DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 6, 2017

TO: Steven A. Stokes, Technical Director
FROM: Douglas J. Brown, Cognizant Engineer
SUBJECT: Sandia National Laboratories Report for December 2016

Staff Activity at Sandia National Laboratories (SNL). On December 12-16, 2016, the Board's SNL cognizant engineer observed the Chief of Defense Nuclear Safety (CDNS) team complete a Biennial Review (BR) of the Sandia Field Office (SFO).

Honeywell awarded SNL Contract. National Technology and Engineering Solutions of Sandia, a division of Honeywell, won a contract worth $2.6 billion to manage SNL. Northrup Grumman and Universities Research Association will also support. After two decades, the current Lockheed Martin contract expires April 30, 2017.

Annular Core Research Reactor Facility (ACRRF) Roofing Project Event. During roofing work on December 20, 2016, two football-sized concrete chunks fell through the roof of the ACRRF into the control room while workers were attempting to remove concrete curbing around an abandoned heating/ventilation air conditioning penetration. There were no injuries or equipment damage. An Occurrence Report was submitted.

Activation of the Z Machine Facility Fire Suppression Sprinkler System. On November 30, 2016, an "unbalanced trip" of a Marx generator occurred during a routine post-shot process on the Z Machine. The failure resulted in the upward release of energy and heat, reaching the ceiling of the high-bay. This is not an unexpected outcome, but in this specific instance, it resulted in energy contact with and activation of the building fire suppression sprinkler system. A fire watch was stationed until repairs could be made. An Occurrence Report was submitted.

CDNS Biennial Review. During five days on site, the BR examined 9 functional areas. The inspection team out-briefed two management concerns, twelve findings, seven weaknesses, eleven opportunities for improvement, and one noteworthy practice. The Startup/Restart and Nuclear Safety Delegation of Authority to the SFO Manager remains valid.

ACRRF – Safety Rod 1 Update. A search for the nut and washer was performed on December 12, 2016 (see SNL Monthly Ending November 2016). The washer was located on the lower grid plate of the core. During a retrieval attempt, the washer fell to a void below the core. It is believed that the nut most likely fell into the same void. Debris falling into the fuel region is an analyzed condition, and the relative size of the nut and washer would not challenge the accident analysis or result in any significant equipment damage. An Operability Assessment has been drafted, and is in the SNL review and approval process. Based on preliminary analysis by SNL and SFO, SNL authorized operations resumed on December 13, 2016.

ACRRF Pulse Fire Time Investigation. On December 13, 2016, a maximum pulse was performed and the operator noted that the fire time was slightly shorter (~35 msec) than previously observed pulses. The change in fire time is impactful for experiment data collection processes, but not the safe operation of the system. Pulse operations are currently suspended while the cause of the shift is investigated and path forward determined.