

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 27, 2020

TO: Christopher J. Roscetti, Technical Director
FROM: M. Bradisse, B. Caleca and P. Fox, Hanford Resident Inspectors
SUBJECT: Hanford Activity Report for the Week Ending November 27, 2020

Tank Farms: A larger than expected chemical reaction occurred at the 616 hazardous waste storage facility when workers added an absorbent to a tote that contained residual tank waste simulant. The reaction emitted vapors with a chlorine odor. The workers stopped work and safely evacuated the building, and the central shift manager entered the appropriate response procedures. Subsequent monitoring by industrial health technicians using direct-read instruments identified nitric oxide levels above the action limit and the facility was posted as a restricted area until the hazard was mitigated. There were no injuries associated with this event. Contractor management is conducting an event investigation. Initial information gathered by the event investigator has identified several gaps in the planning for the work activity. In particular, the event occurred even though the work was conducted under a Level I work instruction supported by a job hazard analysis, an industrial health work permit, and a waste planning checklist; planning for each one of those controlling documents provides an opportunity for preventing this type of event. The work also required a formal documented pre-job meeting, where personnel discussed lessons learned from a similar event and specifically noted the need for confirming chemical compatibility before using an absorbent. The resident inspectors also note that product documentation shows that the absorbent is not compatible with metallic nitrates. However, the safety data sheet for the tank waste simulant indicates that it contains substantial quantities of sodium and potassium nitrate, indicating that the absorbent was not suitable for use in this application. Work under this work package is suspended pending completion of the investigation.

The contractor Joint Review Group (JRG) reviewed plans to remove a vent pipe and move an Enraf level detector from one C-111 tank riser to another. The JRG did not identify any issues.

Aging Structures Stabilization: Contractor personnel held a critique to discuss an elevated air sample that occurred while opening the Z-9 crib to install the equipment for grouting the structure (see 11/20/2020 report). The one- and three-day counts of the air sample did not indicate elevated airborne radioactivity. However, a seven-day count did identify an elevated result on one sample. Per procedure, work was paused at the site, but resumed when recounts of the sample using the same and different instruments were unable to replicate the previous seven day results, suggesting the sample did not contain radioactivity. The critique focused on the handling, storage, and reading of the air sample, and the instrument used to perform the seven-day count. Contractor personnel intend to review their testing practices to determine whether mishandling or technical issues caused the first seven-day count to detect elevated radioactivity.

Hanford Site: The number of COVID-19 infections within the Hanford workforce continues to rise and the weekly positive case rates are substantially higher than during the summer case peak (see 11/13/2020 report). This condition continues to impact routine work activities, but has not affected the completion of required nuclear safety surveillances. Site leadership continues to coordinate site response with local officials.