

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 21, 2006

MEMORANDUM FOR: J. Kent Fortenberry, Technical Director
FROM: J. S. Contardi/M.T. Sautman, SRS Site Representatives
SUBJECT: SRS Report for Week Ending April 21, 2006

Savannah River National Laboratory: A full response site training drill was conducted in conjunction with the transuranic (TRU) drum remediation project readiness assessment. The scenario involved a forklift failure that drops a Sealand container, breaching the repackaged TRU drums inside and causing a radiological release. A secondary event involved a medical emergency with a fire fighter inside the hazardous material isolation zone during mitigation operations. While the drill was declared a success, the Site Rep was not impressed with the response in the field. Weak command and control, communications, and leadership resulted in an uncoordinated, slow response that did not exhibit much planning. Even after three entries into the Sealand container, key information about the accident had not been determined and waste bags were still laying on the ground. The fire department did not coordinate their entries with the radiological control organization well and exhibited behavior that indicates past corrective actions were not entirely effective (Site Rep weekly reports 6/24/05, 7/1/05, 11/10/05). The proximity of personnel to the release, the lack of monitoring of airborne radioactivity, and contamination control practices could result in cross-contamination or uptakes, especially if the wind changed direction. The above performance is significant because SRNL is moving from traditional research activities to a more production-orientated task. Furthermore, because SRNL is so close to the site boundary, it does not have the benefit of a large buffer zone to dilute radiological releases before they reach the public.

A software system is used to track radionuclide inventories to ensure compliance with authorization basis inventory limits, criticality limits, and for accountability. After the Site Rep questioned the rigor of this process, a team was formed to identify vulnerabilities (Site Rep. weekly 12/16/05). This week, facility personnel briefed the Site Rep of procedure changes that were made to better ensure the data is accurate and limits are not exceeded.

Defense Waste Processing Facility: Information provided by the vendor shows that the model used for calculating peak pressures from trapped hydrogen exploding in a pipe was validated against gun, vapor cloud explosion, and blast tube experiments. However, validation of piping detonations consisted of comparing the calculated pressures for a straight pipe detonation with those calculated by another ~20 year model, rather than any pipe experiments - preferably with sharp bends like those configurations being modeled. The Site Rep discussed this and other concerns with the basis for fracture analysis, fragment velocity, and fragment penetration with the Department of Energy.

Pre-Job Briefs: While the requirements for pre-job briefs are scattered among approximately 1-1/2 dozen site and facility procedures, a Site Rep review of the criteria for determining when a pre-job brief is required found them to be adequate.

F Canyon: The Site Rep walked down the equipment that will be used for the cleaning of the 804 Underground Tank and discussed preparations for achieving readiness.