

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 29, 2011

MEMORANDUM FOR: T. J. Dwyer, Technical Director
FROM: B.P. Broderick and R.T. Davis
SUBJECT: Los Alamos Report for Week Ending July 29, 2011

Weapons Engineering Tritium Facility (WETF): For roughly nine months, WETF personnel have been working to develop and implement new TSR-level controls to address deflagration hazards resulting from the discovery that low levels of oxygen were leaking into a portion of the safety significant Tritium Gas Handling System. If not properly controlled, this oxygen could mix with hydrogen isotopes to create a potentially flammable atmosphere inside the system. After verifying successful implementation of a Justification for Continued Operations that included a number of additional controls, WETF personnel resumed programmatic gas handling operations this week.

Chemistry and Metallurgy Research Building (CMR): This week, CMR management declared two TSR violations based on the discovery that several recent TSR-level surveillances of the fire suppression system had failed to recognize readings that did not meet limiting conditions for operation and failed to initiate required response actions. At CMR, fire water risers associated with the safety significant fire suppression system are required to maintain pressures above certain values and riser pressure surveillances are performed weekly. This week, a team of safety system oversight engineers from the NNSA site office began an assessment of the CMR fire suppression system.

As part of the assessment, the NNSA team reviewed completed surveillance documentation and discovered that in one recent case pressure readings for two separate risers were less than pressure values required by the TSR, but were not identified as unsatisfactory results that would trigger required response actions such as initiating a fire watch. In response to the NNSA discovery, CMR personnel did a more exhaustive review of completed fire suppression system surveillance documentation and found another instance where recorded riser pressure values did not meet TSR limiting conditions for operation, but were not recognized and handled appropriately. Facility management is developing corrective actions to address the issues that led to these violations.

Federal Oversight: Last week, the NNSA site office formally transmitted to LANL a report documenting the results of an assessment of the laboratory's Cognizant System Engineer (CSE) program. DOE Order 420.1B, *Facility Safety*, establishes the requirements for a CSE program and stipulates that a CSE must be assigned to at least every active safety class and safety significant system in a nuclear facility to ensure these systems maintain their operational readiness and the ability to perform their credited safety functions. The site office assessment concluded that the LANL CSE program is not fully compliant with DOE requirements. One particularly notable assessment finding stated that the majority of qualified LANL CSEs are not knowledgeable of key safety basis parameters for their systems, including functional classifications, functional requirements and performance criteria.

In the course of their assessments, NNSA safety system oversight engineers continue to routinely discover Potential Inadequacies of the Safety Analysis and TSR violations that have not been identified by laboratory personnel (the most recent example related to CMR is discussed above). Strengthening LANL CSEs knowledge and understanding of nuclear safety bases and the critical nexus between the safety basis and their assigned system appears to be a key step to improving LANL's ability to self-identify PISAs and prevent TSR violations moving forward.