

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

July 5, 2013

**MEMORANDUM FOR:** Steven Stokes, Acting Technical Director  
**FROM:** Jonathan Plaue, DNFSB Site Representative  
**SUBJECT:** LLNL Activity Report for Week Ending July 5, 2013

**Plutonium Facility:** On June 28, 2013, the laboratory contractor transmitted the annual update of the safety basis for approval to the Livermore Field Office (LFO). The contractor proposed the following notable changes:

- Retaining the capability to perform experiments involving high explosives and metal-encapsulated special nuclear material. LFO previously directed the removal of this capability; however, the contractor believes it is programmatically necessary and instead is proposing a Specific Administrative Control to require LFO approval prior to each experiment.
- Reducing the material-at-risk limits for the vaults to 175 kg of 30-year-old fuel-grade equivalent plutonium (FGE) from 350 kg FGE. The overall building limit and individual room limits remain unchanged at 700 and 20 kg FGE, respectively.
- Clarifying that the Tritium Facility stacks and security poles are Performance Category-3 to prevent their collapse onto the Plutonium Facility during an earthquake. The contractor proposed preserving this function by designating the poles and stacks as Defense-in-Depth Equipment Important to Safety.
- Specifying that programmatic equipment is attached directly to safety class ducting in the loft and that this programmatic equipment does not require functional requirements and performance criteria equivalent to the contiguous ducting.
- Adding a generic hazard event associated with contaminated puncture wounds resulting in a moderate consequence to the worker and crediting the radiation protection program.
- Adding a breach of a generic container holding up to 4.5 kg FGE due to hydrogen buildup from radiolysis that results in an unmitigated consequence to the worker of low.
- Clarifying that there is no direct cause relationship between an earthquake and a room fire.

LFO's review plan includes the use of a nuclear safety analyst and a structural engineer from the Albuquerque Complex. LFO scheduled overall approval for December 20, 2013.

**Fire Protection:** On Tuesday, the contractor briefed LFO on the status of potential concerns associated with the site-wide water distribution system, which provides firewater to the entire site. The Office of Health, Safety, and Security (HSS) raised these concerns during a recent review of the Fire Protection Program. The contractor and LFO are still gathering information and evaluating the situation, but initial concerns include the following:

- Consultants recently concluded that the overall condition of the piping for the water distribution system is "relatively unknown;" LFO and HSS are therefore concerned that the reliability of the system is uncertain.
- The contractor is at least two years behind on performing preventive maintenance for some types of system valves across the site and at least 32 valves have known issues, including three supplying Superblock and two supplying one of the Waste Storage Facilities.
- The contractor recently downgraded the rigor and periodicity of preventive maintenance performed on a firewater pump that supports the lab system