FROM 8-27-98
UPDATED OVERVIEW DOCUMENT

Attachment III

DOCUMENTS FROM THE ALTERNATE TECHNOLOGY PROGRAM

The following table provides information regarding the relationship of several technical documents to the Savannah River Site Alternate Technology Program. These documents will be supplied to the NRC during late FY98 and FY99..

Title	Relationship to SRS ATP	Date Available
Evaluation of Codisposal Viability for Al-Clad DOE Owned Spent Fuel: Phase II Codisposal ✓ Rick has this one	This is a technical report to evaluate the reactivity of the direct-disposed Al SNF form in degraded condition in a co-disposal waste package. The purpose was to demonstrate that the 10CFR60 requirements for criticality are met for this disposal configuration. The study considers the use of poisons in the SNF canisters. The study also identifies potential poisons that will be required to meet the criticality requirements. ✓	Sent to Rick Weller on 31 Jul 98 11/2/98 copy being made by Repro for CAG.
Criticality Evaluation of DOE SNF Codisposal Canister with Melt-Dilute Form ✓ → I have copy	This is a technical report to evaluate the reactivity of the melt-dilute Al SNF form within an intact (non-degraded) DOE SNF co-disposal canister. The purpose was to demonstrate that the 10CFR60 requirements for criticality are met for this disposal configuration. The study has been conducted parametrically to provide guidance with respect to enrichment, and fill volume for a selected melt-dilute form composition.	Sent to Rick Weller on 31 Jul 98 CAG has copy
Thermal Analysis of Repository Codisposal Waste Package Containing Aluminum SNF ✓ I have copy	This technical report details the development of the finite element thermal model of the co-disposal waste package. A parametric analysis was conducted considering decay time, bounding and nominal heat source for the various heat transfer modes. The temperature limits predicted by the models were reconciled with the repository disposability interface specification (DIS).	Sent to Rick Weller on 31 Jul 98 CAG has copy
Disposability Assessment of Aluminum SNF Forms	This is a summary of the aluminum SNF form assessment. The report shows the conformance of the direct/co-disposal form and the melt-dilute form (in regard) to the attributes of the Disposability Interface Specification (DIS). It either provides the technical bases for the assessment or provides the appropriate technical reference. It also identifies the DIS attributes for which additional clarification may be required and/or work may have to be performed to show conformance.	9/98 Final 10/27/98 CAG has copy of this report
Technical Bases for the Functional Performance Requirements for the Treatment and Storage Facility	This report details the technical bases for the functional performance requirements for the TSF facility. It also serves as a summary/update of the technology development effort since the October '97 status report. The report summarizes the bench scale testing of the off-gas system and the waste stream disposition options.	9/98

Title	Relationship to SRS ATP	Date Available
Preliminary Report on Dissolution Rates of Al SNF	This technical report provides preliminary data on dissolution rate for aluminum SNF. The dissolution rates were measured using a flow through dissolution rate tests. It also discusses the performance of aluminum SNF materials under various test conditions and uses this information to develop a mechanistic understanding of the dissolution rate process for the heterogeneous microstructures typical in aluminum SNF.	10/98 sent 10/29/98 CAG has copy of this
Effect of Ternary Constituents on Melt-Dilute Process and Product Form (October '98)	This report documents the analysis of the effect of ternary constituents present in irradiated SNF. It details the effect the ternary constituents have on the melt-dilute process parameters and also the interaction of these constituents and the resultant compound formation.	10/98
Analysis of Creep Deformation of Aluminum SNF	This technical report details a parametric analysis of creep deformation using the finite element modeling approach for the direct/codisposal configuration. The report considers creep for a range of temperatures, grain sizes for extended storage periods.	8/98
ASTM Standard Guide for Testing of Aluminum Based Spent Nuclear Fuel (Draft)	This draft document has been submitted to the ASTM C26.10 (ASTM C26.13) and will be presented to the committee for ballot in late 1998. The document presents the approach to the evaluation of aluminum SNF form performance in repository environments.	9/98

The following documents will be completed in FY99. The scheduled dates of availability of the reports for NRC review are provided.

- Thermal Analysis of Melt/Dilute SNF Form in Codisposal Package(January '99)
- Thermal Analysis of Melt/Dilute SNF Form with Hydrogeological Media Surrounding Waste Package (April '99)
- Preliminary report on corrosion performance of melt-dilute SNF form in interim storage. (August '99)
- Evaluation of Criticality for Melt/Dilute SNF Form: Phase2, Degraded Canister in Waste Package (August '99)
- Aluminum SNF Form Disposability assessment report (October '99)