

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

December 4, 2015

TO: Steven Stokes, Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending December 4, 2015

Fire Protection: CNS Fire Protection Operations (FPO) personnel were preparing to conduct the annual flow test of a back-flow prevention (BFP) valve in a fire suppression system for Buildings 9201-5N and 9201-5W when they discovered that the latest post maintenance testing on the valve was inadequate. This BFP valve is one of the valves involved in a testing issue back in October 2014 (see 10/17/14 report). The BFP valve prevents anti-freeze solution in downstream system piping from leaking into upstream piping connected to the site's potable water supply. The NPO and CNS fire protection subject matter experts agree that a post maintenance test to ensure the BFP allows adequate flow of water to the facilities (a forward flow test) should be conducted following maintenance on the valve, but this test did not occur after the valve was rebuilt in April 2015. Current versions of NFPA 25 require forward flow tests after maintenance, and FPO is working to update their requirements to ensure they have adequate written direction to include this test in future. Upon discovery of this discrepancy, FPO personnel verified operation of the valve including the performance of a forward flow test.

Building 9204-2E: Last month, an NPO Facility Representative (FR) expressed a concern about an improper modification to a tool used during dismantlement activities. The tool is used to align screwdriver-like sockets during the removal of a lifting lug at the start of dismantlement operations. While the FR was observing dismantlement activities, he questioned the use of this tool as it was not specifically referenced in the procedure. In addition, the tool had unauthorized modifications, which included pieces of wire inserted in machined holes in the socket's shank. These holes originally contained pins to help hold sockets in place during tool positioning. The Building 9204-2E Shift Manager tagged the tool as out-of-service and CNS Engineering wrote a non-conformance report to initiate the appropriate corrective actions.

Building 9202/Aging Infrastructure: This week, CNS held a fact-finding meeting to discuss the unexpected loss of electrical power at Y-12 (see 11/27/15 report) and the subsequent activation of a fire suppression sprinkler head in a supply fan housing at Building 9202. The fan housing has a steam heating coil supplied by a steam regulator valve designed to fully open on loss of electrical power to prevent freezing damage in cold weather. With the steam supply fully open and without any air flow from the fan, there was a significant increase in the temperature in the fan housing even though CNS Power Operations personnel were able to restore electrical power in a few hours. The temperature rise was high enough to cause the release of the sprinkler head's high-temperature fusible link rated for 286°F. The participants at the fact finding meeting developed several corrective actions including evaluating engineered solutions to prevent recurrence and devising compensatory measures in the interim until an engineered solution can be implemented. The NPO Fire Protection subject matter expert questioned if CNS is considering an extent-of-condition review to evaluate if individual Y-12 facilities have adequate plans to prevent these types of events following a loss of electrical power. The site reps have observed that unplanned power outages at Y-12 facilities are not rare events (see 11/20/15, 6/26/15, and 3/27/15 reports). Given the frequency of these events, CNS should consider taking action to determine if the appropriate level of facility-specific planning is in place to prevent equipment damage or hazards to personnel following loss of power events.