DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 14, 2001

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: R. T. Davis/ T. D. Burns
SUBJECT: SRS Report for Week Ending December 14, 2001

Plutonium Stabilization and Packaging: Earlier this year, DOE approved the mission need for the FB-Line plutonium stabilization and packaging project (site rep weekly 8/17/01). This project will achieve plutonium packaging in accordance with DOE-STD-3013, which is identified as a commitment for Recommendation 94-1 and 2000-1.

WSRC is currently pursuing parallel design, construction and startup of the furnace and the outer can welder. In October, WSRC requested DOE approval for design and construction of the outer can welder. However, DOE-SR has yet to approve this activity due to issues with project funding and weld porosity identified with the Hanford welding system (Hanford site rep weekly 10/19/01). Because this activity is critical path, startup of the outer can welder is currently being delayed on a day-for-day basis. Design activities and authorization basis development to support this project continue. WSRC plans to baseline the project in March 2002.

HB-Line Phase II: WSRC continues to pursue corrective actions associated with the presence of cesium in the plutonium solution received from H-Canyon (site rep weekly 12/7/01). On Thursday, DOE-SR issued a letter to WSRC requesting further evaluation of a criticality scenario that was previously identified as incredible. This scenario involves inadvertently eluting plutonium from the column to a canyon receipt tank. The sodium iodide detector in this transfer line, which is now inoperable because of the cesium, was part of the justification for identifying this scenario as incredible. It is not clear that there is an adequate basis for concluding this particular criticality scenario is incredible.

Americium/Curium Stabilization: Initial calculations identified an unacceptable rate of increase in hydrogen concentration (i.e., less than 48 hours to reach the Lower Flammability Limit) along the intended transfer path at H-Pump Tank 7 (HPT-7). To address the issue, WSRC evaluated both chemical (nitrate) additions to reduce the effective hydrogen generation rate and physical modifications at the pump tank to increase the ventilation flow. Based on these evaluations, chemical additions were chosen as the preferred alternative. Subsequently, WSRC approved a revised set of calculations this week that show reduced hydrogen release rates at HPT-7. Based on these latest results, WSRC is preparing an authorization basis change package to eliminate the need for hydrogen concentration controls at HPT-7.

HLW Activities: Both the 2H and 3H evaporators remained operable all week, though high mercury levels in the 3H overheads system persist. Feed pump replacement activities continue for the 2F evaporator. Removal of concentrated waste ("liquor") from the 3H system, required for its efficient operation, is not yet possible. The candidate space in Tank 49 for the 3H liquor was used instead to receive approximately 200,000 gallons of recycle from Tank 22 to support the scheduled restart of DWPF this weekend.