	Question to/from	Question and Original Answer
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. This may include varying the time between building evacuation and reentry for emergency response, as well as, varying the time the door is open to allow emergency responders entry into the facility. This will be coordinated with emergency responder's input. As noted in the response to question 5 describing how LANL considered the Board's TECH 44 advice, LANL is continuing to evaluate the appropriateness of evacuation timelines, as well as how the emergency responders might affect door opening assumptions. 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.
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 was based on the accident analysis in place for the current DSA, based on the facility configuration in place at that time. This accident analysis calculates the post-seismic fire Maximally Exposed Offsite Individual (MEO) dose of 23 rem. The analysis for the 2016 TRP memo provided estimated benefits from achieving safety class fire suppression and safety class active confinement ventilation. The analysis for the 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. • The accident source term for a seismic spill with a post seismic fire results in a dose of approximately 23 rem CED (committed equivalent dose over 50 years) to the MEOI. With the Fire Suppression System seismic capacity upgrade, it was estimated that much of the source term associated with the post seismic fire is eliminated. As such, the seismic accident dose would be primarily related to the spill of material. The spill portion of the seismic event is 7 rem CED to the MEOI. The above doses are calculated in the accident analysis of the currently approved Documented Safety Analysis (DSA). This analysis will be updated as part of the DSA update to DOE-STD-3009-2014. • The proposed SC ACV subproject would have further reduced this calculated 50 year committed equivalent dose to about 1 rem. NNSA and LANL have continued to plan and execute PF-4 improvements, some of which could potentially lower the calculated MEOI dose. LANL is preparing a major revision to the PF-4 DSA, including hazard and accident analysis prepared to the guidance of DOE STD 3009-2014. The revised PF-4 DSA will further inform the PF-4 control selection to ensure safe mission execution at PF-4. Update on progress on achieving SC FSS (seismic upgrades that result in the reductions described above in calculated dose:

		The SC FSS will be achieved after the removal of the non-seismically qualified support buildings. This is being performed in three phases and the projects are on track to meet the Project Execution Strategy Completion date of 2026. Status: • Phase 1, installation of a high pressure feed; Status: Design complete. Execution contract awarded. • Phase 2, water line installation to the West to support program expansion buildings; Status: Design complete and released for planning • Phase 3, water line installation to the East to support security components; Status: Funding awarded in February
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 crosswalk was prepared by LANL and reviewed/edited by NA-LA and NA-ESH. The crosswalk was not a procedure of how LANL is executing the LPF calculation, nor was it a document that provided commitments. Rather, the crosswalk detailed how LANL/NNSA dispositioned the advice in TECH 44 as well as the related August DNFSB letter. As such, during the review chain at DOE/NNSA headquarters, a DOE reviewer directed that the crosswalk be provided to the DFNSB RIs rather than an attachment. The crosswalk is attached and submitted with this QFR. 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. We are continuing to evaluate the appropriateness of our evacuation timelines as well as how the emergency responders might affect door opening assumptions. 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. The DNFSB staff has been engaged in this process and has provided input to NNSA/LANL that is being addressed. 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. Since the August 2022 Board Letter LANL along with our NA-LA counterparts have worked to prepare for INL Harvesting efforts. Specifically, the Safety Basis Addendum for the INL Harvesting was implemented and verified through an Implementation Verification Review (IVR). Readiness of operations associated with this effort were assessed through a Management Self-Assessment (MSA). The IVR and MSA validated many points brought up in the August 2022 Board letter, e.g., ability to respond to contingencies, training/procedures. The LANL is anticipating being prepared to proceed to concurrent Contractor and Federal Readiness Assessment in May of 2023. A quick summary of the IVR and MSA are described below. An Implementation Verification Review (IVR) was performed to verify implementation of safety basis changes of TA55-DSA-2020-R1, Addendum1-R3 and was performed in accordance with the LANL Procedure FSD 115-003; *Implementation Verification Review Process for Safety Basis Changes, Level Determination: Moderate*. Specifically, this IVR was conducted to verify the following to be adequately implemented: The IVR examined the implementation of controls documented in TA55-DSA-2020-R1, Addendum1-R3. OSD# 2022-1506, R0, IVR Report for IVR Report for TA55-DSA-2020-R1, Addendum1-R3, Higher MAR Limits for Receipt of Large HS-Pu Shipments, was performed from November 15th through November 22nd, 2022. The IVR reviewed the supporting technical documentation, the associated work documents, MAR DATA GEN and the Surveillance Requirement performance, and applicable personnel training for control accuracy and implementation. One finding was identified during the IVR and has since then been resolved.

		The INL Harvesting Management Self-Assessment (MSA) was conducted in accordance with FSD-115-002, *Process for Management Self-Assessment (MSA) of Startup and Restart of LANL Nuclear Facilities, Activities, and Operations*. The MSA was conducted from February 13 through February 23, 2023, in accordance with the approved MSA Review Plan, PA-PLAN-01800, R0, *Management Self-Assessment Plan for Idaho National Laboratory (INL) Harvesting Containers, Including Management of Material-at-Risk (MAR) Limits*, dated October 24, 2022. The MSA assessed the equipment, personnel, safety features, and the operating procedure for INL Harvesting and direct support systems provided by the TA-55 facility that houses the activity. The review also included the implementation and integration of the safety basis (SB) controls and whether they are appropriately targeted to the associated functional areas (e.g., procedures, training, etc.) described by the Core Requirements (CRs). In addition, specific operations segments were selected for performance demonstration with mock material or simulants, as appropriate, to mimic the use of actual special nuclear material (SNM). The MSA identified five pre-start findings, one post-start finding. Upon satisfactory resolution of pre-start findings, and evaluation of post-start finding the team concluded that the INL Harvesting operations are ready to advance to the Contractor/Federal Readiness Assessments targeted to start in May of 2023. Moreover, the team concluded in the MSA report that an effective safety culture exists among the INL Harvesting Operations Team.
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. It is not applicable to Safety Class SIS but is applicable for SS 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. DOE-STD-1195 is applicable for design of safety significant SIS for new facilities and major modifications, as defined by DOE-STD-1189. DOE-STD-1195 is not applicable for minor modifications or minor upgrades to the existing PF-4 facility. Replacement equipment is installed following LANL Engineering Standards which define the minimum design criteria, fabrication, construction, and installation practices to ensure that the replacement system satisfy requirements, needs, and customer expectations in a safe, secure, cost-effective and cost-effective manner. The requirements supplement those defined in the applicable DOE Orders listed in the LANL the Prime Contract; national codes and standards; and federal, state, and local codes and regulations. Specifically, the I&C chapter of the Engineering Standards Manual ensures that I&C

		systems are designed to prevent accidents and mitigate consequences; are efficient, convenient, and adequate for good service; and are maintainable, standardized, and adequate for future expansion. Based on these requirements, the system hardware was designed to be reliable and have redundancy features such that single points of failure will be reduced or eliminated. Such design features are present in the existing FCS hardware are carried forward and improved upon in the new component design. Such features include: • Redundant PLCs • Redundant power supplies and power feeds from the TA-55 facility UPS • Redundant inter-PLC communication paths • Hot swappable input & output modules Redundant HMI servers • Redundant HMI server power supplies and power feeds from the TA-55 facility UPS • Redundant HMI server hard drives • Redundant HMI server communication paths • Minimum of 8 operator displays
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.