

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

April 24, 2015

MEMORANDUM FOR: S.A. Stokes, Technical Director
FROM: R.K. Verhaagen and J.W. Plaue
SUBJECT: Los Alamos Report for Week Ending April 24, 2015

DNFSB Staff Activity: R.K. Verhaagen attended offsite training on quality assurance and software quality assurance.

Plutonium Facility–Nuclear Material Management: On Thursday, facility personnel conducted a fact-finding after an Implementation Verification Review team identified that several Conflat-type containers of nuclear material were improperly listed in the nuclear materials management database as a certified type. The safety basis credits certified containers to reduce the damage ratio for the container and its resulting contribution to an accident source term. In reality, there is only one size of a Conflat-type container that is certified even though a variety of sizes are present in the facility. Notable points discussed by participants included:

- There are at least four different procedures governing types of containers with multiple requirement drivers including material-at-risk reduction and criticality safety. Procedure content and associated training were not adequate to ensure worker performance.
- The certified Conflat-type containers are not currently in use, but are available in the warehouse.
- The database contains about 200 types of containers, yet provides little information regarding a container's characteristics or specialized function. In addition, some container varieties are available in certified and non-certified forms.
- Configuration management processes for the database and linkage to the procedures was unclear.
- Most certified containers were dropped tested to survive a fall from 11 feet; however, some storage and handling locations in the facility exceed this height.
- The database expert recently retired and chronic staffing shortages resulted in a lack of readily available and qualified individuals to troubleshoot this problem.
- Engineering staff had spot-checked the correct use and listing of other certified containers.

The Associate Director for Plutonium Science and Manufacturing and his Deputy attended the critique, recognized that the situation was untenable for the workforce, and directed the utilization of external resources to conduct a Six Sigma like process analysis to eliminate by redesign rather than patch many of these problems.

Area G–Safety Basis: The safety basis limits material-at-risk to an overall aboveground inventory of $\leq 57,000$ Pu-239 Equivalent Curies (PE-Ci) and a composite source term of ≤ 1.06 PE-Ci. This composite source term accounts for the composition of the waste and assumes that 93.04 % of the waste is noncombustible-nondispersible material, 3.89 % is noncombustible-dispersible, and 3.06 % is combustible-dispersible. Recently, several issues have emerged associated with the composite source term. Last Friday, workers recognized that the remediated nitrate salt wastes were actually combustible, but were coded as noncombustible-nondispersible. As a result, Area G management declared a Potential Inadequacy of the Safety Basis and restricted receipt of new generated wastes. Prior to this event, Area G personnel were struggling to accept newly generated wastes and maintain compliance with the composite source term, since newly generated wastes typically include a higher fraction of combustible materials.