12		
Level:	**High**	Event Trigger: Developing out year FY2013 budget. Carlsbad DOE notifies DOE SR that it will move the equipment elsewhere in the DOE complex.		
Handling Strategy:	Accept	Description: 1. Develop a long-term strategy for management of ongoing generation of TRU wastes. - Tony Maxted.		
HS Implementation Cost ($K):	100	Basis: Part-time FTE develop long-term strategy before completion of the drummed waste program in FY06.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Even though generation rate is defined, there is still a risk that interim storage will have to be provided until characterization equipment is available.				
Residual Likelihood:	Likely	Basis: There are other demands within the complex for this capability (e.g., Hanford).		
Residual Consequence:	Critical	Basis: Most likely consequence is that interim storage would have to be provided until GFSI are available, from another site in DOE complex.		
Residual Risk Level:	**High**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 14,000	Most Likely 16,000	Worst Case 20,000	
Residual Schedule Impact (Mos):	6	12	18	
Impacted Scope of Work:				
Evaluation Comments: Group 3 Risk (Out-year Risk, RHS Need to be Implemented in Near Term, Out-year Consequences). Includes following brainstormed Events : BS079 - All TRU Post 2012				
Event Comments: Includes following brainstormed Events : BS079 - All TRU Post 2012				

Risk / Opportunity Assessment Form

ID Number: 012 Revision: 00 Last Date Evaluated: 1-Jul-06 Status: Active

Event Title: Fragmented Safety Basis (Near Term Risk has some Outer Years Impacts)				
Type: **Risk** Internal Programmatic		Category: 1 Fragmented Safety Basis (Near Term Risk has some Outer Years Impacts)		
Assess. Element: 1.30.16.1.06.02	Title: Low Activity TRU Waste			
Responsible Org: -		Contact:		Date Identified: 26-Apr-06
Statement of Event: The Waste Management Area Project currently has one approved Documented Safety Analysis, Technical Safety Requirements and two Justifications for Continuing Operations in place. Having multiple Safety Analysis can lead to confusion, which could result in multiple TSR Violations. Multiple TSR violations will cause a management concern, which will cause a safety pause for all WMAP operations. This safety pause will be a direct impact to throughput and fee earned and will reduce the confidence our customer has with regards to operating safely and compliantly.				
Likelihood:	Unlikely	Basis: Past Experience and emphasis from Management Team on compliance		
Consequence / Benefit:	Significant	Basis: A TSR violation or multiple TSR violations is the first indicator to a potential larger event and if not corrected immediately could result in a major accident, personnel injury or a release to the Environment. Most significant impact is a 6 month shutdown of operations		
Most Significant Cost Impact ($k): 10,000		Most Significant Schedule Impact (Mos): 6 TRU Through FY 12		
Level:	**Moderate**	Event Trigger: TSR/DSA Violation		
Handling Strategy:	Mitigate & Reduce	Description: 1. Good safety compliance analytical support for day to day operation. - W. Morrison. 2. Safety compliance support for ongoing DSA programmatic improvement efforts e.g. DSA upgrade and update. - W. Morrison3. Training the operational and engineering personnel and robust self assessment to ensure compliance. - W. Morrison.		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: 1. Good safety compliance analytical support for day to day operation. 2. Safety compliance support for ongoing DSA programmatic improvement efforts e.g. DSA upgrade and update. 3. Training the operational and engineering personnel and robust self assessment to ensure compliance.				
Residual Likelihood:	Very Unlikely	Basis: DSA upgrade will consolidate safety basis and provide a single comprehensive source document		
Residual Consequence:	Significant	Basis: Most significant impact is to avoid shutdown of the operations.		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 3,000	Most Likely 4,000	Worst Case 6,000	
Residual Schedule Impact (Mos):	3	4	6	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 013 Revision: 00 Last Date Evaluated: 1-Jul-06 Status: Active

Event Title: Vent and Purge Operations Do Not Meet Throughput Requirements (Near Term Risk)				
Type: **Risk** Internal Programmatic		Category: 6 Vent and Purge Operations Do Not Meet Throughput Requirements (Near Term Risk)		
Assess. Element: 1.30.16.1.06.02	Title: Low Activity TRU Waste			
Responsible Org: -		Contact:		Date Identified: 26-Apr-06
Statement of Event: Vent and Purge activities must be completed by Aug 2007 to meet Legacy low activity TRU drum waste disposal by end of FY 2008. Based on current operating parameters Vent and Purge operations can not be completed till October 2008. The Mass Spectrometer unit may fail or the required number of purges could increase.				
Likelihood:	Very Likely	Basis: Based on Vent and Purge recorded throughput rate.		
Consequence / Benefit:	Critical	Basis: Hotel Load $20M + $ 500,000 schedule extension for another year of operation.		
Most Significant Cost Impact ($k): 20,500		Most Significant Schedule Impact (Mos): 24 TRU Through FY 12		
Level:	**High**	Event Trigger: Complete Vent and Purge activities before Aug 2007.		
Handling Strategy:	Mitigate & Reduce	Description: 1. Monitor production trends, respond aggressively to negative trends. Lee Fox. 2. Engineering initiatives to improve throughput, such as the 24 hrs purging and no purge options. - W. Morrison.		
HS Implementation Cost ($K):	3,000	Basis: Procurement of Vent and Purge machine		
HS Implementation Schedule (Mos):	12	Basis: Procurement cycle is estimated at 12 months.		
Other Handling Strategies:				
Statement of Residual Risk: Having the second machine will allow us to double the throughput. Down time will be minimized.				
Residual Likelihood:	Unlikely	Basis: Procurement cycle is estimated at 12 months.		
Residual Consequence:	Significant	Basis:		
Residual Risk Level:	**Moderate**			Residual Impact Basis: Hotel Load = $20,000,000. Schedule driven.
Residual Cost Impact ($K):	Best Case 3,000	Most Likely 6,000	Worst Case 9,000	
Residual Schedule Impact (Mos):	1	3	6	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments: Includes following brainstormed Events : BS002 - Vent & Purge				

Risk / Opportunity Assessment Form

ID Number: 014 | Revision: 00 | Last Date Evaluated: 1-Jul-06 | Status: Active

Event Title: Culvert Retrieval Operations Do Not Meet Throughput Requirements (Near Term Risk)				
Type: **Risk** Internal Programmatic		Category: 6 Culvert Retrieval Operations Do Not Meet Throughput Requirements (Near Term Risk)		
Assess. Element: 1.30.16.1.06.02	Title: Low Activity TRU Waste			
Responsible Org: -		Contact:		Date Identified: 26-Apr-06
Statement of Event: Legacy low activity TRU drum waste will be dispositioned by end of FY 2008. A delay in the culvert retrieval operations will directly effect the needed feed stock available for characterization, which will effect the scheduled volume of certified waste to WIPP. The current characterization and shipment schedules may be negatively effected. The following items have been identified as events that could delay occur and effect production rates. : The amount of Beryllium within 55 gallon drums exceeds the analyzes/authorized amount within the criticality safety case. Classified materials are identified within individual drums. Water within culverts. The integrity of individual drums within a culvert is questionable. A drum is discovered pressurized within the culvert. A RH drum is identified within a culvert. Uncontainerized waste is commingled with containerized waste inside the culvert. Access to an individual culvert is blocked by a High Activity container. Failure of the culvert cracker. Inventory control issues. Anything else that impedes culvert retrieval. Scheduled AB work not completed as scheduled.				
Likelihood:	Very Likely	Basis: These types of events have occurred in the past and are very likely to occur in the future. There are currently no written plans of action to respond to these type of events. The current plan is to close the culvert and move to the next one. This has been the past practice and because of the past practice it appears that the majority of the culverts have one or more issues associated with them.		
Consequence / Benefit:	Critical	Basis: It is necessary to retrieve 55-gallon drums from the culverts in order to feed the characterization process. Without this feedstock the FY08 shipments will be negatively effected.		
Most Significant Cost Impact ($k): 20,000		Most Significant Schedule Impact (Mos): 12 TRU Through FY 12		
Level:	**High**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. Resolve issues that are preventing the drum retrieval. - Lee Fox 2. Mining strategy for retrieval needs to be firmed up. - Lee Fox		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: 1. Mining strategy for retrieval needs to be firmed up.				
Residual Likelihood:	Unlikely	Basis:		
Residual Consequence:	Critical	Basis:		
Residual Risk Level:	**Moderate**			Residual Impact Basis: It is not linear. One event might cost a more or less than the previous event, as each event has different impacts. ML & WC includes higher impacts.
Residual Cost Impact ($K):	Best Case 5,000	Most Likely 15,000	Worst Case 20,000	
Residual Schedule Impact (Mos):	3	6	12	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 015 Revision: 00 Last Date Evaluated: 1-Jul-06 Status: Active

Event Title: Technical Performance of NDA/NDE/HSG Does Not Meet Requirements (Near Term Risk)				
Type: **Risk** Internal Programmatic		Category: 6 Technical Performance of NDA/NDE/HSG Does Not Meet Requirements (Near Term Risk)		
Assess. Element: 1.30.16.1.06.02	Title: Low Activity TRU Waste			
Responsible Org: -		Contact:		Date Identified: 26-Apr-06
Statement of Event: Legacy low activity TRU drum waste will be dispositioned by end of FY 2008. Some containers may not be suitable for our current assay equipment (not characterized) as a result of the following: High Dose rates (due to Np, FP), Alpha-N-Reaction (beryllium content too high), Classified waste, High VOC content drums.				
Likelihood:	Very Likely	Basis: Past History and current operations.		
Consequence / Benefit:	Critical	Basis: Past History and current operations.		
Most Significant Cost Impact ($k): 20,000		Most Significant Schedule Impact (Mos): 12 TRU Through FY 12		
Level:	**High**	Event Trigger:		
Handling Strategy:	Reduce	Description: Identify issues as early as possible so to: 1. Work with WSMS to develop AB solutions. - Lee Fox 2. Obtain different NDA equipment. - Dave Swale. 3. Remediate the drum. - Ken Harrawood. 4. Place drum into the high activity group. - Tony Maxted. 5. Regulatory exemptions. - Dave Swale.		
HS Implementation Cost ($K):	2,000	Basis: Obtain different NDA equipment.		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: There may still be drums which can not be characterized using existing equipment. Only option will be to repack / remediate the drum or over pack the HA TRU container and wait for Box NDA / NDE system.				
Residual Likelihood:	Likely	Basis:		
Residual Consequence:	Critical	Basis:		
Residual Risk Level:	**High**			Residual Impact Basis: 100 drums maximum expected to 500 drums worst case.
Residual Cost Impact ($K):	Best Case 15,000	Most Likely 18,000	Worst Case 20,000	
Residual Schedule Impact (Mos):	8	10	12	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 016 Revision: 00 Last Date Evaluated: 1-Jul-06 Status: Active

Event Title: Availability of a Certified Large Box Characterization System (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 6 Availability of a Certified Large Box Characterization System (Near Term Risk)		
Assess. Element: 1.30.16.1.06.01		Title: TRU Waste Receipt and Storage		
Responsible Org: -			Contact:	Date Identified: 26-Apr-06
Statement of Event: We have agreement with SCDHEC that a certified Large Box System will be available for WIPP certification audit by Sept 2007. NDA, NDE, are over budget and behind schedule. The risk is that a system to perform the NDA and NDE are large boxes can not technologically be produced. The technical challenges posed by the large box size simply do not allow the X-ray and assay equipment to reliably measure data.				
Likelihood:	Unlikely	Basis: This is a scale up of the existing technology		
Consequence / Benefit:	Critical	Basis: Repackage every thing into a SWB size. $75,000k = for facility to repackage + 4 Year Program delay		
Most Significant Cost Impact ($k): 200,000			Most Significant Schedule Impact (Mos): 48 TRU Through FY 12	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Accept	Description: 1. Manage the GFSI provisions closely. -Bert Crapse. 2. Ensure proper design basis and testing is done prior to hand over to SRS. - John Pierpoint. 3. Possibilities of taking over the project after phase II completion. - John Pierpoint		
HS Implementation Cost ($K):	12,000	Basis: Based on costs to complete Phase 3, given successful completion of Phase 2.		
HS Implementation Schedule (Mos):	0	Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Technology risk development				
Residual Likelihood:	Unlikely	Basis: Success with MRS glove box and GFSI.		
Residual Consequence:	Critical	Basis: Worst case to start from the beginning again.		
Residual Risk Level:	**Moderate**			Residual Impact Basis: This not a linear impact. Most likely is the same big fixes to the existing design based on history.
Residual Cost Impact ($K):	Best Case 5,000	Most Likely 10,000	Worst Case 200,000	
Residual Schedule Impact (Mos):	6	12	48	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 017 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: Availability of TRUPACT III Shipping Container (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 6 Availability of TRUPACT III Shipping Container (Near Term Risk)		
Assess. Element: 1.30.16.1.06.03		Title: High Activity TRU Waste		
Responsible Org: -			Contact:	Date Identified: 26-Apr-06
Statement of Event: Current baseline calls for TRUPACT III Shipping Container procurement to be completed by October 2007. TRUPACT III Shipping Container may not be certified / licensed by Oct 2007. Shipping of approximately 4000 Cubic Meter waste will be impacted.				
Likelihood:	Unlikely	Basis: We already have some history in licensing and fabrication of shipping containers.		
Consequence / Benefit:	Critical	Basis: Failure to meet production objectives could challenge near-term PMP objectives, but would not likely impact the ability to achieve PBS objectives. Worst case cost impact based on new HA TRU Waste Facility at $140M plus additional storage. Worst case schedule impact based on six years for a new facility.		
Most Significant Cost Impact ($k): 250,000			Most Significant Schedule Impact (Mos): 24 TRU Through FY 12	
Level:	**Moderate**	Event Trigger: Denial from NRC of Licensing application		
Handling Strategy:	Accept	Description: 1. Minimize the number of packages requiring TRUPACT III (future generated waste). - Dave Swale 2. Maintain communications with Carlsbad. Dave Swale.		
HS Implementation Cost ($K):	0	Basis:		
HS Implementation Schedule (Mos):	0	Basis:		
Other Handling Strategies:				
Statement of Residual Risk: May be we can turn this to a opportunity				
Residual Likelihood:	Unlikely	Basis:		
Residual Consequence:	Critical	Basis: Failure to meet production objectives could challenge near-term PMP objectives, but would not likely impact the ability to achieve PBS objectives. Worst case cost impact based on new HA TRU Waste Facility at $140M plus additional storage. Worst case schedule impact based on six years for a new facility.		
Residual Risk Level:	**Moderate**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 80,000	Most Likely 100,000	Worst Case 250,000	
Residual Schedule Impact (Mos):	12	16	18	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 018 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: Safety Analysis (DSA) Is Not All Encompassing (Near Term Risk)				
Type: **Risk** Internal Programmatic		Category: 1 Safety Analysis (DSA) Is Not All Encompassing (Near Term Risk)		
Assess. Element: 1.30.16.1.06.02		Title: Low Activity TRU Waste		
Responsible Org: -			Contact:	Date Identified: 26-Apr-06
Statement of Event: The concern is that we may find waste that challenge our inputs and assumptions. For example: Containers may be retrieved from culverts that exceed out analyzed values within the Criticality Safety Case. A discovery of an error within the existing AB is found. There is so much attention and scrutiny focused on our Safety Basis it is likely that additional errors will be found. - Containers identified with contents that we were unaware of - Continued collection of data from Vent and Purge challenges our inputs and assumptions				
Likelihood:	Likely	Basis: Past History. It will happen multiple times.		
Consequence / Benefit:	Significant	Basis: Past History.		
Most Significant Cost Impact ($k): 10,000			Most Significant Schedule Impact (Mos): 6 TRU Through FY 12	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. Programmatic upgrade and annual updates of safety basis documents. - W. Morrison 2. Periodic assessments to ensure key inputs and assumptions are protected. - W. Morrison		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Unlikely	Basis: DSA upgrade consolidates and provides more protection against emergent high activity "discovery" containers.		
Residual Consequence:	Significant	Basis:		
Residual Risk Level:	**Moderate**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 2,000	Most Likely 5,000	Worst Case 10,000	
Residual Schedule Impact (Mos):	3	6	6	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments: - Includes following brainstormed Events : BS011 - AB Deficiencies - Wrong Assumption, BS020 - Criticality Issues, BS029 - Criticality, BS033 - Assumptions / AB Changes, BS034 - Graduated Exceedance at Point of Compliance.				

Risk / Opportunity Assessment Form

ID Number: 019 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: CCP Resources Are Redeployed due to DOE Complex Priorities (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 5 CCP Resources Are Redeployed due to DOE Complex Priorities (Near Term Risk)		
Assess. Element: 1.30.16.1.06.02		Title: Low Activity TRU Waste		
Responsible Org: -			Contact:	Date Identified: 26-Apr-06
Statement of Event: Characterization and shipping resources are provided to SRS by Central Characterization Project CCP - paid by WIPP. There is risk that due to DOE priorities elsewhere in the complex, or due to cost inefficiency from small vendors at SRS, these resources could be redeployed elsewhere. SRS would have to either internalize the work or pay the subcontract vendors for the services they currently provide.				
Likelihood:	Unlikely	Basis: Poor use of DOE resources		
Consequence / Benefit:	Critical	Basis: The resources are required to perform operations at SWMF. $20M /Year for 6 Years including a recertification audit.		
Most Significant Cost Impact ($k): 150,000			Most Significant Schedule Impact (Mos): 72 TRU Through FY 12	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. SRS trains in-house staff to assume critical CCP roles in the event that CCP resources are redeployed. - Lee Fox. 2. CCP provides some strength in depth to allow for turnover and retain key staff at SRS. Dave Swale. Project is progressively getting closer and closer to the end date. - Jeff Stevens.		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Very Unlikely	Basis: A decision to permanently redeploy CCP resources would be very unlikely.		
Residual Consequence:	Critical	Basis: Based on worst case - SRS pays for remaining duration.		
Residual Risk Level:	**Moderate**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 1,000	Most Likely 120,000	Worst Case 150,000	
Residual Schedule Impact (Mos):	3	6	18	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 020 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: High Wattage Drums That Can Not Be Shipped (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 6 High Wattage Drums That Can Not Be Shipped (Near Term Risk)		
Assess. Element: 1.30.16.1.06.01		Title: TRU Waste Receipt and Storage		
Responsible Org: -			Contact:	Date Identified: 26-Apr-06
Statement of Event: Legacy high activity TRU waste boxes and drums will be dispositioned by end of FY 2012. Approximately 1,000 Drums cannot be shipped using TRUPACT II. These may be shippable using TRUPACT III or drum contents may be split between several drums, characterized and shipped using TRUPACT II.				
Likelihood:	Very Likely	Basis:		
Consequence / Benefit:	Critical	Basis:		
Most Significant Cost Impact ($k): 10,000			Most Significant Schedule Impact (Mos): 12 TRU Through FY 12	
Level:	**High**	Event Trigger:		
Handling Strategy:	Avoid	Description: 1. Make sure that TRUPACT-III can handle high wattage shipments. - Bert Crapse. 2. Identify drums and wattage of the drums as early as possible. Lee Fox. 3. Repackage the drums. - Ken Harrawood. 4. Incorporate into baseline. - Tony Maxted.		
HS Implementation Cost ($K):	2,000	Basis: Repackaging estimate assuming use of existing facilities for 1000 drums.		
HS Implementation Schedule (Mos):	12	Basis: Past history		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Unlikely	Basis:		
Residual Consequence:	Negligible	Basis:		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 0	Most Likely 0	Worst Case 0	
Residual Schedule Impact (Mos):	0	0	0	
Impacted Scope of Work:				
Evaluation Comments: Group 2 Near Term Risk (RHS Need to be Implemented in Near Term, Out-year Consequences).				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 021 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: External Events Cause Infrastructure Requirements to Exceed Budget (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 4 External Events Cause Infrastructure Requirements to Exceed Budget (Near Term Risk)		
Assess. Element: 01.30.16.02	Title: Infrastructure			
Responsible Org: -		Contact:	Date Identified: 5-May-06	
Statement of Event: External Event such as weather event (tornado, hurricane) or aircraft impact causes damage to site infrastructure that requires far more budget than has been allowed for such events. The site budget for infrastructure maintenance is planned for routine wear and tear on facilities and not an abnormal external event.				
Likelihood:	Very Unlikely	Basis:		
Consequence / Benefit:	Critical	Basis:		
Most Significant Cost Impact ($k): 200,000		Most Significant Schedule Impact (Mos): 12 PBS		
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. Gradually shrinking the site footprint and consolidating missions in geographical areas to minimize the number of areas of concern. - Chuck Campbell. Reducing the need for long inter-area connectivity such as roads, rail, steam and utilities. - Chuck Campbell		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk: Gradually shrinking the site footprint and consolidating missions in geographical areas to minimize the number of areas of concern. Reducing the need for long inter-area connectivity such as roads, rail, steam and utilities.				
Residual Likelihood:	Non-Credible	Basis:		
Residual Consequence:	Critical	Basis:		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 100,000	Most Likely 100,000	Worst Case 200,000	
Residual Schedule Impact (Mos):	0	0	0	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments: Includes following brainstormed Events : BS093 - Weather Event, BS094 - Act of God, BS095 - Terrorism, BS096 - Steam Line Break, BS097 - General, BS098 - Wild Fire, BS099 - PR Risk, BS100 - Loss Real Value Inventory, BS101 - Documentation, BS102 - Aging Workforce, BS105 - Federal Standards For Construction.				

Risk / Opportunity Assessment Form

ID Number: 022 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: Security Acts or Acts of Terrorism (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 4 Security Acts or Acts of Terrorism (Near Term Risk)		
Assess. Element: 01.30.16.01.06		Title: TRU Waste		
Responsible Org: -			Contact:	Date Identified: 5-May-06
Statement of Event: Current baseline assumes that shipping of waste to WIPP and other off-site vendor disposal facilities is available and unimpeded. The bounding event is where a security event happens such as an act of terrorism or other national security occurrence and waste shipments are stopped for a significant period of time. The security event could be of a lesser impact to where the handling and shipping requirement become significantly more complex and expensive.				
Likelihood:	Very Unlikely	Basis:		
Consequence / Benefit:	Significant	Basis:		
Most Significant Cost Impact ($k): 100,000			Most Significant Schedule Impact (Mos): 12 PBS Sched	
Level:	**Low**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. Reduce legacy waste inventories (particularly TRU waste)as fast as possible to reduce reliance on off-site vendors in the long term. - Jeff Stevens. Dispose of waste on-site whenever possible to avoid the need to transport waste off-site. - Tony Maxted.		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Non-Credible	Basis:		
Residual Consequence:	Significant	Basis:		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 50,000	Most Likely 50,000	Worst Case 100,000	
Residual Schedule Impact (Mos):	0	0	0	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments: Includes following brainstormed Events : BS005- More Restrictive Controls, BS014 - Terrorism Alert Associated Handling TRU, BS091 - Foreign Ownership, BS092 - Security Issues - Classified Shipments, 9/11 or New Event Leads to Increased Security.				

Risk / Opportunity Assessment Form

ID Number: 023 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: Transportation Issues (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 10 Transportation Issues (Near Term Risk)		
Assess. Element: 01.30.16.01.06	Title: TRU Waste			
Responsible Org: -		Contact:	Date Identified: 5-May-06	
Statement of Event: Current baseline assumes that transportation of wastes to off-site facilities will not be a hindrance to disposal. The event proposed is where there is a significant transportation incident (spill/accident) which causes impact to the ability to transport wastes. In the bounding case this would be suspension of all waste transportation for a significant period of time.				
Likelihood:	Unlikely	Basis:		
Consequence / Benefit:	Significant	Basis:		
Most Significant Cost Impact ($k): 30,000		Most Significant Schedule Impact (Mos): 6 TRU		
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Mitigate & Reduce	Description: 1. Use certified transportation agencies whenever possible to reduce the exposure to poor transportation practices. - Luke Reid. Limit the transportation of wastes by maximizing payloads and avoiding the need for multiple shipments. - Ken Harrawood. Ensure that waste is packaged properly in compliance with DOT regulations to be safe in the event of accident scenarios. - Luke Reid.		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Very Unlikely	Basis:		
Residual Consequence:	Significant	Basis:		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 1,000	Most Likely 5,000	Worst Case 15,000	
Residual Schedule Impact (Mos):	2	4	6	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 024 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: External Weather & Fire Events (Near Term Risk)				
Type: **Risk** External Programmatic		Category: 4 External Weather & Fire Events (Near Term Risk)		
Assess. Element: 01.30.16.01.06	Title: TRU Waste			
Responsible Org: -		Contact:	Date Identified: 5-May-06	
Statement of Event: Current baseline has no allowance for significant repairs and rebuilding of the infrastructure of Solid Waste Management Facility. An external weather event such as tornado or hurricane impact on the TRU and low level waste storage and treatment facilities in E area would have a significant effect. Radiological clean-up could be significant and the upgrades and repairs to facilities would be extensive.				
Likelihood:	Unlikely	Basis: Probability of an external event is low		
Consequence / Benefit:	Critical	Basis:		
Most Significant Cost Impact ($k): 100,000			Most Significant Schedule Impact (Mos): 18 TRU	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. Reduce the legacy TRU inventory as fast as possible by shipping off-site. - Jeff Stevens. 2. Limit the volume of waste which is stored above ground waiting to be disposed to as low a volume as possible. - Jeff Stevens.		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Non-Credible	Basis:		
Residual Consequence:	Critical	Basis:		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 50,000	Most Likely 100,000	Worst Case 100,000	
Residual Schedule Impact (Mos):	6	12	18	
Impacted Scope of Work:				
Evaluation Comments: Group 1 (Near Term Risk, RHS Need to be Implemented in Near Term, & Near Term Consequences)				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 025 Revision: 00 Last Date Evaluated: 2-Jul-06 Status: Active

Event Title: External Vendor Liability (Outyear Risk / Life Cycle)				
Type: **Risk** External Programmatic		Category: 5 External Vendor Liability (Outyear Risk / Life Cycle)		
Assess. Element: 01.30.16.01.06	Title: TRU Waste			
Responsible Org: -		Contact:		Date Identified: 5-May-06
Statement of Event: Current baseline makes no allowance for any vendor liability issues. As shipper of waste to a vendor facility we have the potential to be liable for remediation costs if a problem is found later when the waste has already been disposed of at the vendor's facility. Such liability could also extend to DOE owned facilities such as WIPP. This risk also covers emergent events such as process upsets or externally generated events at off-site facilities handling our wastes.				
Likelihood:	Unlikely	Basis:		
Consequence / Benefit:	Marginal	Basis:		
Most Significant Cost Impact ($k): 10,000			Most Significant Schedule Impact (Mos): None	
Level:	**Low**	Event Trigger:		
Handling Strategy:	Reduce	Description: 1. Dispose of wastes on-site whenever possible. - Tony Maxted. 2. Ship TRU waste to WIPP as expeditiously as possible so that exposure to externally generated risk is minimized. - Jeff Stevens.		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:	Very Unlikely	Basis:		
Residual Consequence:	Marginal	Basis:		
Residual Risk Level:	**Low**			Residual Impact Basis:
Residual Cost Impact ($K):	Best Case 1,000	Most Likely 5,000	Worst Case 10,000	
Residual Schedule Impact (Mos):	0	0	0	
Impacted Scope of Work:				
Evaluation Comments: Group 3 Risk (Out-year Risk, RHS Need to be Implemented in Near Term, Out-year Consequences)				
Event Comments: Includes following brainstormed Events : BS008 - Disposal Facility to Shut Down due to an Event, BS009 - Permit Withdrawn for WIPP, BS019 -Fixes From State to New Mexico, BS044 - Vendor Issues, BS048 - Less Option for Treatment, BS049 - Commercial Liability, BS050 - Regulatory Risks at Vendor Facilities, BS058 - Radiological Discovery Offsite, BS059 - Vendor Facilities Not Available / Upset Condition, BS060 - Vendor Performance Liability, BS061- Operational Issues at Vendor's Facility - Explosions, Spills, Fires.				

Risk / Opportunity Assessment Form

ID Number: 027 Revision: 00 Last Date Evaluated: 3-Jul-06 Status: Active

Event Title: Non-EM Generators Pay for Waste Management (TRU, Low Level, and Mixed Waste)				
Type: **Opportunity** External Programmatic		Category: 6 Non-EM Generators Pay for Waste Management (TRU, Low Level, and Mixed Waste)		
Assess. Element: 01.30.16.01.06		Title: TRU Waste		
Responsible Org: -			Contact:	Date Identified: 5-May-06
Statement of Event: Current baseline includes the cost of disposal for non-EM wastes. There is an opportunity to reduce the EM lifecycle baseline by getting the non-EM waste generators to pay for the cost of disposal for waste which they generate.				
Likelihood:	Unlikely	Basis: There has been considerable difficulty in getting the non-EM missions to budget appropriately to pay for there own waste disposition.		
Consequence / Benefit:	Exceptional	Basis: Based on estimate of around $8,000k per year for non-EM waste generation.		
Most Significant Cost Impact ($k): 200,000			Most Significant Schedule Impact (Mos):	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Enhance	Description: DOE-SR to develop long term financial and contrcating strategy for funding waste disposition as the EM missions at SRS decline. Such a strategy must necessarily include negotiation with non-EM waste generators to pay for waste disposition. - Doug Hintze,		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:		Basis:		
Residual Consequence:		Basis:		
Residual Risk Level:				Residual Impact Basis:
Residual Cost Impact ($K):	Best Case	Most Likely	Worst Case	
Residual Schedule Impact (Mos):				
Impacted Scope of Work:				
Evaluation Comments:				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 028 Revision: 00 Last Date Evaluated: 3-Jul-06 Status: Active

Event Title: Certification of TRU Waste Generators at SRS				
Type: **Opportunity** External Programmatic	Category: 6 Certification of TRU Waste Generators at SRS			
Assess. Element: 01.30.16.01.06	Title: TRU Waste			
Responsible Org: -		Contact:		Date Identified: 5-May-06
Statement of Event: Certification of generators requires changes to the way generators do work to ensure that waste is packaged at source in compliance with all the necessary certification requirements. For WIPP these are extensive. This level of change within the generator organizations is not likely to be easy to create. For small generators it won't make sense.				
Likelihood:	Unlikely	Basis: Certification of generators requires changes to the way generators do work to ensure that waste is packaged at source in compliance with all the necessary certification requirements. For WIPP these are extensive. This level of change within the generator organizations is not likely to be easy to create. For small generators it won't make sense.		
Consequence / Benefit:	Significant	Basis: $100k per year based on avoidance of the need for Solid Waste to perform RTR, visual exam and remediation. Savings would be redeuced due to implementation costs to generators and additional costs to comply with requirements. Savings would be greater in PBS13 but would be offset by additional costs in generator organizations.		
Most Significant Cost Impact ($k): 2,500			Most Significant Schedule Impact (Mos):	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Enhance	Description: 01. Develop detailed cost analysis to identify possible savings. - Dave Swale		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:		Basis:		
Residual Consequence:		Basis:		
Residual Risk Level:			Residual Impact Basis:	
Residual Cost Impact ($K):	Best Case	Most Likely	Worst Case	
Residual Schedule Impact (Mos):				
Impacted Scope of Work:				
Evaluation Comments:				
Event Comments:				

Risk / Opportunity Assessment Form

ID Number: 029 Revision: 00 Last Date Evaluated: 3-Jul-06 Status: Active

Event Title: Disposal of PAD 1 Pu238 Waste on Site				
Type: **Opportunity** External Programmatic		Category: 6 Disposal of PAD 1 Pu238 Waste on Site		
Assess. Element: 01.30.16.01.06		Title: TRU Waste		
Responsible Org: -			Contact:	Date Identified: 5-May-06
Statement of Event: Current baseline assumes retrieval and disposition to WIPP for the pad 1 wastes which includes a variety of Pu238 wastes which are difficult to handle. This opportunity would be to seek regulatory relief to enable the waste to be disposed on-site.				
Likelihood:	Unlikely	Basis: This has been explored tentatively with SCDHEC and it is a very touchy issue.		
Consequence / Benefit:	Exceptional	Basis: $20,000 based on costs for remediation and repackaging of pad 1 wastes. Significant dose uptake reduction would also accompany success of this opportunity.		
Most Significant Cost Impact ($k): 20,000			Most Significant Schedule Impact (Mos):	
Level:	**Moderate**	Event Trigger:		
Handling Strategy:	Enhance	Description: Continue discussion with SCDHEC and reach agreement on a path forward - Sonny Goldston		
HS Implementation Cost ($K):		Basis:		
HS Implementation Schedule (Mos):		Basis:		
Other Handling Strategies:				
Statement of Residual Risk:				
Residual Likelihood:		Basis:		
Residual Consequence:		Basis:		
Residual Risk Level:				Residual Impact Basis:
Residual Cost Impact ($K):	Best Case	Most Likely	Worst Case	
Residual Schedule Impact (Mos):				
Impacted Scope of Work:				
Evaluation Comments:				
Event Comments:				

APPENDIX I - RISK AND OPPORTUNITY ANALYSIS RESULTS

I-1 Attendees

Name	Organization	04/26	05/05	05/11	06/12
Herbert (Bert) Crapse	DOE, TRU Waste Program Manager	X	X	X	X
Doug Hintze	DOE, Federal Project Director	X	X	X	X
Howard Pope	DOE, Low Level Waste Program Manager				
Jonathan (Mike) Simmons	DOE, Mixed Waste Program Manager	X			
Stephen Mackmull	DOE, Waste Minimization Program Manager				
Tony Maxted	EnergySolutions, WMAP	X	X	X	X
Kenneth Harrawood	EnergySolutions, WMAP	X	X		
James Harris	EnergySolutions, WMAP			X	
William Morrison	EnergySolutions, WMAP			X	
Jeffrey Stevens	EnergySolutions, WMAP			X	
David Swale	EnergySolutions, WMAP	X			X
Luke Reid	WSRC, WMAP	X	X	X	X
Lee Fox	WSRC, WMAP	X	X		
Holt Moran	WSRC, WMAP	X	X		
Thomas Thome	WSRC, WMAP	X	X	X	
Alexia Delley	WSRC, Systems Engineering	X			
Subhash Sethi	WSRC, Systems Engineering	X	X	X	X
Daniel Racki	WSRC, Systems Engineering	X	X	X	X
Cathy Flavin	WSRC		X		

APPENDIX J - CONTINGENCY ANALYSIS SUMMARY

Each risk event is divided into two distributions representing the consequence cost impact (as a triangular distribution based on the estimated best, most likely and worst impact) and the likelihood of occurrence (represented by a uniform distribution. The likelihood distributions used are given in Table B-1. For each trial, Crystal Ball selects a random number in the range from 0-1. If this number is less than or equal to the likelihood value distribution value, the risk is considered to have occurred, and the consequence cost impact value selected is added to the risk cost impact forecast.

Crystal Ball runs 10,000 trials for each of the consequence and likelihood values, which determines a total cost risk distribution. The intent of the cost contingency is to identify a sufficient amount of funding for the activity to ensure, at a selected confidence level, that the activity is adequately funded and can succeed.

Following six risks contributed to Out-year / Life Cycle Total Contingency Calculation:

Risk No	Risk Title
001	No Path to Disposal (Outyear Risk / Life Cycle)
003	Poor Waste Forecasts (Volume, Ci, Category) - Outyear Risk / Life Cycle
005	SRS Funding Impacts Outside of this PBS (Outyear Risk / Life Cycle)
007	Closure of Solid Waste Facilities to Meet End State (Outyear Risk / Life Cycle)
011	No Defined Certification Program for New TRU Waste Post FY 2012 (Outyear Risk / Life Cycle)
025	External Vendor Liability (Outyear Risk / Life Cycle)

PBS0013 Out-Year / Life Cycle Risks Total Contingency

Percentiles:

Percentile	$
0%	186,151.37
10%	303,895.59
20%	356,409.52
30%	394,096.72
40%	423,549.82
50%	449,239.77
60%	475,254.04
70%	505,557.60
80%	545,292.81
90%	590,545.89
100%	709,187.74

End of Forecast

Forecast: Near Term (Total) Cost Contingency

Percentiles:	Forecast Values ($)
0%	18,585.72
10%	278,444.19
20%	404,723.13
30%	472,889.10
40%	524,118.55
50%	571,533.63
60%	614,557.93
70%	659,115.98
80%	713,570.32
90%	784,661.16
100%	1,131,651.65

End of Forecasts

Spearman Ranking – Near Term Risks

Risk	Title	Spearman Rank Correlation	Spearman Rank	Mean Contribution ($K)	Mean Rank
R2	Waste Mischaracterized	--	--	2,771	10
R4	Process / Operating Envelope Upsets	0.0641	10	6,400	7
R6	Regulatory Impacts	--	--	2,415	11
R8	Remediation Performance Does Not Meet Execution Schedule	0.0746	7	9,081	6
R9	High Activity TRU Waste Processing Throughput Does Not Meet Execution Schedule	0.5663	2	80,765	2
R10	Remote-Handled TRU Waste	0.0655	9	1,306	12
R12	Fragmented Safety Basis	--	--	322	14
R13	Vent and Purge Operations Do Not Meet Throughput Requirements.	0.0851	6	438	13
R14	Culvert Retrieval Operations Do Not Meet Throughput Requirements	--	--	3,998	9
R15	Technical Performance of NDA/NDE/HSG Does Not Meet Requirements	0.0684	8	5,348	8
R16	Availability of a Certified Large Box Characterization System. Cannot build. Rewrite High Activity	0.3095	4	21,845	4
R17	Availability of TRUPACT III Shipping Container	0.5957	1	86,593	1
R18	Safety Analysis (DSA) Is Not All Encompassing	0.1062	5	10,648	5
R19	CCP Resources Are Redeployed due to DOE Complex Priorities. Combine it w/GFSI ?? Is it 0026?	0.3545	3	27,386	3
R20	High Wattage Drums That Cannot be Shipped	--	--		
R21	External Events Cause Infrastructure Requirements to Exceed Budget	--	--	--	--
R22	Security Acts or Acts of Terrorism	--	--	--	--
R23	Transportation Issues	--	--	495	13
R24	External Weather & Fire Events	--	--	--	--