

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 8, 2002

**TO:** K. Fortenberry, Technical Director  
**FROM:** D. Grover and M. Sautman, Hanford Site Representatives  
**SUBJ:** Activity Report for the Week Ending February 8, 2002

Spent Nuclear Fuel Project (SNFP): The Multi-Canister Overpack (MCO) Loading System used to place fuel baskets into the MCO was damaged due to an equipment problem in November 2001. The project instituted a method to manually operate the equipment to compensate for alignment problems. DNFSB staff and site representative reviews have identified concerns with whether the hazards and controls associated with the manual loading process had been adequately evaluated. This week an operator incorrectly entered a command while manually positioning the equipment resulting in further damage to the equipment before emergency stops were activated. The root cause analysis conducted by the contractor identified, 1) the controls and procedures for conducting this activity were inadequate, 2) engineering and operations knowledge of the system software and interlocks was less than adequate. Mr. Grover discussed concerns with senior DOE and contractor management that the extent of problems with the process identified by the contractor may indicate a breakdown in the implementation of activity level integrated safety management at SNFP for manual loading of MCOs. The project subsequently initiated an effort to reevaluate the hazards and controls for the operation of this equipment in its current degraded state. Prior to the completion of this effort, repairs to the equipment were initiated. The first activity was to hoist the load test weight using the existing procedure with additional guidance from facility engineering monitored by a senior supervisory watch. The DOE facility representative questioned the adequacy of controlling this work when the procedure and personnel knowledge of the system had been determined to be less than adequate. The project has halted the maintenance activity until DOE concerns are addressed. The site representative will review the results of the hazards analysis, procedures, and work packages for these activities. (III-A)

Tank Farms: The staff had a productive discussion with tank farms personnel regarding the failure of the defense-in-depth primary hose of the hose-in-hose transfer line (HIHTL). It is suspected that a leak occurred at the flanged connection when water flushes were performed to clear line plugs using operating parameters (180° F, 2 hours, 150-170 psig) whose combined effects may have been worse than that used during qualification testing (130-135° F, 10 minutes, 600 psig). The staff discussed several issues: 1) the new 150° F/150 psig operating restrictions do not address the duration of the flush, 2) the need to do qualification tests that bound the temperature, time, and pressure that will be used in future flushes of jointed HIHTLs, 3) looking at other tank farm operations to ensure that procedures do not allow operations at levels that exceed tested conditions, 4) degradation of the hose's performance with time, 5) suggestions for ensuring that the actual failure mechanism is identified and confirmed. (I-C, III-A)

Recommendation 2000-2: The Site Reps observed Phase 2 Assessments being performed for the fire protection system at the Central Waste Complex (CWC) and transfer leak detectors in tank farms. The fire protection assessment led to the declaration of a Potential Inadequacy in the Safety Analysis. Although credited with reducing the fire frequency, the design of the fire sprinkler systems in 2 series of waste facilities will only support a single high layer of waste containers versus the current three layer configuration. There were other issues with control of a fuel limit and disparities between the CWC fire hazards analysis and the safety basis. (I-C)