

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 April 12, 2013

Microwave Casting: This week, while running the production microwave caster in Building 9212, operators encountered an unexpected condition when the power supply to one of the magnetrons (and, in turn, the system temperature) continued to increase without any operator input. The operators attempted to correct the condition (as allowed per procedure) by decreasing the power set point using the touch screen that provides the human/machine interface for the furnace. The power decreased in response to these commands, but would begin to increase again when operator input ceased. The operators eventually removed the power supply to the magnetrons using the emergency stop button and notified their supervisor, who immediately suspended work. After consultation with production management and engineering, the shift manager gave the operators direction to re-enter the procedure and provided the specific steps needed to place the caster in a safe and stable configuration. The responsible instrumentation and control engineer, after recreating this condition in a simulated environment, has preliminarily concluded that the condition resulted from a communication loss between the touch screen and magnetron controller. B&W plans to correct this condition (and two other set points that could be affected by the same communication loss) before running the production microwave caster again. The production microwave caster contains a credited design feature that prevents the charge from reaching temperatures that could result in a safety consequence to the worker.

Emergency Management Exercise: The site reps observed a periodic emergency exercise that was designed to evaluate the site's response to a criticality accident. The exercise scenario involved a criticality in the Building 9720-5 that resulted from the simultaneous occurrence of three unlikely events (mis-labeled containers, which resulted in the introduction of prohibited materials to the facility; material clerks dropping the containers; and a large water leak from the firewater system during maintenance). The evaluators plan to generate a report in about a month, but initial indications are that there were no major issues during this exercise.

Transuranic Waste Processing Center (TWPC): Wastren Advantage, Inc. (WAI) has completed the pre-resumption actions associated with loss of breathing air event that occurred in early March (see 3/15/13 and 4/5/13 reports). WAI has submitted a corrective action plan that provides completed and long term corrective actions including: prohibiting maintenance on the breathing air system (BAS) while in use, re-training operators to clarify the required response to a total loss of breathing air, and performing a HAZOP analysis on the design of the BAS. OREM has reviewed the actions and concurs that WAI is ready to resume BAS operations.

OREM also recently approved the Safety Design Strategy for the conceptual design phase of the Sludge Processing Facility Buildout Project. The review team agreed with the primary risks identified by WAI and items that must be addressed in the next design phase, but the team also identified 10 additional issues. The actions to address these issues include: finalizing a methodology that results in a conservative airborne release fraction and respirable fraction for use in spray release modeling, validating assumptions supporting the lack of fire events in the list of design basis accidents, assuming the leak and seismic detection systems are preliminarily classified as safety-class until site-specific air dispersion criteria issues are resolved, and providing a plausible combination of damage ratios for tank failures that maximize accident consequences. OREM directed that these issues be addressed during the evolution to preliminary design.