

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 2, 2004

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
J. J. McConnell, Deputy Technical Director
FROM: R. T. Davis/ T. D. Burns
SUBJECT: SRS Report for Week Ending January 2, 2003

HB-Line: On Tuesday, a pyrophoric reaction was observed by operators in HB-Line while preparing plutonium scrap material to be charged in the Phase I dissolver. The operator placed magnesium oxide on the material and activated the halon suppression system in accordance with the Abnormal Operating Procedure. The site fire department responded and confirmed that the operator actions stopped the reaction. No damage to the glove box or release of material was observed following the event. HB-Line personnel established a precautionary watch while a path forward is developed.

The plutonium scrap material that is dissolved in HB-Line is characterized in the FB-Line material characterization line. During characterization of this material, FB-Line personnel observed a glow that indicated the potential for a pyrophoric reaction. This was identified in the material characterization report. However, the charge plan developed by HB-Line engineering did not identify the potential for a pyrophoric reaction. When dissolving activities were started in HB-Line in 2000, the potential for a pyrophoric reaction was identified as a hazard and controls were identified (i.e., magnesium oxide and the halon suppression system). While these controls are appropriate, the site representatives believe that additional emphasis and planning (i.e., pre-job brief) should have been implemented prior to processing this material. This issue was also identified during the unexpected exothermic reaction that occurred in HB-Line in May 2003 (site rep weeklies 5/30/03 and 6/20/03).

HB-Line personnel are developing an engineering path forward to complete dissolution of this material. The three cans of material that were being processed during this event are the last of the plutonium scrap material that will be processed in HB-Line. After this campaign, HB-Line will be preparing to dissolve Idaho National Engineering and Environmental Laboratory de-nitrator product. This campaign is scheduled to start in February.

Building 235-F: In accordance with the Documented Safety Analysis for plutonium storage at SRS, WSRC is required to begin participating in the 3013/9975 surveillance program by February 2005. The site originally planned to use the FB-Line facility for this activity until the capability was implemented in Building 235-F. However, the Building 235-F surveillance project has been delayed and will not be complete until 2007. In addition, DOE is pursuing accelerated de-inventory and shutdown of the FB-Line facility as early as 2004. To accommodate surveillance in the interim, WSRC has developed a plan for Limited Extent Surveillance (LES) in Building 235-F. After FB-Line is shutdown, the site will also not have the capability to stabilize plutonium materials until the full surveillance and stabilization project is complete in Building 235-F. Therefore, the LES project will have the capability to package unsafe 3013 containers in accordance with the Interim Safe Storage Criteria. The LES project is scheduled to be complete in the Summer of 2004.