DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 20, 2021

TO: Christopher J. Roscetti, Technical Director
FROM: Matthew Duncan and Brandon Weathers, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending August 20, 2021

Nuclear Criticality Safety: While nuclear criticality safety personnel were updating a criticality safety evaluation for quality evaluation glovebox operations, they discovered that a control was not implemented in the operating procedure. The control required that operators check the non-fissile vacuum cleaner after each use to confirm that no fissile material was inadvertently collected. Production personnel placed the vacuum under administrative control. Nuclear criticality safety personnel provided guidance to locate containers of used vacuum filters and place them under administrative control as well. They also requested that non-destructive assay measurements be taken of the vacuum and containers. Measurements of the two drums of used filters showed that they contain less than 1 gram U-235. The discovery was a latent issue that likely existed for over ten years. During the event investigation, CNS noted that a 2014 review of criticality safety approvals and container compliance in Building 9204-2E identified that this control may not have been appropriately implemented. However, that issue was not addressed at that time. CNS created a corrective action to evaluate if all of the issues identified in the 2014 review have been addressed. Production personnel placed the non-fissile vacuum out of service until the operating procedure is revised to implement the missing criticality safety control.

During an operational review of Building 9215 floor scrubber operations, personnel realized that a nuclear criticality safety requirement was not being followed. After draining liquid from the floor scrubber, an operator proceeded to clean out the recovery tank of the floor scrubber. The operational review team and operator discussed disposing of the residual solid material in the recovery tank and the wipes used to clean it. The operational review team discovered that those materials were being disposed of in plastic bags rather than the container specified in the operating procedure. The procedure also required the operator to notify radiological control personnel prior to removing solids from the recovery tank, but that did not occur. The procedure use category (information use) allows an operator to perform the task from memory without prior review of the procedure. Personnel placed the area under administrative control and identified four bags that had been loaded in violation of the criticality safety requirement. Two of the bags contained wipes and the other two contained residual solids. None of the bags were in an approved fissile storage array. Operators double bagged the material and moved it to a fissile storage array to await non-destructive assay measurements. CNS has a corrective action to evaluate "information use" procedures that implement nuclear criticality safety controls.

Radiological Protection: Last Friday, two Building 9212 chemical operators alarmed a personnel contamination monitor due to radiological contamination on their elbow. Radiological protection personnel responded and successfully decontaminated the operators' elbows. Personnel found a hole in a glovebox glove that was used by the operators. The measured levels of contamination were below the occurrence reporting threshold. Including the recent two events, there have been 14 personnel contamination events in 2021. Five of the events resulted in skin contaminations and one of the events required filing an occurrence report (see 1/22/21 report).