



Department of Energy

Washington, DC 20585

AUG 24 1998

The Honorable John T. Conway
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW Suite 700
Washington, D.C. 20004

Dear Mr. Chairman:

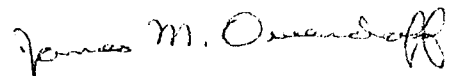
We have reviewed your letter dated July 10, 1998, and enclosed a report in response to your concerns about the americium (Am) - curium (Cm) stabilization program. As was discussed during the briefing with your staff on June 10-12, 1998, Savannah River Operations Office (SR) and Westinghouse Savannah River Company (WSRC) staff identified these same issues and are diligently working towards resolution.

In the May 7, 1998, testimony to the Board, the Department of Energy summarized its assessments and recommendations for continuing development on the Cylindrical Induction Melter (CIM) and in parallel performing analysis of other technologies, including in-can vitrification and conversion to oxide. Developmental work on the CIM with concurrent limited development of alternatives were scheduled to continue through September 1998 when SR would authorize Critical Decision (CD)-1, to begin the project re-baseline using the CIM, or decide to aggressively pursue Research and Development (R&D) of an alternate technology.

The progress toward vitrification using the CIM is promising. Development testing of the oxalate feed and transfer system was successfully completed on July 31, 1998. Fabrication of the pilot prototype system will be completed by the end of August 1998. The project team has completed characterization of the 3-inch diameter CIM and has consistently demonstrated repetitive melting and pouring operations using the oxalate precipitate feed. The team will continue to refine the melting process using the 3-inch CIM through September in support of the CD-1 project decision. Additionally, a CIM sizing evaluation is in progress through September to analyze the need for a larger CIM. If deemed necessary, confirmatory testing of a 5-inch CIM will be completed by December in lieu of September, as was previously committed to you. This change may delay the January 31, 1999, decision for CD-2, start of definitive design, by at least eight weeks. Additionally, WSRC will continue to pursue some level of R&D on in-can vitrification and in-can oxide through next fiscal year as backup alternatives. The R&D schedule and alternative development schedules are provided as attachments to the report.

The Department believes that a September 1998, decision to rebaseline the project remains possible. We realize that delays as a result of continued R&D and project management improvements may be warranted and we will keep the Board and Staff informed on our progress. SRS continues to establish the fundamental structure and systems engineering approach that was lacking in the original project. This includes establishing the criteria and analyzing the risks associated with the various key decisions, and integrating these activities with the developmental schedule. The Department is committed to developing and completing a safe, effective, and timely program to stabilize the Am/Cm solutions in F-Canyon. We look forward to working with you and your staff as we make progress on this SRS 94-1 milestone.

Sincerely,

A handwritten signature in black ink that reads "James M. Owendoff". The signature is written in a cursive style with a large, stylized initial "J".

James M. Owendoff
Acting Assistant Secretary for
Environmental Management

Enclosure

Issue Report Americium Curium Stabilization

This report addresses the issues raised in the Defense Nuclear Facilities Safety Board (DNFSB) staff report dated June 23, 1998, concerning americium (Am) - curium (Cm) stabilization. The Savannah River Operations Office (SR) will continue to keep the DNFSB staff informed of the progress toward stabilization and disposition of the Am/Cm solution stored in F-Canyon tank 17.1, including timely transmittal of documents.

- “Stabilization does not appear to be proceeding as an urgent, fast-track activity.”

SR agrees that the stabilization activities, specifically Research and Development (R&D), are taking longer than expected. However, prior to restart of project design, it is necessary and prudent to assure sufficient R&D to determine the technical feasibility of this process and to ensure sufficient up-front planning in order to establish a sound technical project baseline. Westinghouse Savannah River Company (WSRC) has made significant improvements in the approach and structure of the R&D program. Management focus has increased with the assignment of Mr. James French as the Program Manager, Mr. William Shingler as the new Program Integration Manager and Mr. Michael Swain as the new Development Manager. Additionally, the project team is using the systems engineering approach to determine the acceptance criteria and risks associated with critical decisions including R&D activities. SR believes that upon completion of R&D, the urgency and “fast-track” nature of this project will become more visible.

- “A detailed research and development plan and corresponding schedule need to be developed to support restarting of system design.”

SR recognized that WSRC did not establish clearly defined criteria for Critical Decision (CD)-1 authorization. Subsequently, the last revision to the R&D plan and schedule were not adequate. Additionally, it was recognized that the alternative technologies were not adequately addressed in the development plan. The continued progress in development of the Cylindrical Induction Melter (CIM) led us to conclude that it was prudent to continue with CIM testing to characterize the melter and identify melter operational issues to minimize subsequent schedule impacts. In parallel to CIM developmental activities, WSRC has been aggressively establishing the fundamental structure and systems engineering approach that was lacking in the original project. WSRC is preparing a program management plan that will provide a structured set of predetermined criteria to evaluate options and determine the criteria for CD-1 and 2 authorizations, as well as subsequent key milestones and decisions. The R&D plan will be revised to integrate the two documents and specify those activities necessary to meet the established criteria. Until the structure and appropriate criteria are established, Phase III of the melter testing can not and will not be declared complete. As discussed with the DNFSB staff, it is critical to establish the clear expectations not only with regard to R&D but also for the overall management of the program.

Integration of the CIM R&D, the alternatives testing, system testing criteria, system design criteria and start-up test plan will be as outlined in the program management plan. This plan will outline the necessary actions and logic to achieve success from R&D and stabilization through disposition of the Am/Cm material. The initial plan was issued on July 31, 1998, as an outline, with the intent to expand the document pending completion of additional analysis. WSRC intends to issue a revision to the plan during fourth quarter of fiscal year 1998 to support CD-1 and 2, with additional periodic revisions to support other critical decisions.

The latest WSRC schedules lead to a September 30, 1998, CD-1 request, however, the Department of Energy (DOE) questions the validity of this date. The date for CD-2, now estimated for late March 1999, is also in question. The fundamental structure and systems engineering approach are in the developmental phases. Until the criteria and risks are established for CD-1 and CD-2 authorization and the activities integrated with the developmental schedule, the critical decision dates continue to be questioned. It is prudent to spend the resources in developing the sound foundation, using the systems engineering approach, prior to proceeding with the project. The schedule for these activities is provided in Attachment 1.

- “The Department of Energy (DOE) needs to consider ways of improving project management to ensure that material stabilization is expedited.”

SR agrees that major improvements are needed in project management. This issue was clearly addressed in the WSRC award fee letter dated June 12, 1998. The letter specified (1) assuring early and sufficient technical definition, safety analysis, and research and development (including developmental testing) to support design prior to design finalization; (2) assuring appropriate design finalization and verification to enable initiation of construction; and (3) assuring use of “best in class” project management teams. The Savannah River Site (SRS) is committed toward improving project management at the site. This includes incorporating lessons learned from projects such as Am/Cm to (1) ensure well planned and appropriated sequenced work with good project baselines; (2) designate clear roles, responsibilities, and authorities; (3) integrate decision making and issue management; (4) integrated safety analysis, R&D and design, and (5) establish special requirements for fast-track projects.

Increased management focus has been established for both SR and WSRC. SR has established a dedicated Am/Cm program manager to oversee the project and program through disposition of this and similar Am and Cm bearing materials. SR also established oversight of project management as a responsibility of the SR Executive Technical Management Board (ETMB), initiated independent reviews of the Am/Cm project, and established a Project Evaluation Board to independently assess projects and advise the ETMB on project critical decisions. Special requirements will be in place for fast-track projects including risk definition, commitment to parallel paths when appropriate, additional contingency, quality staffing and leadership and additional project reviews. WSRC also established changes in project management. WSRC recently assigned Mr. James French as the Program Manager, Mr. Shingler as the new Program Integration Manager and Mr. Mike Swain as the new Development Manager. The project

decision making process has been strengthened significantly with increased emphasis on the systems engineering approach to determine and establish the acceptance criteria and risks associated with critical decisions including R&D activities. These changes have strengthened the project and have incorporated the Integrated Safety Management Principles to Project Management.

- “To ensure timely stabilization of this material, DOE needs to continue to pursue backup alternatives to the favored stabilization method.”

As stated in the transmittal letter of the Independent Review Team interim report, it is important to pursue more than one alternative. SR is aware that during the period of the DNFSB staff visit, the activities needed to pursue the alternatives were still being evaluated and scoped. Since the visit, WSRC has developed schedules and initiated studies to support the alternative analysis (see Attachment 2). This information is being integrated with the CD-1 project restart decision this fall and will be outlined in the program plan.

- “Decisions that might affect the stabilization and subsequent storage of this material need to be resolved quickly so that the project is not further delayed.”

DOE will continue to pursue those decisions and commitments required, providing a well-defined disposition path for the Am/Cm material. SR is well aware of the impacts of a “deferred decision” and continues to pursue avenues to ensure success. SR identified this issue over a year ago and included several actions in its strategic plan dated November 1997, for not only the tank 17.1 Am/Cm solution but also other Am and Cm bearing targets stored at SRS. Although the disposition of the additional Am and Cm bearing targets probably will not effect the tank 17.1 Am/Cm stabilization schedule, there is a potential impact to the F-Canyon Phased Canyon Strategy schedule. Examples of activities concerning disposition of these materials that were included in the strategic plan are as follows:

- (1) Ensure all Am/Cm material is included in the complex wide Processing Needs Assessment for disposition. This assessment identified dissolution and vitrification of the Mark-18 targets through F-Canyon as a preferred method and form for shipment to Oak Ridge National Laboratory (ORNL).
- (2) Integrate the reasonable alternatives in the National Environmental Policy Act documents. All reasonable alternatives for the Am and Cm bearing targets, including those proposed in the PNA were or will be addressed between the Spent Nuclear Fuel and Interim Management of Nuclear Materials (IMNM) Environmental Impact Statements (EISs). Note that the stabilization and disposition of the tank 17.1 solution was clearly identified in the IMNM EIS.
- (3) Finalize agreement for shipment of Am/Cm glass to ORNL. SR continues with discussions between the Oak Ridge Operations Office (OR), and the associated Headquarters’ (HQ)

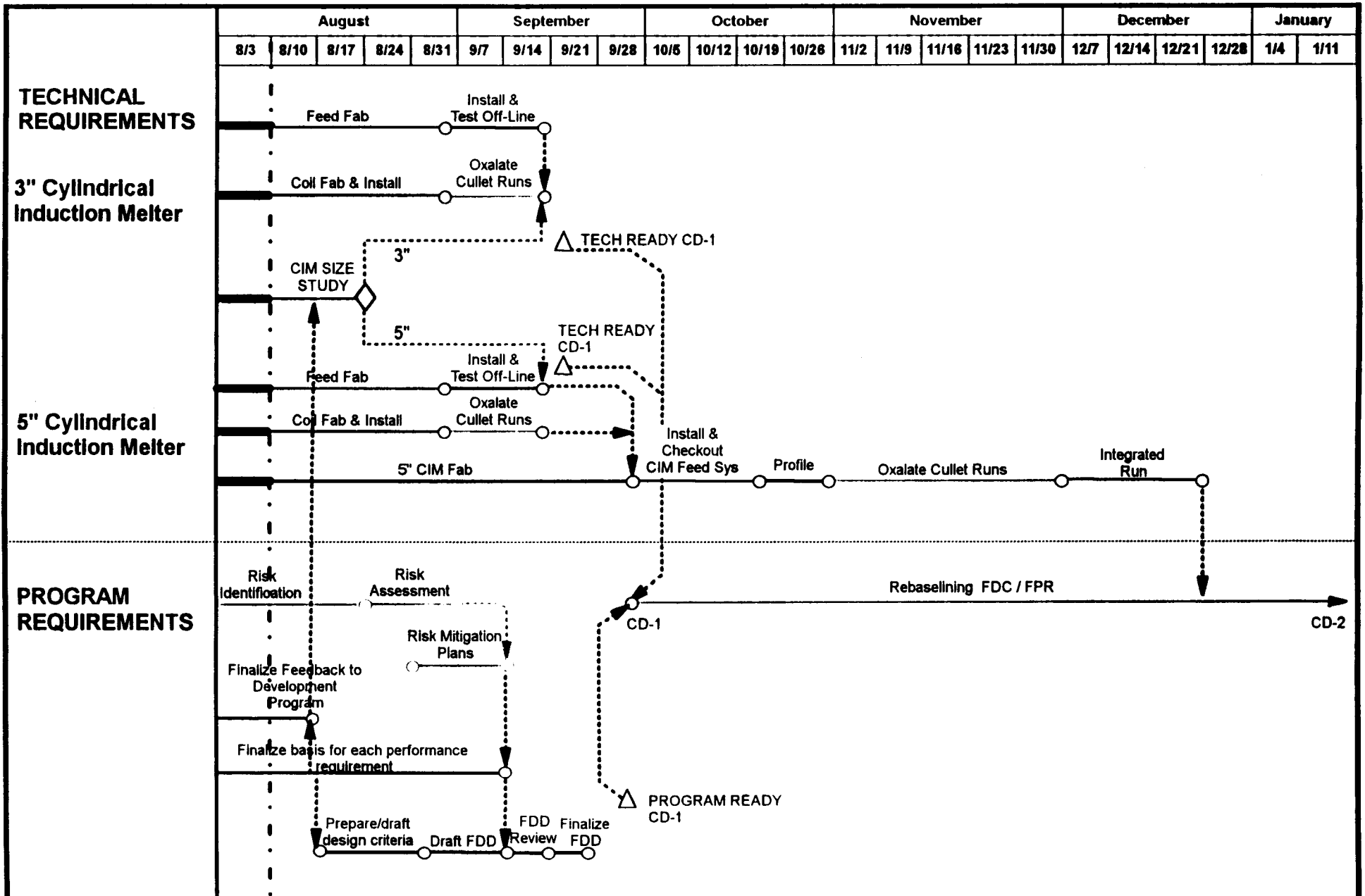
Offices concerning expanded storage at ORNL to receive the tank 17.1 product and other Am and Cm bearing targets. OR continues to be receptive in taking the product, therefore a Memorandum of Understanding will be established in early fiscal year 1999 between the two sites and HQ to ensure adequate storage is available for this and similar Am and Cm materials.

- “Because of the delays in the stabilization of this material, DOE needs to review the solution storage conditions to determine whether additional risk reduction actions are necessary.”

As noted in the report, SRS has taken actions to reduce the risk with storage of the Am/Cm solution and compensate for additional storage time. The total risk of solution storage has been reduced significantly from 53.7 millirem per year to 2.27 millirem per year, maximum risk to the off-site individual. This reduction, as analyzed in DPSTSA-200-10, Supp-4, Addendum 2, Revision 1, “F-Canyon Safety Analysis” dated July 1994, in a comparison of the risks before and after isolation of the tank. This basis for the risk reduction was presented during the March 12, 1998, videoconference with the DNFSB. The Department will continue to monitor storage of the Am/Cm solution and continue to evaluate additional actions to further reduce risk. A further study titled “Storage of Am/Cm solution in F-Canyon” has been commissioned to re-evaluate the solution storage condition and will be completed by August 31, 1998.

Activities Necessary for Critical Decision

ATTACHMENT 1



Data Date

Am/Cm Alternatives Development (In-Can Oxide & Vitrification)

ATTACHMENT 2

