



Department of Energy
Under Secretary for Nuclear Security
Administrator, National Nuclear Security Administration
Washington, DC 20585



January 18, 2024

The Honorable Joyce L. Connery
Chair, Defense Nuclear Facilities Safety Board
625 Indiana Avenue NW, Suite 700
Washington, DC 20004

Dear Chair Connery:

As committed to in my September 15, 2023, interim response to your June 20, 2023, letter establishing reporting requirements regarding safety systems at the Los Alamos National Laboratory (LANL) Plutonium Facility 4 (PF-4), this response provides Deliverable Three, *Plutonium Facility 4 (PF-4) MELCOR Leak Path Factor (LPF) Parametric Report* (RPT-TA55-756-R0), and Deliverable Five, *PF-4 Fire Suppression System (FSS) Documented Safety Analysis (DSA) Functional Requirements*. These two deliverables, along with our interim response and the deliverables previously transmitted, collectively respond to your June 20, 2023, letter in full.

Deliverable Three documents the results of a parametric sensitivity analysis that was performed to gain insights on key facility parameters and their impact to the resulting LPF from spills or fires in PF-4. For the parametric sensitivity analyses, the following model parameters were varied: confinement doors open or closed; laboratory room doors open or closed; ventilation system on or off; fire protection system on or off; magnitude of the fire; amount of aerosolized material; and accident location.

The National Nuclear Security Administration acknowledges the *PF-4 MELCOR LPF Parametric Report* identifies that the FSS, laboratory doors, and ventilation systems significantly reduce the LPF. We have briefed your staff on the results of the MELCOR report and will be factoring their initial and ongoing feedback into our work as we integrate these results into the PF-4 DSA, which is currently under development to comply with Department of Energy Standard 3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*. The *PF-4 MELCOR LPF Parametric Report* also provides key insights into evacuation assumptions and impacts to calculations to support the PF-4 LPF.

The *PF-4 FSS DSA Functional Requirements* is a draft product of the PF-4 DSA currently under development. As discussed in my interim response letter, the proposed FSS functional requirements are the same as the current PF-4 DSA, apart from designating the FSS to meet the seismic design category (SDC) 3 design requirements per the safety class designation. The results of the *PF-4 MELCOR LPF Parametric Report* show that if the FSS provides its safety class function, it significantly reduces the LPF. The draft *PF-4 FSS DSA Functional Requirements* is provided below.

Document(s) transmitted contain(s)
Unclassified Controlled Nuclear Information.
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transmittal document does not contain UCNI.

Proposed Safety Class Functional Requirements

- Actuate in response to operationally and seismically induced fires in PF-4.
- Provide appropriate supply, pressure, and flow rates to minimize the size, temperature, and duration of fires.
- Maintain system capability during and after an SDC-3 seismic event.

Should you have any questions, please contact Theodore A. Wyka, Manager, Los Alamos Field Office, at (202) 586-3471.

Sincerely,



Jill Hruby

Enclosure