DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Steven Stokes, Acting Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending February 8, 2013

Work Planning and Control: B&W held a critique to evaluate the events associated with a pressure transient during an in-service leak check of the tower water cooling system in Building 9212. The overpressure transient caused five relief valves to lift and spill water in the process areas of the facility. The exact cause of the transient was not identified, but it occurred while workers were filling the system using a valve with poor throttling characteristics. The critique process revealed that there are weaknesses in B&W's process for transitioning systems to operational status when an in-service leak check is used. B&W management decided to conduct a human performance improvement investigation to evaluate the control of these transitions. No system damage has been noted, but B&W management plans to conduct engineering reviews and field inspections to confirm that the pressure transient did not damage process systems.

Criticality Safety/Building 9204-2E Operations: Late last week, operators identified missing hardware (nuts, bolts, washers) on certain fissile material storage racks in Building 9204-2E. The applicable criticality safety evaluation (CSE) and safety basis document require the rack arrays in question to be constructed to maintain a minimum spacing between racks and to be seismically qualified for position retention. Given the potential for this discrepant condition to impact the safety basis, the operations manager entered the potential inadequacy of the safety analysis (PISA) process. The responsible criticality safety engineer provided formal direction to relocate the fissile material to racks that did not contain missing hardware. The operations manager exited the PISA process after the fissile material had been relocated.

B&W is still evaluating the cause(s) of the missing hardware, but this appears to be similar to previous events that indicate weaknesses in B&W's processes for implementing criticality safety requirements. In this instance, the requirement for the racks to be seismically qualified became effective in the applicable CSE in July 2012, yet there was no field walkdown to ensure the conditions specified in the supporting analysis and drawings matched the actual configuration of the racks. NPO recently issued a letter identifying similar types of concerns (see 1/25/13 report). This week, B&W responded to NPO's letter and identified several enhancements to the nuclear criticality safety (NCS) program, such as standardizing the approach for CSE implementation for all nuclear operations and instituting an improved implementation validation process for CSEs.

Criticality Safety/Conduct of Operations: Following the latest run on the production microwave caster (see last week's report), NCS personnel expressed concern that the operators in the area may not have responded appropriately to the indications of a mis-pour configuration. B&W's abnormal response procedure for casting operations requires personnel, upon identifying a mis-pour configuration (material forming an unanalyzed geometry during the pour), to administratively restrict personnel access to the area and contact NCS prior to handling the assembly. In this case, the operators handled the assembly before a supervisor in the area recognized the mis-pour configuration. B&W management determined that the operators' limited experience in identifying mis-pours during microwave casting operations was a significant contributor to the event. Therefore, B&W management will require an NCS engineer to be present before operators handle the stack assembly following future microwave casting runs. In addition, this event exposed ambiguities in the B&W abnormal response procedure for casting operations; specifically, regarding what constitutes a mis-pour or a failure-to-pour (greater than normal mass of solidified material remained in the crucible during the run) and what response is expected for each situation. B&W plans to clarify these ambiguities.