

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

February 5, 2016

**TO:** Steven A. Stokes, Technical Director  
**FROM:** John R. Mercier, Cognizant Engineer  
**SUBJECT:** Sandia National Laboratories Report for January 2016

**Staff Activity at Sandia National Laboratories (SNL):** There were no onsite Defense Nuclear Facility Safety Board (Board) staff reviews or oversight visits in January.

**Fission Products in Reactor Pool Water.** The Annular Core Research Reactor (ACRR) staff presented the results of their investigation to identify the source of fission products at trace levels in the reactor pool water to the Nuclear Facility Safety Committee (NFSC) in December, 2015. The ACRR staff believes the fission products detected in the reactor pool water resulted from residual uranium debris in the reactor core but external to the fuel, perhaps originating from historical experiments that introduced uranium contamination into the pool many years ago. The NFSC recommended that ACRR resume programmatic operations. On January 7, 2016 the SNL Vice President for Science and Technology concurred with the NFSC recommendations and the ACRR has resumed programmatic operations. The NFSC also recommended establishment of capabilities for early detection of potential reactor fuel failures such as: establishing gas monitoring at the pool surface, establishing a continuous water sampling capability, conducting annual visual inspections of the reactor fuel, and establishing a fuel element inspection capability using neutron radiography. The ACRR staff developed and is executing an implementation schedule to achieve these fuel element failure early detection capabilities. Sandia Field Office technical staff conducted an independent review of the issue and concurs with SNL's conclusion and path forward. The Board's staff requested the fission product sampling data presented to the NFSC and intends to evaluate the validity of the conclusions made by the ACRR staff.

**Quarterly Fume Hood Surveillance:** During a routine surveillance of a fume hood in maintenance mode at the Auxiliary Hot Cell Facility (AHCF) the air flow alarm failed to actuate within the prescribed parameters. The air flow alarm is triggered when the air velocity across the face of the fume hood falls outside the velocity range specified by the technical safety requirement. The AHCF staff entered the appropriate Limiting Condition for Operation (LCO) action statement and correctly established controls to prevent use of the fume hood until they can re-establish compliance with the LCO.