

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

August 21, 2009

MEMORANDUM FOR: Timothy Dwyer, Technical Director
FROM: Jonathan Plaue, DNFSB Site Representative
SUBJECT: LLNL Activity Report for Week Ending August 21, 2009

Institutional Processes: Late last Friday, the Livermore Site Office (LSO) issued direction to the laboratory regarding corrective actions for the self-identified issues associated with the Unreviewed Safety Question Process (see weekly report dated August 7, 2009). Noting concern with the lack of progress on this issue, LSO directed the laboratory to immediately begin an assessment of the procedures used in the nuclear facilities utilizing the USQ screening process. LSO also requested submittal of a corrective action plan for approval within 30 calendar days to resolve the 11 deficiencies identified in the self-assessment. As part of this plan, the laboratory was directed to identify the categories of procedures used in the nuclear facilities that fall within the USQ process and to provide a justification for any categories deemed outside of the process. On Monday, the laboratory began collecting procedures to support their response.

Plutonium Facility: Introduction of hydrogen into the hydride/dehydride/casting (HYDEC) system was authorized by management on Wednesday; however, hydrogen operations were suspended shortly into operational startup testing after unexpected off-gassing was observed and a high temperature indicator alarmed. Nuclear material was not present and had not yet been authorized to be present during this phase of the startup. Response to the abnormal situation was appropriate and the hydrogen supply was properly secured. The HYDEC system has been undergoing installation and startup activities during the past several months in preparation for its role supporting inventory reduction. The system uses pyrochemical processes to convert plutonium metal objects into plutonium metal ingots via a hydride intermediary. Prior to this phase of startup, the HYDEC process had completed an engineering design review and a facility readiness review. Validation of the chemical operating procedure and performance of the validation and verification plan for the automated safety shutdown function had also been completed as required in the authorizing work permit. Authorization to use hydrogen in the system has been revoked while the situation is further analyzed. Irrespective of the final cause of the problem, it appears that one element of the chemical operating procedure was not fully exercised during the inert gas trial period—the reaction chamber had not been operated at temperature for the full planned duration. After further inquiry, it is not clear that bounding parameters (temperature and time) for intended operations have been identified and incorporated into the procedure.

Tritium Facility Modernization: The laboratory readiness assessment began this week as scheduled. The manageable list of pre-start issues remaining from the management self-assessment contained six items, including the interpretation of the safety function for the glovebox boundary. Results of the assessment are expected next week.