

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 12, 1997

MEMORANDUM FOR: G. W. Cunningham, Technical Director
FROM: J. Kent Fortenberry / Joe Sanders
SUBJECT: SRS Report for Week Ending December 12, 1997

Two Tritium Facilities Off-Normal Occurrences - In the first occurrence, a system engineer was performing an annual leak test on the safety-related Building 234-H stack monitor. The test procedure requires independent verification for valve manipulations because incorrect positioning could make this system inoperable. The engineer did not use the test procedure. In addition, the engineer performed valve manipulations that are only allowed to be performed by operators. To further exacerbate the problem, the valve numbering in the procedure, had it been used, did not match that in the field. WSRC and DOE are reviewing previous performance of this test for all five tritium stacks which appear to have been performed by the same individual for several years. Also, the operability was verified for all of these safety related systems.

In the second occurrence, startup testing was being performed on the new fire protection system installed in Building 234-H. Upon detection of a fire, this system should shut down all building supply fans and all but one exhaust fan (two of three normally operate) in order to maintain proper ventilation zoning while limiting the fire's spreading. However, during the test, the software shut down the two operating fans. This resulted in a loss of all ventilation to the building. Ventilation was quickly restored. No air monitors alarmed and subsequent surveys indicated no spread of contamination. The software and hardware design problems which caused this event were attributable to insufficient equipment specifications by WSRC. The same design deficiency existed with the system recently installed in the adjacent Building 232-H, but it was detected and corrected before start-up testing was performed. Unfortunately, this information was not disseminated. Other facilities onsite have or will receive similar fire protection systems. Information on this occurrence and the conditions which caused it will be promulgated sitewide.

Dropped Fuel Element at RBOF - While unloading a cask of domestic research reactor fuel at the Receiving Basin for Offsite Fuel (RBOF), one of the elements slipped out of the handling tool and fell to the basin floor. This aluminum-clad, aluminum-alloy element is made of 3" wide plates and measures about one foot long. The element, which weighs only about 6 pounds, was not damaged. The fuel handling tool uses a simple 'vice-grip' mechanism to hold the fuel element. Although inspection of the tool did not reveal any problems, the tool was replaced. All fuel movement using this gripper-type tool is done in an area segregated from fuel storage racks. This particular fuel is transferred from the cask and eight elements are loaded into a cylindrical aluminum storage can. After the fuel has been transferred to a cylindrical storage can, a conventional bail handle and positive engagement fuel grapple is used to transfer the fuel into a storage rack. Recent operational problems at RBOF has resulted in the establishment of a senior supervisory watch. Operational problems did not appear to contribute to this fuel drop event. Fuel movement operations were observed and showed good independent verification and good use of procedures.