

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 24, 2003

MEMORANDUM FOR: J. K. Fortenberry, Technical Director
FROM: W. White, Pantex Site Representative
SUBJECT: Pantex Plant Activity Report for Week Ending October 24, 2003

DNFSB Activity Summary: W. White was at Texas Tech University on Thursday and was on site for the remainder of the week. W. Andrews, M. Moury, and D. Gutowski were on site Monday through Thursday to discuss various issues and observe operations. J. Deplitch, C. March, and R. West were on site Tuesday through Thursday to discuss fire protection issues at the Pantex Plant.

Fire Protection: Board staff members discussed various aspects of the fire protection systems and programs with BWXT and PXSO personnel this week. Improvements were noted in several areas. These include the planning and implementation of projects related to the fire suppression and detection systems, the use of system engineers, and addressing the issues raised in the *Fire Department Baseline Needs Assessment*. Areas in need of continued improvement include the fire department training program and BWXT self-assessment program for fire protection.

There are also areas for improvement in the PXSO oversight of the fire protection program at the Pantex Plant. There has been no subject matter expert in this area for PXSO since January, and PXSO does not have the authority to fill the position. In addition, a PXSO assessment completed in October 2002 of the BWXT fire protection program was not transmitted to BWXT for action until Thursday, following staff discussions. The cover letter transmitting the assessment notes that PXSO had previously given the report to BWXT on an informal basis. The letter also notes PXSO held discussions with BWXT related to proposed corrective actions to address the concerns in the report. The letter asks for a formal response regarding the status of corrective actions being taken to address the concerns in the report. [II.A, P1]

Inactive Actinide Materials: Plutonium-238 (Pu-238) radioisotopic thermoelectric generators (RTGs) are currently stored at the Pantex Plant. Hundreds of units are on site in a vault without an internal fire suppression system (although fire suppression is present in the warehouse within which the vault is located). The number of these RTGs is expected to double in the near future. No long-term disposition path has been identified for the RTGs, and NNSA is making little progress toward consolidating the RTGs at Los Alamos National Laboratory.

Sandia personnel presented data this week showing the internal pressures in the RTGs are increasing with time due to helium generated by alpha decay. The data also contained the results and analysis of burst tests. In a 1010 °C, two-hour fire the pressures in the RTGs might increase to the point where the units rupture and release Pu-238. For the oldest units, this fire already gives a 1% probability of RTG rupture. Lower temperature, shorter duration fires, which are much more feasible at the Pantex Plant than the analyzed fire, currently do not give a high probability of RTG failure; however, problems at more likely fire temperatures and durations may be possible in the next few years as internal pressures continue to increase.

Sandia also briefed an informal plan to exchange hundreds of newer (i.e., units which have a lower internal pressure) RTGs at the Pantex Plant with those deployed in weapons and then return the older, less safe, units to Pantex. The Board's staff suggested addressing the final disposition aspect of this initiative and shipping the older RTGs to wherever they will need to be for final processing and disposition (i.e., rather than an interim location such as Pantex). The final disposition plan should include disposition of the units remaining at the Pantex Plant. [II.A, W1]