

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

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TO: Christopher J. Roscetti, Technical Director
FROM: Daniel B. Bullen, Ph.D., P.E., Cognizant Engineer
SUBJECT: Sandia National Laboratories (SNL) Report for March 2020

Sandia Field Office and Sandia National Laboratories Status: In response to COVID-19, a majority of the Sandia Field Office (SFO) and National Technology and Engineering Solutions of Sandia, LLC (NTESS) staff are teleworking. The SFO and SNL transitioned to mission essential operations during March. However, Technical Area V (TA-V) nuclear facilities, Z-machine, and the neutron generator fabrication facilities maintained essentially normal operating conditions. If conditions change, The SFO and SNL are prepared to transition to only mission critical operations or possibly minimum safe operations under which very few personnel would be allowed on site.

Annular Core Research Reactor (ACRR): Maintenance, calibration and recovery efforts continued at the ACRR during the month of March. With Safety Rod 1 removed from the core (see SNL Monthly Reports for January 2020 and February 2020), ACRR staff members replaced Safety Rod 1 with a spare safety rod (Safety Rod 3 – Element 503), which had undergone detailed inspection and non-destructive examination by SNL experts. After it was installed, ACRR staff noted that Safety Rod 3 was positioned slightly off-center from the normal safety rod location in the core. NTESS staff are completing an engineering evaluation to determine the impact of this condition, if any, on safe reactor operations. NTESS staff are preparing a Justification for Continued Operations (JCO), which must be approved by the SFO prior to restarting ACRR operations. NTESS plans to complete the JCO and submit it to the SFO for approval in early April.

ACRR Safety Rod Degraded Integrity Causal Analysis Report: On February 28, 2020, NTESS completed its causal analysis report on the degraded condition of ACRR Safety Rod 1. The report noted that the direct or immediate cause(s) of the event are unknown at this time and identified a forensic examination of the safety rod to understand its failure mechanism(s) as one corrective action. The report also identified multiple causes related to weaknesses in asset integrity of the ACRR as an aging and legacy operational system, as well as specific integrity verification and maintenance challenges. The report identified corrective actions to achieve a deeper knowledge base of the structural integrity of the regulating rods in order to ensure that similar cladding degradation is not occurring elsewhere and to more confidently understand and acknowledge the potential risks associated with continued operation of the ACRR in its current condition. The report also cited additional corrective actions focusing on improving inspection and monitoring capabilities for the ACRR.

Nuclear Facility Maintenance Safety Management Program Assessment: On March 23, 2020, the SFO provided NTESS its assessment of the NTESS Nuclear Facility Maintenance Safety Management Program. The SFO report identified two findings; (1) “NTESS corporately available structured and supported systems are not used consistently to plan, schedule, conduct or close out maintenance activity level work for TA-V safety significant structures, systems, and components” and (2) “the TA-V Work Planning and Control tool is inadequate to ensure maintenance document control, maintenance planning, scheduling, coordination, control of maintenance activities, control of spare parts, equipment availability, failure analysis (tracking and trending), etc.” The SFO required responses from NTESS for both of the findings.