

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 25, 2019

**TO:** Christopher J. Roscetti, Technical Director  
**FROM:** M. T. Sautman and Z. C. McCabe, Resident Inspectors  
**SUBJECT:** Savannah River Site Activity Report for Week Ending January 25, 2019

**Bioassay Analysis:** While recently preparing for a new bioassay system, SRNS identified that they reported the wrong Sr-90 results for thousands of bioassay samples analyzed between 2011 and 2019. While fixing another error that affected bioassay samples between 2007 and 2011, programmers introduced a new error that was not detected by the software verification tests performed in 2011. The reported values did not include a 1.16 geometry correction factor. What made this error hard to detect was that the correct values were reported for thousands of proficiency and quality control samples analyzed during this period. The 16% error did not cause any positive samples to be incorrectly categorized as negative.

**Savannah River Tritium Enterprise (SRTE):** SRTE personnel identified that they failed to perform the required monthly surveillances (i.e., function check) on 5 (of 44) 233-H tritium air monitors (TAMs) for several months which resulted in a violation of the technical safety requirements (TSRs). After the fact, SRTE personnel were able to confirm that each of the TAMs were working appropriately. The TAMs in question analyze the atmosphere of multiple rooms and have horns and lights in multiple rooms. Last spring SRTE personnel significantly condensed the implementing procedure for the surveillance. This revision introduced several errors that directed SRTE personnel to listen for a TAM alarm horn and look for an alarm light in the incorrect rooms. The procedure is kept in the control room and operators perform portions in the field via the reader-worker method. It is noteworthy that this procedure takes nearly a month to complete and had been completed three times in addition to two first time use validations (repeated due to large number of issues). Thus, it was used by several individuals spanning multiple shifts who failed to recognize the error or complete the procedure as written. Had the procedure (with the errors) been completed as written, SRTE personnel would have determined that each of the TAMs failed the surveillance and then would likely have recognized the errors once they investigated, which is how the violation was identified. This points to a significant shortcoming in communications between the control room and field.

A Tritium Extraction Facility (TEF) shift manager (SM) failed to complete a required safety basis continuous training (24 month cycle) prior to it expiring and fulfilled a minimum staffing position several times before noting the issue. This continuous training was added to the qualification card of all relevant SRNS personnel as a corrective action to a series of past (2016) TSR violations. SRTE broke this training into five separate courses included on a separate safety basis qualification card. The SM's safety basis qualification card included dates for completing the five courses (each on a 24 month cycle) spanning from January 2017 to June 2018 and a final approval signature dated in July 2018. The final approval signature was the only date included on the SM qualification card which is why the system allowed the SM to populate the watchbill. SRNS personnel determined that the SM is qualified to stand watch despite this expired training because the final approval signature date had not expired. In the extreme case, this position would allow for a SM to have every course associated with the safety basis continuing training expired and still be qualified to stand watch as long as the final approval signature was current.