DEFENSE NUCLEAR FACILITIES SAFETY BOARD
Public Hearing
Questions for the Record
November 16, 2022
Santa Fe Community Convention Center
Santa Fe, New Mexico

	To	From	Question
1.	Mason	Roberson	Does the leak path factor analysis account for emergency responders entering the building as well as personnel leaving? The leak path factor (LPF) used in the PF-4 Documented Safety Analysis is 0.15 for an operational fire in Room 201. The PF-4 LPF calculation includes a discussion of the LPF model and sensitivity studies performed with the LPF model to understand effects of multiple parameters. One of the parameters evaluated was emergency responders opening an external door 15 minutes after the accident starts for a duration of 1 minute to gain access to the facility. Fire Fighters bring their own fire hoses into the building, thus the doors fully close after they gain access. In this evaluation, the time step of 15 minutes as selected is a very conservative fast response and the one minute duration is an equally conservative time for fire fighters to gain access through a door. The effect on LPF for this sensitivity study was an increase from 0.026 without emergency response access to 0.041 with emergency responder access. As stated in the beginning, the LPF used in this accident is 0.15 and fully bounds emergency responder access. For the new LPF analysis, new sensitivity studies will be conducted for emergency responders to ensure the LPF remains bounding.
2.	Mason	Roberson	Provide additional detail related to current and/or planned instrumentation that measures differential pressure to determine whether the external door is open/closed to validate passive confinement. Refer to response to question #3
3.	Mason	Roberson	Is the differential pressure monitor used to determine whether the external door is open/closed seismically qualified, and will it survive the modeled earthquake?

The pressure differential transmitters (PDTs) that monitor the relative differential pressure between outside air and corridor are seismically qualified to withstand seismic events (PC-3 for the instrument and PC-2 for the installation). These instruments are fully compliant as part of the current Safety Significant Active Confinement Ventilation System. The ventilation system and associated support systems are not credited in a PC-3 seismic event and the approved DSA relies on passive confinement instead. The PDTs are not needed for passive confinement. They cannot be used to determine whether a door is open or closed since fans are not assumed to run. Therefore, cannot provide cascade pressures and consequently differential pressure will be zero.

4. Wyka Connery

Provide additional detail regarding the mitigated analysis that calculates a radiological dose of 7 rem to the public following a post-seismic fire.

The safety basis analysis that informed the 2016 decision to cancel Safety Class Active Confinement Ventilation from the TRP III project concluded that:

- Over the last decade, investments in PF-4 in seismic and other upgrades have reduced the calculated dose from the post-seismic fire from the several hundred rem down to 23 rem.
- Upon upgrading the seismic capacities of the Fire Suppression System in PF-4, the fire suppression system will reduce the Source Term (ST) from the seismic with fire accident from a ST that results from a spill and fire to a ST that results only from a spill and the resultant scenario is now a spill scenario resulting in a Maximally Exposed Offsite Individual calculated dose of 7 rem (committed equivalent dose over 50 year)
- The proposed SC ACV subproject would have further reduced this calculated 50 year committed equivalent dose to about 1 rem.

5. Wyka Summers

How has Triad addressed the concerns raised in the 2019 Board letter regarding safety basis deficiencies following NNSA's Los Alamos Field Office's February 2020 letter of direction?

The Administrator noted in her November 8 that the Board's LANL Resident Inspectors were provided an updated crosswalk that documented how Triad and NNSA addressed concerns raised in the 2019 DNFSB Technical Report 44.

The majority of the concerns raised in TECH 44 were focused on the methodology and assumptions of the Leak Path Factor calculations that support the current PF-4 Documented Safety Analysis. As you're aware, LANL is in the process of updating the LPF to support a major revision to the PF-4 DSA being prepared to the updated requirements of DOE STD 3009-2014. LANL has been completely transparent with NNSA and the DNFSB staff during the development of the revised LPF calculations and the revision of the PF-4 DSA. Both LANL and NA-LA have secured additional expertise to assist in the development, review and approval of the PF-4 DSA and supporting calculations.

During the Public Hearing, we discussed a few of those issues, such as determining the value for how long doors are opened in an emergency evacuation of PF-4. NNSA and LANL are committed to ensuring that the LPF calculation and the PF-4 DSA are prepared using reasonably conservative assumptions and rigorous development and review/approval of the PF-4 DSA so that the resultant controls result in reasonable assurance of protecting the public, workers, and the environment. We will continue to maintain transparency and full engagement with the DNFSB staff as we complete the revised PF-4 DSA.

6. Wyka Summers What are some specific examples of actions taken in response to the August 2022 Board letter?

Upon receiving the Board's August 2022 letter providing observations and advice for the planned receipt and repackaging of plutonium heat source material from INL, NNSA provided the letter to LANL and reviewed the letter. Some specific examples of where actions were taken in response to that letter:

- The Board's letter recommended we take steps to limit operational upsets. As your letter noted, we have ensured we have spare parts for all related activities and the operating procedures/training will include contingency actions should an operational upset take place. We will evaluate the equipment and procedures in the readiness assessment before the INL repackaging activities commence.
- The Board's letter recommended we ensure our combustible control program be well implemented for the heat source repackaging activities, and as part of the readiness assessment for the repackaging activities, we will ensure that affirmative attention is placed on limiting accumulation of combustible materials in relevant rooms.

- The Board's letter recommended we consider restricting operations in neighboring gloveboxes during repackaging activities; we are evaluating how to schedule the repackaging activities to limit interactions with nearby gloveboxes.

7.	Mason	Roberson	Why not apply DOE-STD-1195 to ensure the ventilation system is designed to provide high reliability in accordance to DOE directives following system upgrades? DOE-STD-1195 is applicable for the design, procurement installation, and operation of Safety Significant (SS) Safety Instrumented Systems (SIS) for new nuclear facilities or major modifications. Major modifications result in a fundamental alteration of the safety control strategy. For the ventilation activities we've achieved or are pursuing in PF-4, we are focusing on the replacement of ventilation components without a change in safety function. In those cases, we follow LANL procedures that appropriately manage as part of the project scope, reliability and redundancy features such that single points of failure are reduced or eliminated.
8.	Mason	Summers	How many gloveboxes do not meet the required seismic capacity and how many remain unanalyzed? 180 Boxes do not meet PC<2 requirements 50 Boxes remain unanalyzed