

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

September 3, 2010

**MEMORANDUM FOR:** T. J. Dwyer, Technical Director  
**FROM:** B.P. Broderick and R.T. Davis  
**SUBJECT:** Los Alamos Report for Week Ending September 3, 2010

**Transuranic Waste Operations:** Last week, the NNSA site office approved an activity at Area G involving the receipt, handling and storage of a shielded box containing approximately 0.5 g of Am-241. The box is currently staged at Sandia National Laboratories – Albuquerque (SNL-Albuquerque) and contains a legacy americium source that originated at the Lovelace Respiratory Research Institute. The material is thought to be in a dispersible form based on radiation protection alarms received during a previous attempt to open the shielded box. The box will be placed in robust Type B shipping cask at SNL-Albuquerque, transported to LANL, received at Area G, transferred from the cask to a Type A standard waste box, and staged in the Type A overpack in an Area G waste storage dome. Plans for retrieval and ultimate disposition of the americium are under development and will be reviewed and approved separately.

NNSA approval was required to support receipt, handling and staging of this item because LANL personnel performed an unreviewed safety question (USQ) evaluation against the Area G safety basis that resulted in a positive determination. The process step where the shielded box is removed from the Type B shipping cask and transferred to the Type A standard waste box caused the positive USQ. The Area G safety basis assumes transuranic waste at Area G is packaged in Type A containers of sound integrity. Since the shielded box is not a certified Type A container, this activity was assessed to increase the probability of an accident above the level evaluated in the safety basis.

**Chemistry and Metallurgy Research Building (CMR):** Facility personnel are in the process of implementing the Technical Safety Requirements (TSRs) associated with the Documented Safety Analysis that was approved by the NNSA site office in June 2010. One important improvement in the recently approved safety basis relates to the treatment of passive engineered controls that have been credited in the TSR document as Design Features. In the current safety basis, no periodic inspections or surveillances are prescribed to confirm that these safety class and safety significant Design Features continue to effectively perform their credited nuclear safety functions. Although the Department of Energy's hierarchy of controls gives preference to engineered over administrative controls and passive over active controls, DOE Directives do not require periodic surveillances for passive engineered Design Features, whereas surveillances are required for active controls.

Though they are not required by DOE Directives, LANL personnel included periodic in-service inspections for credited Design Features in the new CMR safety basis, as a best practice. As reported last week, when CMR personnel performed the initial in-service inspections on facility Design Features, they discovered a number of deficiencies that rendered some gloveboxes and one hot cell structure unable to perform their credited safety functions. These deficient conditions had persisted under the current safety basis, at least in part, because the TSR document did not require inspections on an appropriate frequency to identify and address degradation or inappropriate modification of credited passive controls. These discoveries underscore the importance and utility of performing periodic inspections to ensure TSR-level Design Features continue to effectively perform their credited safety functions.