

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

March 20, 1998

MEMORANDUM FOR: G. W. Cunningham, Technical Director

FROM: J. Kent Fortenberry / Joe Sanders

SUBJECT: SRS Report for Week Ending March 20, 1998

ITP Alternatives - DOE-SR has provided a proposed plan to DOE-HQ/EM for evaluating high-level waste salt processing alternatives. This plan fundamentally involves a WSRC Systems Engineering Team to develop and evaluate salt disposition alternatives, and a DOE-HQ/EM Independent Project Evaluation Team to provide independent oversight and make an independent recommendation of the best alternative. The final recommendation of the best alternative for salt disposition is expected to be made and approved within 6-9 months. The implementation of this final recommendation is then expected to require one to six years.

In addition to a team leader, the WSRC Systems Engineering Team is to include WSRC personnel in the area of operations, process engineering, safety, science, systems engineering, and waste processing. Three science / chemical processing members from outside WSRC will also be included. The WSRC Systems Engineering Team members have been selected and the names have been provided to DOE-HQ/EM for concurrence. An overwhelming factor in the development of the ITP process was safety. DNFSB staff have begun scrutinizing the proposed WSRC team for strength in this area. In addition, the charter for this WSRC Systems Engineering Team appropriately requires that team members be "objective, open minded, and not predisposed to a single technology." This attribute will also need to be carefully considered in assessing the leader and members of the proposed WSRC team.

Members of the DOE-HQ/EM Independent Project Evaluation Team have not yet been identified. However, similar scrutiny should also be applied in their selection.

Americium-Curium Stabilization - WSRC presented plans for further development of Am-Cm vitrification technology during a video briefing with the Board. The previous 'bushing melter' development effort began with a fairly well established glass formulation, but technical difficulties arose primarily in the support systems required to produce that glass (i.e., feed system, offgas system, pour system, and the melter itself). Some of these technical difficulties drove changes in the original glass formulation. The 'bushing melter' design has now been abandoned, and development work has begun with a cylindrical induction melter (CIM). Given the nature of the problems encountered previously, one would expect that a significant portion of the available resources would be applied toward the interface problems associated with feeding, offgas, etc. This does not currently appear to be the case. In addition, WSRC will not be updating the Am-Cm technology development program plan for resolving technical issues until the middle of May 1998.

In the past, there has also not been significant effort in evaluating alternative technologies. However, WSRC is presently considering R&D activities applicable to Am-Cm stabilization such as 'in-can' melting of low temperature glass and a Russian silica gel process.