DEFENSE NUCLEAR FACILITIES SAFETY BOARD

TO: Steven Stokes, Technical Director
FROM: William Linzau and Rory Rauch, Site Representatives
SUBJECT: Oak Ridge Activity Report for Week Ending January 9, 2015

Nuclear Criticality Safety (NCS): This week, CNS declared a technical safety requirement (TSR) violation due to a failure to test for a potential Criticality Accident Alarm System (CAAS) inaudibility condition following the installation of a new trailer and noise-generating equipment in an area west of Building 9212. A Building 9212 Shift Technical Advisor (STA) recognized a potential issue last week after noticing the new trailer while walking in the area. The STA immediately controlled the area in question and notified the on-duty Shift Manager, who subsequently performed an audibility test using the Emergency Notification System and found the subject areas to be potentially CAAS inaudible (a definitive determination of CAAS audibility will occur when the clarion horn is sounded during the annual CAAS surveillance for Building 9212). The Shift Manager and STA immediately posted the area for a CAAS audibility deficiency and established alternate protective measures for entry, per the TSRs. Johnson Controls, Inc., a contractor performing energy savings improvements under a direct-hire contract with NNSA, introduced the new equipment and trailer to the Building 9212 CAAS annunciation area several months ago. It appears there was no process driver requiring organizations that are planning to perform work within a CAAS annunciation area, but outside the associated nuclear facility footprint, to present the scope of work to the responsible Operations Manager for an evaluation of impacts on TSR compliance.

Last week, a separate issue emerged after an NCS engineer (NCSE) reviewed the Criticality Safety Evaluations (CSEs) that support handling enriched uranium (EU) samples to determine if the use of plastic bags for contamination control was allowed. During this review, the NCSE noted discrepancies in these evaluations and in a supporting Criticality Safety Approval (CSA) for the Metallurgical Laboratory in Building 9204-2E. The EU samples are mounted with epoxy for metallurgical analysis, but in one case the evaluations applied the moderating properties of epoxy incorrectly and in other cases they did not consider over-mass conditions. The resultant discrepancies affected the analysis supporting a single mass limit as the control to prevent criticality during sample carrier operations. The NCSE immediately brought these discrepancies to the attention of the Chief NCSE, which led to the Production Support Director distributing a daily order to affected production managers that prohibited loading sample carriers with epoxy-mounted samples and applied an administrative control to carriers already loaded. In addition, the Building 9204-2E Operations Manager declared a potential inadequacy in the safety analysis (PISA) because the subject discrepancy could impact a specific administrative control that limits the total grams of EU in the Production Certification area in Building 9204-2E. Lastly, the CSEs and the CSA will be revised and the Chief NCSE will conduct an extent-of-condition review to identify similar discrepancies.

Nuclear Facility Hazard Categorization: Last year, NPO asked the contractor to review the hazard categorization of Buildings 9204-2, 9995, 9206 and 9720-5 (see 1/17/14 and 11/14/14 reports). On December 16, 2014, CNS provided a letter updating the status of this effort. The letter indicates that it is not currently feasible to re-categorize Building 9720-5 because of its ongoing mission, but the facility will be re-evaluated as part of the annual update of its safety basis. With regard to Buildings 9204-2, 9995, and 9206, the letter requested an extension until February 2015 to finish the reviews, at which time CNS will recommend a path forward for these facilities.