Title:

BUILD ROCKY FLATS ENVIRONMENTAL
TECHNOLOGY SITE PRODUCTION PROTOTYPE
MODULAR TREATMENT SYSTEM FOR STAND
ALONE CORE CAPABILITY FOR RESIDUE
UNPACK, SORT, ASSAY, REPACK

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**Build RFETS Production Prototype
Modular Treatment System for
Stand Alone Core Capability (SACC)
For Residue Unpack, Sort, Assay, Repack**

Project Basis Document

January 1997

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**Build RFETS Production Prototype
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Project Basis Document *(FY-96 Deliverable for 94-1 M26L Task 2)*

January 1997

What Is SACC?

The SACC is a portable and modular suit of equipment that up-front and near-term accomplishes a sorting process that documents and removes RFETS residue and waste from site inventory.

**SACC Concept
Utilizes Modular
Project Data To
Augment And
Expedite RFETS
Residue
Elimination
Project
Rebaselining.**

In FY 1995, using Los Alamos K73K funding, at the request of the Department of Energy/Transition and Management (DOE/EM-60), personnel from Rocky Flats Environmental Technology Site (RFETS), Savannah River Site (SRS), and Los Alamos National Laboratory (LANL) proved the feasibility of using flexible portable modular systems to stabilize Category 1 quantities of special nuclear materials (SNM) such as plutonium residues. The use of portable modular systems offers the flexibility to solve problems involving SNM without new facilities or restarting existing facilities and it offers the opportunity to reuse equipment at more than one DOE site. See LA-CP-95-296

In FY 1996, the 94-1 M26L Task 1 project deliverable was the conceptual design of a modular skid-mounted unpack, sort, assay, and repack core capability for building 707 at RFETS. See LA-xx-96-xxx

This document is the FY 96, 94-1 M26L Task 2 project deliverable. It resulted from the change in scope identified in the Residue Elimination Project Rebaselining efforts. See RFFO memo MSD:GIN:05537 (HF Dalton to G Voorheis).

This basis document is offered as a opportunity for Kaiser Hill to minimize lost schedule progress incentives due to the new safeguards and security guidance that effects approximately 40% of the residue inventory and requires different treatment options. It allows Los Alamos to field a working production SACC prototype. And, it allows DOE the flexibility to minimize the impact of the rebaselining on the RFETS closure schedule.

What Is A Modular System?

A modular system is a system that is broken into functional units (modules) that are individually packaged. Connections between modules are standardized so that modules can be reorganized or replaced with modules having other functions to accommodate changing needs with minimum system changes and downtime. Ideally, modules are small enough to be portable, and thus the entire system is portable.

RFETS residues and wastes are particularly suited to modular approaches. The advantages of modular systems are accentuated when there are

- multiple problems requiring similar functions.
- unknown robustness of fixed facility authorization basis.
- changing goals and guidelines.
- limited duration activities that do not justify new buildings or upgrades to existing buildings.
- similar problems at multiple sites.

Discussion Of The Proposed SACC Project

The FY 95 feasibility study showed that modular systems ranging from stand-alone systems to skid-mounted equipment installed in an existing building can meet the rules, regulations, and requirements for handling significant quantities of SNM, and that modular systems can have cost and schedule advantages over traditional approaches to handling SNM.

The existing baseline utilizes processes sequentially or concurrently located in RFETS Buildings 371 and 707. Each processes contains an integral station to open residue cans or drums and introduce materials into the processes. These baseline activities can take no near-term credit for reducing the amount of the RFETS residue or TRU waste in inventory until the particular process is authorized and operational. The SACC is an up-front sorting process solution that takes credit near-term for reduction of site inventory.

With the rebaselining activity because of new safeguards and security guidelines, the residue processing system projects in progress may change. Process changes provide both Kaiser Hill and DOE with unacceptable schedule and funding delays. SACC

augments the rebaselining project by demonstrating early success in reducing inventory.

The SACC is a portable fully authorized stand-alone modular process system that would be attached to an existing building within the protected area at RFETS to unpack, sort, assay and repack all TRU wastes and residues at RFETS derived from legacy storage cans or drums.

SACC flexibility would allow residue and waste materials that are able to be shipped after sorting, to be routed to an authorized treatment processes on site, repackaged for treatment off site, repackaged for transport and disposal, or repackaged for staging for future processes. The proposed system avoids duplication of unpacking, sorting and assaying functions, and allows packaging for other options, such as off site treatment. Most importantly, it avoids the removal, on-site transportation, and reintroduction of materials into any existing RFETS building. The current authorization strategy imbeds the various unpack, assay, sort, and repack functions within the various processes. It is easily foreseen that SACC can reduce the residue and waste inventory by safely shipping material off-site before any on-site processes are authorized or operational. Thus, TRU can be identified, certified, and removed. Also the type and volume of any residue or waste materials remaining on-site would be precisely documented.

SACC Design Approach

The SACC design project would expand previous design data from the FY 95 and 96, K73 and M26L projects to pursue a purchasing specification for a group of portable modular equipment that will allow a site to open, assay, sort, and repack legacy residues and wastes.

The approach ensures that the technical design requirements, satisfy the rules and regulations governing operation of facilities handling plutonium are identified and satisfied, and that the project costs, schedule, and risks are minimized. The system is designed so that the fabrication, authorization basis, operational procedures, and training can be accomplished outside of the RFETS protected area and concurrently with the technical design and fabrication. It will remove from inventory the sorted classes of legacy residues and wastes for which treatment and disposal techniques are already proven.

**How Would The
SACC Project Be
Implemented?**

This project will be a team effort by Los Alamos, RFETS, and Savannah River. Los Alamos will lead the design efforts, RFETS will lead the Procurement Effort and Savannah River will lead the modular system authorization.

It will develop the final design, purchase specification, purchase request (PR), and bid package for SACC. It will structure the purchase request for evaluation as to technical excellence and for a firm-fixed-price bidding process. It will evaluate and qualify vendors, set prebid conferences, request and evaluate bids, and award a fabrication contract. Lastly it will set vendor penalties and incentives as part of the purchase order.

Los Alamos will follow the design through fabrication and operational readiness of the SACC.

**Advantages of
SACC**

The following are programmatic advantages of SACC at RFETS to expedite the Residue Elimination Project Rebaselining:

- minimize or eliminate construction in a radioactive materials management area lowers the fabrication cost and reduces the installation schedule.
 - flexibility in routing materials to on-site RFETS processes or to staging for future processing, or to off-site processing and disposal to quickly demonstrate inventory reduction.
 - ability to cold test and train on the system outside a radioactive materials management area.
 - ability to share the SACC between multiple processes.
 - portability and the ability to reuse equipment at different sites.
 - solve handling SNM without new buildings or restarting aging facilities.
 - working authorization basis for SACC is independent from RFETS or other site.
 - Kaiser Hill to minimize lost schedule progress incentives.
 - Los Alamos to field a working production SACC prototype.
 - RFFO to minimize the impact of the rebaselining on RFETS closure schedule.
 - immediately impacts RFETS material inventory and documentation quality.
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