

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 21, 2001

TO: J. K. Fortenberry, Technical Director
FROM: D. F. Owen, RFETS Site Representative
SUBJECT: RFETS Activity Report for the Week Ending December 21, 2001

Pressurized Steam System Near Miss - Followup. As reported last week, a Building 374 work crew was troubleshooting a large hydraulically-operated pressure reducing valve in a 100-140 psi utility steam system that had been operating erratically. In the process of removing the actuator the work crew removed valve packing gland fasteners allowing for steam pressure to eject the valve stem packing material and release steam. A single valve isolation, though not under formal lockout/tagout (LO/TO), was fortunately in effect due to on-scene actions by facility utility personnel, but not as a result of work planning.

Fact-finding and development of corrective actions was performed by RFETS management and the results were discussed with Board Member J. E. Mansfield, the staff and the site rep. RFETS management noted deficiencies in execution of several of the functions and principles of Integrated Safety Management for this activity, including:

- The scope of the work had not been defined in sufficient detail to allow for activity-level analysis of hazards and development of controls. The "basic job steps" defined in the Job Hazard Analysis for this effort were "Troubleshoot the 100# Steam Controller Loop."
- With this ill-defined scope of work, proper activity-level analysis of hazards and development of controls was impeded. While a steam leak was identified as a potential hazard, only a conditional control was identified to perform double-valve isolation by LO/TO if breaching the steam system (as a breach was not intended, that control was not implemented). RFETS management stated that actuator electrical and mechanical hazards and controls should have also been identified during hazard analysis for this activity, but were not.
- The task instructions provided no more detail to accomplish the actuator removal than "Uncouple the actuator from the 100# reducing valve." The work crew removed 4 fasteners including the 2 packing gland fasteners rather than 4 other fasteners that were "intended" to be removed by the planner and engineer. Neither the workers, the supervisor, the planner, nor the engineer raised a concern or questioned the lack of suitable work instructions prior to or during the event. The work crew made their own on-scene decision on which fasteners to remove.
- Overarching the above deficiencies, however, this activity was planned with no valve technical manual or other valve technical design information being referenced or available. Work planning should not have even proceeded without reference to adequate technical design information on such a complex (and not routinely serviced) steam system component. (Valve technical design information received at RFETS this week did provide clear guidance to check the oil level in the actuator upon erratic valve operation; the actuator oil level was, in fact, low.)

RFETS personnel discussed corrective actions that include the application of mentoring to work planning teams during the course of work planning (see site rep. report of November 23rd) and the development of detailed briefings for all RFETS projects on deficiencies and lessons learned from this near miss event. The site rep. will follow execution of the corrective actions. (1-C)