

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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TO: Steven Stokes, Technical Director
FROM: Jennifer Meszaros and Rory Rauch, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending October 13, 2017

Building 9215: Y-12 electrical systems in legacy production facilities are ungrounded. Such systems remain operational following a single ground fault and were selected for use in facilities where uninterrupted operation was deemed necessary. They present a unique hazard, however, as faults in these systems do not initiate breaker trips and instead can present a worker electrocution and/or fire hazard until they are identified and repaired. In September, during a quarterly preventive maintenance activity, workers detected a fault in a portion of the ungrounded electrical system that feeds lighting in certain parts of Building 9215. They submitted a service notification to determine the specific location of the fault. Facility managers assigned the work a medium priority; as such, maintenance workers did not begin the troubleshooting activity until approximately a week later. During the troubleshooting work, workers identified the location of the fault after they noticed a “glow” in a junction box. They immediately notified the shift manager and opened the breaker associated with the junction box.

Following this event, CNS held a critique meeting to discuss whether Building 9215 operational practices allowed this electrical fault condition to exist in the facility for too long. Meeting attendees identified that the quarterly surveillance frequency used by Building 9215 personnel to inspect for electrical faults does not comply with the weekly requirement included in the site electrical safety manual. Additionally, they noted that facility management should have prioritized completion of the corrective maintenance. Attendees agreed to issue a standing order that corrects these deficiencies and to revise the electrical safety manual to more clearly state the need to expeditiously identify and correct electrical fault conditions. CNS managers also suggested that facility personnel may not fully understand the unique hazard associated with ungrounded electrical systems and thus committed to providing workers additional training.

Hoisting and Rigging: The Y-12 hoisting and rigging manual defines pre-engineered production lifts as repetitive, production-type lifting operations that involve loads with identical dimensions, paths, and attachment points. Pre-engineered production lifts must be governed by a procedure containing step-by-step instructions that specify job rigging information and eliminate the need for calculations by workers. The Y-12 hoisting and rigging manual also specifies the lift-related information that must be included in a pre-engineered production lift technical procedure. The resident inspectors recently reviewed several Building 9204-2E pre-engineered production lift technical procedures and found that they are missing some of the information required by the Y-12 hoisting and rigging manual. For example, several of the procedures reviewed do not contain steps directing load movements or attachment/removal of lifting fixtures. In some instances, procedure steps call for the use of specific lifting fixtures by part number, but also allow operators to use “other approved tooling,” which appears to be inconsistent with the requirements to identify the specific rigging hardware to be used in the operation. The resident inspectors provided this information to Y-12 hoisting and rigging subject matter experts. The subject matter experts agreed that Building 9204-2E procedures may not have the specificity needed to drive the level of reliable performance sought by the hoisting and rigging manual, but do not believe that any unsafe lift practices or imminent safety issues exist. This week, Y-12 hoisting and rigging subject matter experts initiated a management assessment to evaluate the flowdown of pre-engineered production lift requirements into Building 9204-2E procedures. They also plan to evaluate the Y-12 hoisting and rigging manual’s consistency with DOE-STD-1090-2011, *Hoisting and Rigging*.