DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 25, 2022

TO: Christopher J. Roscetti, Technical Director
FROM: B. Caleca, P. Fox, and P. Meyer, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending February 25, 2022

Tank Side Cesium Removal (TSCR): The Tank Farm Operations Contractor has resumed processing of tank waste with the TSCR system (see 2/18/2022 report). They determined that the unexpected Human Machine Interface (HMI) panel readings that prompted operators to shut down the system last week were caused by a misconfiguration of the gamma monitor output during initial setup. The misconfiguration resulted in the signal output from the gamma monitors to the HMI panel reading low by a factor of 1000. Analysis of pre-processed data obtained from the gamma detectors determined that actual conditions did not violate the safety basis. The direct cause of the inaccurate readout has been corrected and procedures have been modified to support continued operation. The contractor is performing an apparent cause analysis to identify corrective actions to reduce the potential for future occurrences of similar problems.

Hanford Site: A resident inspector observed a debrief of the site limited exercise that was conducted last week (see 2/18/2022 report). The debrief was thorough and attendees participated throughout the review. The initial evaluation identified significant observations related to classification of the event, initial field response, communications, radiological control performance, and control of the exercise.

105-KW Basin: Contamination was found on the skin of a Radiological Control Technician's (RCT's) hand after performing work at the 105-KW Basin entry control point. The individual had been surveying equipment used in the basin area prior to its release to the Radiological Buffer Area (RBA). During their work, the RCT had performed multiple partial entries from the RBA into the contamination area. Per the radiological work permit, the individual used a single set of surgical gloves as a contamination barrier while performing the surveys. As a standard practice, the individual also used self-surveys of their hands and frequent glove changes to preclude contamination spread. However, when the individual used a personnel contamination monitor (PCM) to complete the required RBA exit survey, the PCM alarmed indicating the presence of contamination on the individual's right hand and left hip. A subsequent direct survey using handheld instruments found alpha and beta/gamma contamination above allowed limits on the RCT's hand; no contamination was found at the other location. Responding RCTs successfully decontaminated the individual and performed surveys of the RCT's travel path, the entry control point, the PCM, and the surrounding area. They did not find any additional contamination. Contractor management held a critique. During the critique, RCTs noted that they surveyed the materials used for decontaminating the individual shortly after they completed the decontamination. The survey identified contamination above allowed limits. However, surveys performed the following morning on the same materials did not find any contamination above background. Based on that information, they determined that radon decay products were the most likely source for the contamination. They believe the individual may have picked up the naturally occurring contamination while handling statically charged plastic prior to their exit. Facility personnel have sent the material used during the decontamination process to a counting facility for further evaluation to attempt confirmation of the suspected cause of the event.