

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 23, 2002

TO: J. K. Fortenberry, Technical Director
FROM: D. F. Owen, RFETS Site Representative
SUBJECT: RFETS Activity Report for the Week Ending August 23, 2002

Plutonium Stabilization and Packaging System (PuSPS). As reported on August 9th, much of a furnace tray loaded with plutonium oxide was discovered to have been attacked in an apparent chemical reaction. Investigation of the cause of this occurrence is being completed. Kaiser-Hill remains confident, however, that the cause was sulfur contaminants in the oxide reacting with the Alloy 600 tray material (particularly the nickel in that alloy) at PuSPS furnace temperatures; this reaction is called “sulfidation.” Oxide processing in PuSPS has resumed but with the restriction that oxide materials be specifically evaluated for the potential for sulfur contaminants. Kaiser-Hill is also planning to treat the furnace trays with a process called “aluminizing” to provide resistance to sulfidation; this process involves diffusion of aluminum vapor to form an aluminide alloy on the surface. (3-A)

Response to the Board Letter of March 19, 2002. The Board’s letter forwarded to the DOE Office of Environmental Management (DOE-EM) staff observations on (1) the response to the DOE-RFFO 2001 Annual Integrated Safety Management (ISM) Update review in the area of activity-level work planning, and (2) proper cause determination for occurrences at RFETS. The DOE-EM June 25th response to the Board’s letter identified actions taken since March and future actions to address the observations. The site rep. and staff reviewed RFETS progress on these actions. Two noteworthy items include:

- A pilot program to provide mentoring to work planning teams to improve activity-level work planning has been completed in Building 371 and is being adjusted for application in all RFETS nuclear facilities. Among several benefits and lessons learned, Building 371 management noted that the pilot work planning mentoring effort has helped improve the content and clarity of hazard analyses and procedures as well as supervisory knowledge of the RFETS work planning process. This work planning mentoring effort is being combined with another mentoring effort started to improve on-the-floor execution of work (see the April 5th site rep. report). Site-wide implementation of the combined program is expected to be finished by late September (versus the August 31st commitment). The site rep. and staff noted to RFETS management that this combined approach has the potential to dilute the work planning mentoring if not closely followed.

- The commitment to disseminate case studies of events to demonstrate/illustrate proper cause determination has not been completed. The site rep. and staff did not consider that a training course recently developed and presented under this commitment met the intent of the commitment. DOE-RFFO management agreed with this observation and stated that proper case studies on cause determination will be developed in the next few weeks.

RFETS management plans to brief the Board at the end of September on effectiveness of the actions as called for by DOE-EM’s response. (1-C)

Nitric Acid Spill in Building 371. On Friday, during disassembly of a valve in a nitric acid line being prepared for removal, a small amount of nitric acid spilled and workers reported symptoms of nausea. Recovery actions and investigation of this occurrence are underway. (3-B)