

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

November 23, 2018

TO: Christopher J. Roscetti, Technical Director
FROM: Z. C. McCabe, Resident Inspector
SUBJECT: Savannah River Site Activity Report for Week Ending November 23, 2018

H-Canyon: Two existing issues call into question the ability of the H-Canyon Exhaust (HCAEX) System to perform its safety class function of protecting the public from a radiological release caused by several events initiated by a design basis earthquake (DBE). The first issue is the HCAEX Tunnel's ability to withstand a DBE is indeterminate, which is the subject of the December 16, 2015 Board Letter to DOE and the declaration of a positive unreviewed safety question (USQ) in June 2017 (see 6/30/17 report). The second issue is the more recent identification that the HCAEX System does not meet the single point failure criteria during and after a DBE for safety class components (see 11/2/18 report). SRNS personnel submitted a safety basis strategy to DOE-SR with a proposed revision to the H-Canyon post-seismic control strategy such that it would not rely on the HCAEX System to protect the public during and after a DBE. Several of the proposed control changes were discussed in the 10/19/18 weekly report. The safety basis strategy requests DOE-SR's concurrence by November 30. SRNS expects to have the H-Canyon safety basis revised and submitted to DOE-SR in June 2019.

Tritium Facility: The Tritium Facilities safety basis includes a directive action specific administrative control (SAC) for Open Glovebox Maintenance (OGM) that is credited to ensure that deflagration and loss of confinement hazards are minimized by protecting the OGM initial conditions assumptions. Specifically, the technical safety requirements (TSRs) explain that certain tanks/vessels shall be evacuated and backfilled as an initial condition. The TSRs do not include any requirement for periodic verification that the SAC required OGM initial conditions are maintained. However, the Safety Analysis Report (SAR) states that the "initial conditions are periodically monitored for changes," but includes no further information on the expected/required frequency. The H-Area New Manufacturing (HANM) procedure for OGM requires the user to verify the tank pressure readings are within an acceptable range of the initial conditions once every shift. Consistent with the safety basis, this part of the procedure is not labeled as a SAC. Further, the TSRs and SAR explain that a failure to maintain the initial conditions, is not a SAC violation unless there is a failure to cease personnel operations upon discovery of the out of range condition.

While in the recent OGM for the replacement of a load line glovebox recirculation fan at HANM (see 11/16/18 report), an operator failed to confirm that a tank pressure was within range of the OGM initial condition during the shift. The next shift completed the verification, but did not notice the missing reading. After leaving for the day another operator from the previous shift questioned whether the operator performed the verification, which led to the discovery of the error. HANM personnel were able to verify that the initial conditions were maintained during this period, which in combination with the lack of a frequency requirement led Tritium personnel to conclude that the SAC was not violated. Among the noted shortcomings that contributed to this event, Tritium personnel noted that they do not formally track non-TSR required rounds and surveillances, but rather rely on informal means such as a verbal reminder from a supervisor (which did occur this time) and a clipboard on the operator's desk (which did not).