

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: Lawrence Livermore National Laboratory (LLNL) Report for August 2020

LLNL Operating Status in Response to COVID-19: LLNL continued to operate under normal operations with maximized telework during August 2020. The LLNL site remains in Phase 1 of their process to resume work on site. Phase 1 includes maximized telework, mission essential travel only, maximized use of virtual training, and visitors on site allowed on an “exception only” basis. Lawrence Livermore National Security, LLC (LLNS) and the Livermore Field Office (LFO) continue a gradual return of essential employees to the site to support programmatic work, construction, operations, experimental lab work, maintenance, and facility support activities.

Evaluation of the Safety of the Situation (ESS) Related to Central Characterization Program (CCP) Characterization Results: On August 17, 2020, LLNS submitted to LFO an ESS pertaining to the Potential Inadequacy of the Safety Analysis (PISA) related to CCP’s characterization results for two pipe overpack container (POC) drums and two non-POC drums. The CCP characterization results were greater than the 50 plutonium-239 equivalent curie (PE-Ci) material-at-risk (MAR) limit in the safety basis for the Waste Storage Facilities (WSF). The WSF Manager declared a PISA due to this new information. In their response to the PISA, LLNS qualitatively estimated that due to the low damage ratio associated with POCs, the potential dose consequence for accident scenarios involving the POCs would have only a minimal increase. In addition, LLNS completed an analysis of non-POC drums potentially exceeding the MAR limit. The LLNS analysis utilized a range of simulated drums with MAR values greater than 30 PE-Ci to determine a statistical MAR distribution. LLNS then evaluated accident scenarios using this statistical MAR distribution to demonstrate that public doses would remain below 10 rem and co-located worker doses would remain below 100 rem. Based on these results, LLNS deemed no immediate actions or compensatory measures were necessary. Subsequently, LLNS determined that the PISA represented an Unreviewed Safety Question. In the ESS, the WSF Manager proposed a path forward for the facility to continue to operate safely under its current safety basis. LLNS established a compensatory measure to verify that the MAR for any new non-POC drums with CCP characterization results above 30 PE-Ci remains bounded by the accident scenarios analyzed using the statistical MAR distribution. LLNS included an additional compensatory measure to verify that MAR values for Transuranic Package Transporter (TRUPACT)-II payloads, calculated using CCP characterization results, meet the TRUPACT-II payload limit specified in the Technical Safety Requirements.

Updated Conduct of Operations Matrix for Superblock Nuclear Materials Technology Program Facilities: On August 11, 2020, LLNS submitted the Conduct of Operations Matrix for the Superblock (Buildings 239, 332, 331 and 334). The matrix was updated from the June 2017 submittal as part of the triennial review and addresses the specific requirements and detailed attributes in DOE Order 422.1, *Conduct of Operations*, Administrative Change 3.

TRU Waste Shipments to WIPP: On August 20, 2020, the DOE National TRU Program issued its Eight Week Rolling Schedule for Shipments to WIPP. LLNL is currently scheduled for one shipment during the week of September 13–19, 2020, and three shipments during the week of September 20–26, 2020.