DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 5, 1996

MEMORANDUM: G. W. Cunningham, Technical Director
COPIES: Board Members
FROM: D. J. Wille
SUBJECT: Hanford Site - Status of Spent Nuclear Fuel Project

1. **Purpose**

This trip report documents an on-site review of the status of the Spent Nuclear Fuel Project (SNFP), conducted by Defense Nuclear Facilities Safety Board (Board) staff member Donald J. Wille on November 20-21, 1996. A meeting with the new contractor management team was held on November 20, and a year-end project briefing to Department of Energy (DOE) Headquarters was observed on November 21, 1996.

2. **Summary**

Duke Engineering and Services Hanford (DESH) has established a Technical Baseline Validation Team to validate and verify the technical and safety basis of the SNFP, with emphasis on the subprojects involving new facilities. The team members are independent of the Hanford site and include representatives of the French experience with fuel conditioning similar to that proposed for this project. The final report for the team's month-long effort is due on December 6, 1996, and will be reviewed by the Board staff. Fluor Daniel Hanford (FDH) plans to revise the site-wide configuration management program to ensure effective integration of the technical baseline information into project documents. The staff plans to review the revised program and its implementation in the SNFP.

FDH is currently developing an integrated project schedule, which will be activity-based and resource-loaded. This schedule is expected to be issued on December 31, 1996, and should include the effects of significant budget impacts due to emerging scope changes and sitewide overhead adjustments. The DOE-Richland Field Office (DOE-RL) is expected to review the proposed budget and schedule by mid-January 1997 and identify any impacts to the commitments made in the Implementation Plan for Board Recommendation 94-1. The staff is concerned that the delays in the schedule already encountered, the emerging work scope, and the extensive training and startup activities necessary in 1997 will have an adverse impact on the 94-1 schedule commitments.

3. **Background**

The SNFP will provide stabilization of the N-Reactor spent fuel and interim storage of the fuel away from the Columbia River in a new Canister Storage Building. Effective

October 1, 1996, the new site management and integration contractor is FDH, and the subcontractor for the SNFP is DESH.

4. **Discussion**

The following issues may have an impact on the ability of the SNFP to meet the commitments in the Implementation Plan for Recommendation 94-1:

- ***Technical Baseline***—In October 1996, DESH identified a concern that a valid integrated technical baseline did not exist for the entire project. DESH formed the Technical Baseline Validation Team with independent members who were to validate and verify the technical and safety basis of the SNFP, with emphasis on the subprojects involving new facilities. The review effort began on October 30, 1996, and the team's final report is expected to be completed on December 6, 1996. Preliminary indications reported to the staff were that no significant problems have been identified, although certain improvements in project activities were to be recommended. The staff will review the final report when issued.

  Based on their initial experience with the SNFP, FDH and DESH management indicated that improvements to configuration management practices were planned to ensure a consistent technical baseline throughout the project documents. FDH is reviewing and expects to revise the site-wide configuration management program to focus on an effective process without excessive paper. The Board staff plans to review the revised program and its implementation in the project.

- ***Project Schedule***—FDH indicated during the briefing that the schedule and budget commitments in the new management and integration contract were subject to adjustment for pre-existing conditions not identified at the start of the contract, including lack of an integrated technical baseline and an emerging work scope. Open technical issues at that time included resolution of the tornado design criteria and the pressure management approach to potential hydrogen generation in a multi-canister overpack (MCO). The current approach to the first issue is to design for a tornado wind loading, but exclude tornado missiles because of a low probability of occurrence. The current approach to the second issue is to provide each MCO with pressure relief at 150 pounds per square inch guage (psig) through high-efficiency particulate air (HEPA) filters to the storage tube in which the MCO is located. The storage tube will have pressure relief at 76 psig through HEPA filters to the Canister Storage Building. Both the MCOs and storage tubes will contain inert gas. Fuel conditioning is expected to reduce, and possibly eliminate, the potential for excessive pressure buildup in the MCOs. These items are currently being reviewed by the staff.

  The SNFP replanning effort is expected to be completed by December 31, 1996, with the integration of all subprojects, including activities and required resources. This effort will include safety-based impacts and budget impacts known at this time. FDH indicated that there is a budget challenge of a potential $40 million increase above a target of $175 million (October 1, 1996). These

budget issues are being discussed with DOE-RL as they are being identified and could affect the project schedule. In addition to the budget issues, a 3-month delay in construction of the Canister Storage Building has occurred to accommodate the tornado wind design, although considerable effort has been made to reduce the impact of those design changes on the completion date of construction. DOE-RL expects to complete in mid-January 1997 its review of the proposed budget and schedule to determine the project's ability to meet the commitments made in the Implementation Plan for Recommendation 94-1.

5. **Future Staff Actions**

The staff will review selected project documents related to the issues identified in the above discussion.