The Secretary of Energy
Washington, D.C. 20585
February 2, 2010

The Honorable John E. Mansfield
Vice Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue, NW, Suite 700
Washington, D.C. 20004

Dear Mr. Vice Chairman:

The Department of Energy (DOE) acknowledges receipt of Defense Nuclear Facilities Safety Board (Board) Recommendation 2009-2, *Los Alamos National Laboratory Plutonium Facility Seismic Safety*, issued on October 26, 2009, and I accept the recommendation.

In December 2008, the National Nuclear Security Administration (NNSA) Los Alamos Site Office (LASO) approved a new Documented Safety Analysis (DSA) for the Plutonium Facility at Los Alamos National Laboratory (LANL), the first major upgrade to the Plutonium Facility's Safety Basis since 1996. The DSA conservatively describes potentially high mitigated consequences to the maximally exposed off-site individual (i.e., the public) from a first-floor fire following a seismic event, approximately two orders of magnitude higher than our evaluation guideline for selecting safety class controls. Approval of the DSA included recognition of weaknesses in the facility's control set and the need to upgrade a number of safety systems in order to meet DOE nuclear safety policies. As a result, Los Alamos National Security (LANS) has initiated a number of improvements to address safety issues identified in the DSA, including transitioning to an active confinement ventilation strategy.

LANS recently submitted to LASO an update of the facility's DSA that includes revised seismic accident scenarios to more accurately, but conservatively, evaluate the consequences of such scenarios. The DSA annual update, to be reviewed and approved by LASO, includes about a factor of 15 reduction from the previous DSA of the mitigated consequences to the maximally exposed off-site individual from a post-seismic fire. This proposed reduction is accomplished by establishing stricter limits to the overall material at risk allowed in the facility and by defining specific material quantity limits for various forms of material such as liquid, metal, and oxide and for heat-source plutonium. However, additional upgrades will be needed in order to meet DOE nuclear safety policies.

A significant number of actions have been completed recently or are planned in the near future that improve the safety posture of the facility. For example, in the near-term, NNSA will incentivize LANS to accomplish the following in FY 10:

- Install an automatic seismic shutdown capability for non-vital laboratory room electrical loads that provides an engineered control to reduce laboratory room electrical ignition sources;
- Develop conceptual designs for potential seismic upgrades to key active confinement ventilation subsystems and to the fire suppression system;

- Robustly package or otherwise disposition greater than 250 kilograms of plutonium-equivalent material;
- Reduce first floor material at risk limit by 40 percent; and
- Complete safety class encapsulation of the existing inventory of heat-source plutonium currently stored in Russian Product Containers (RPCs) that will subsequently be stored in the vault water baths.

NNSA has also provided additional funding to LANS for FY 10 to support the repackaging and disposition of material, risk reduction activities, and new generation container development. Also, for FY 10, LASO and LANS have developed performance-based incentives of about $1.3M for materials repackaging and disposition, updated seismic analyses, and safety upgrades to the Plutonium Facility. These actions in FY 10 build upon actions taken by LANS in FY 09 and early FY 10, including the following:

- Removed nearly 11 tons of combustible material from the facility, primarily first-floor laboratory rooms;
- Repackaged 60 existing RPCs with pressure safety concerns into new safety class containers;
- Replaced 195 high efficiency particulate air (HEPA) filters with 500°F-rated HEPA filters; and
- Developed a hydraulic model of the Fire Suppression System that identified weaknesses that are being addressed and will be used to inform decision-making for making this system safety class.

A more comprehensive summary of key actions is provided in the enclosure to this letter.

As noted above, the changes to the DSA currently under review would reduce the potential consequences at the site boundary due to a post-seismic fire event by a factor of 15. Approving updates to the DSA and Technical Safety Requirements is the binding mechanism by which DOE directs changes to the nuclear safety posture of its facilities. DOE is expediting its review of the updated DSA to achieve its implementation at the earliest feasible date.

I have assigned Mr. James J. McConnell, Acting Assistant Deputy Administrator for Nuclear Safety and Operations, Office of Defense Programs, NNSA, to be the Department's responsible manager for developing the Implementation Plan. He can be reached at (202) 586-4379.

Sincerely,

Steven Chu

Steven Chu

Enclosure