

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

January 6, 2023

**TO:** Katherine R. Herrera, Acting Technical Director  
**FROM:** Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer  
**SUBJECT:** Sandia National Laboratories (SNL) Report for December 2022

**Defense Nuclear Facilities Safety Board (Board) Staff Interactions:** On December 5–8, 2022, the Board’s cognizant engineer for SNL was on site providing oversight of the Transient Rod Withdrawal (TRW) contractor readiness assessment (CRA) and conducting routine quarterly walkdowns and interviews. The cognizant engineer completed walkdowns at Technical Area V (TA-V), observed routine operations and an operational drill at the Annular Core Research Reactor Facility (ACRRF) as part of the TRW CRA, and met with National Technology and Engineering Solutions of Sandia, LLC (NTESS) and Sandia Field Office (SFO) managers and staff.

**CRA for TRW Operations at the ACRRF:** On December 5–12, 2022, NTESS completed the CRA for TRW operations at the ACRRF. The CRA team assessed roles, responsibilities, authorities and accountabilities, the formal development and review of requirements, procedures, and processes, and the appropriate disposition of significant issues identified by the TRW management self-assessment team and from previous readiness assessments at ACRRF. The CRA team reviewed over 200 documents, conducted over 25 interviews, observed demonstrations and discussions of TRW sub-mode operations, reviewed safety software development, testing and implementation activities, and observed an operational drill. The CRA team concluded that all objectives were met, with 53 of 56 criteria met and three criteria partially met. The CRA team identified one post-start finding noting that oversight in the Software Quality Program was not at expected levels for the implementation of TRW sub-mode safety software implementation and acceptance testing, manifesting in quality issues in the documentation and compliance with requirements of the TA-V Safety Software Quality Management Procedure. The CRA team also identified seven observations. NTESS is developing corrective actions to address these issues. The Federal readiness assessment is scheduled for February 2023.

**Request to Temporarily Exceed the ACRRF Experiment Material at Risk (MAR) Limit:** On December 15, 2022, NTESS requested that SFO grant a temporary increase in the ACRRF MAR limit to complete two series of experiments scheduled for fiscal year 2023 (FY 2023). NTESS requested permission to temporarily allow experiment MAR up to the analyzed limit documented in the most recent version of the ACRRF Technical Safety Requirements (TSR). NTESS noted that these activities are necessary to fulfill essential mission requirements and that the requested MAR increase is applicable only to less than Hazard Category 3 experiments scheduled for FY 2023. On December 16, 2022, SFO approved this request and required NTESS to notify the Sandia Field Office (SFO) when the higher MAR limits are in effect and when MAR limits are restored to the TSR administrative limiting values during and after the two series of experiments.

**Second Quarter FY 2023 Startup Notification Report (SNR):** On December 15, 2022, NTESS submitted the second quarter FY 2023 SNR to SFO. The NTESS Readiness Level Determination (RLD) team determined that the activity of performing additional Class III Experiments with less-than-Hazard Category-3 quantities of fissionable material at the ACRRF did not meet the criteria for performing a readiness review. The RLD noted that the activity was encompassed by the current activity description and does not require any changes to the facility, procedure revisions, and training requirements. NTESS submitted a revised table of proposed and notional schedules for activities requiring readiness reviews with only minor changes since last quarter.