DEFENSE NUCLEAR FACILITIES SAFETY BOARD

June 10, 1996

MEMORANDUM FOR:	G.W. Cunningham, Technical Director
COPIES:	Board Members
FROM:	Donald J. Wille
SUBJECT:	Hanford Site - Spent Nuclear Fuel Project - Operational Readiness Review Planning and Vulnerability Assessment - Trip Report (May 29-30, 1996)

1. **Purpose:** This report documents a review of the Spent Nuclear Fuel Project (SNFP) at the Hanford Site by Defense Nuclear Facilities Safety Board's (Board) technical staff, Donald J. Wille and Lisa Stiles on May 29-30, 1996. The meetings covered project status, planning for Operational Readiness Reviews (ORR) for the SNFP facilities, and discussion of the Vulnerability Assessment performed for the Canister Storage Building (CSB).

2. **Summary:** The SNFP is currently on schedule to meet the December 30, 1997, completion date for facilities needed to stabilize and store N-Reactor spent fuel. This aggressive schedule for the various subprojects has led to a phased approach for design, construction, and readiness for operation. While construction is being completed next year, the project focus will shift to the staffing and training of approximately 150 operators. In addition, engineering and maintenance personnel will be selected and trained to support operations. Westinghouse Hanford Company's (WHC) plans for facilities ORRs is based on completion of the contractor facilities ORRs by November 30, 1997. This schedule permits completion of Department of Energy (DOE) ORRs and authorization for operation to be issued by the end of December 1997.

   The Vulnerability Assessment performed by the DOE Safeguards and Security (SAS) personnel at the DOE Richland Operations Office (RL) resulted in definition of specific design features to be incorporated in the design of the CSB. Sufficient design information concerning access prevention to the CSB was provided to the architect engineer so the construction of the substructure could proceed. DOE-RL was satisfied with the SAS team participation and timing with the SNFP design activities.

3. **Background:** The SNFP at Hanford was established to provide the facilities and equipment needed to begin removing the N-Reactor spent fuel from the K-Basins by the end of 1997 and to complete removal by the end of 1999. Interim storage of the conditioned spent fuel will be in the new CSB. These dates are consistent with the commitment dates in the Implementation Plan for Board Recommendation 94-1.
4. **Discussion:** The SNFP will initiate the process of stabilization of N-Reactor spent fuel and interim storage of the fuel away from the Columbia River by starting operations of the Fuel Retrieval System in the K-Basins, the cask/transporter system, the Cold

Vacuum Drying facility, and the CSB. To meet schedule commitments, all of these systems need to be available and operational by the end of 1997. ORR planning by WHC is a phased approach intended to accomplish successful ORRs for the several facilities in a timely manner consistent with the aggressive schedule. According to information provided at the meeting, WHC will identify the first facility scheduled to be operational and perform a complete ORR, including (1) Management Systems Verification, (2) Personnel Training Verification, (3) Systems and Structures Verification, (4) Performance Based In-Field Assessments and (5) Drill Program Verification. As the SNFP will use a common Management System, ORRs for subsequent facilities will not need to include assessment of this aspect. WHC will revise the current Plan of Action to reflect comments received from DOE at the meeting.

Operator and Radiation Control Technician hiring and training will be a significant schedule challenge. WHC estimates that 140 to 160 operators will be needed to operate the several facilities 24 hours a day, 7 days a week, for an expected 2 year period of spent fuel transfer. In addition, engineering and maintenance personnel will be needed to support the operating staff. WHC is developing a schedule for procedure preparation and validation to support training, system startup, and operations, including maintenance. Training will be performed on mockups and cold facilities where possible since construction completion of the actual facilities will occur only a short time before operations are to commence. Completion of the necessary elements of the contractor and DOE ORRs on such a tight schedule poses a major threat to meeting the milestone dates for Recommendation 94-1. WHC is developing an ORR Implementation Plan to address those issues related to the compressed schedule.

The DOE-RL SAS group formed a team to evaluate the CSB for protection against terrorist threats and to prepare a Vulnerability Assessment. This team included expertise in structural analysis and nuclear safety analyses. Specific threats considered were based on DOE requirements and the analyses resulted in the design of a number of individual features that were transmitted to the SNFP for implementation. These features were discussed with the project designers to provide an acceptable design approach. In particular, access prevention to the CSB was addressed in a way that permitted the construction of the CSB substructure to proceed on schedule. Involvement of the SAS team with the SNFP will continue as the detailed design of the CSB continues. Jim Spracklen, Head of the DOE-RL SAS group, expressed satisfaction with the timing and interaction of the SAS team with the SNFP and would proceed in the same way, if the project were repeated.

5. **Future Staff Actions:** The Board's staff plans to review the following: Revised Plan of Action for ORRs for the SNFP and the ORR Implementation Plan, when issued.