DEFENSE NUCLEAR FACILITIES SAFETY BOARD

October 14, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: Frank Harshman, and Clinton Jones, Resident Inspectors
SUBJECT: Oak Ridge Activity Report for Week Ending October 14, 2022

Oak Ridge Environmental Management (OREM): *The U.S. Department of Energy Operational Readiness Review Final Report for the Startup of Isotek Systems, LLC, Initial Processing Campaign (IPC)* was recently released. The DOE Operational Readiness Review (DORR) team recommended that the Start-up Authorization Authority (SAA) authorize the start of the IPC upon verification of closure of pre-start open items and pre-start findings, and approval of post-start corrective action plans. The report also concluded that Isotek can process IPC material in a safe manner that protects the workers, public, and environment. In addition, the report evaluated the ability of OREM to oversee IPC operations and determined that OREM has a sufficient number of qualified staff and has developed and implemented an effective suite of contractor oversight programs.

OREM, on behalf of the SAA, verified closure of the remaining items listed in the report and as a result, the SAA granted startup permission to Isotek to begin the IPC (see 06/28/2019 report). The IPC process starts when a canister of U-233, which is secured in a specially designed overpack, is transferred from Building 3019 to Building 2026. The material is then loaded into a Building 2026 hot cell for division into smaller batches. The smaller batches are then processed to extract Thorium for commercial use and solidify the remaining material for disposal as waste. To accommodate the IPC, Building 2026 required several significant modifications, including a change in hazard categorization from Hazard Category 3 to Hazard Category 2, the development of a new Documented Safety Analysis, and associated Technical Safety Requirements.

Prior to Isotek receiving startup authorization, the resident inspectors augmented the DNFSB review team during the Federal Operational Readiness Review by observing Isotek demonstrating Building 2026 operations utilizing surrogate material (see 7/22/22 and 7/29/22 reports). Just prior to Isotek receiving startup authorization, the resident inspectors conducted a walkdown with Isotek senior management and OREM personnel to discuss the closure of the pre-start findings, the startup plan, OREM oversight plan, and to observe the facility condition and configuration prior to the commencement of operations. After Isotek received startup authorization, the resident inspectors observed operations in Building 2026 and Building 3019 over multiple days. In Building 3019, the resident inspectors observed the retrieval of material canisters from their storage location, the loading of the canisters into overpacks, and the transfer of material to Building 2026. In Building 2026, the resident inspectors observed hot cell operations and attended a post-job brief lead by the cell operations supervisor.

Overall, the resident inspectors did not observe any abnormal conditions or situations that would call into question the DORR report conclusions or the resolution of the findings contained within. Preliminary in-field observations by the resident inspectors support the assertion that the current startup plan and enhanced OREM oversight plan adequately address the DORR report findings and initial observations support OREM and Isotek assertion that both plans are being executed as written.