DEFENSE NUCLEAR FACILITIES SAFETY BOARD
LOS ALAMOS PUBLIC HEARING, June 7, 2017
5:00 PM – 9:45 PM
Santa Fe Community Convention Center
201 West Marcy Street
Santa Fe, New Mexico 87501

QUESTIONS FOR THE RECORD

	TO	FROM	QUESTION
1.	Dr. Leasure	Chairman Sullivan	**The last time the fire water isolation valves were actually operated and how frequently they are supposed to be operated.** Fire Water Isolation valves at TA-55 are operated on an annual basis as a part of scheduled preventative maintenance activity. The Annual Fire Suppression System Control Valve PM that exercises the isolation valves was last completed, in its entirety, in August of 2015. In 2016, document quality issues caused the PM's execution to be paused. The PM was properly deferred to support a procedure revision which required more time than expected. The executing document was converted from an *Administrative Surveillance Instructions* to a *Detailed Operating Procedure* which requires more rigor in the PM evolution. However, the requirement to operate valves as listed in DOP-1189 is NFPA driven maintenance, and not a TSR driven surveillance. It falls under the Maintenance SMP. It should be noted that all TSR surveillances were completed during the FY2016 time period. Valve related surveillances include the Weekly pump test (TA55-STP-301/TA55-STP-302 exercises PIVs during the test and includes a flow verification), the Monthly control

			valve alignment inspection (TA55-STP-304 verifies valves are positioned to maintain a flow path to PF4),and the 6 Month sprinkler main drain and flow test (TA55-STP-303 verifies water is available from the water supply to the sprinkler distribution system, pump houses are alternated). The NFPA goal is to ensure that control valves are operable (cycle open/shut) and demonstrate the flow path is restored (main drain or inspector test). The maintenance was properly deferred to allow the procedure to be updated as mentioned above. The deferral included an engineering evaluation, which took into consideration the fluid service, age of the valves, and previous maintenance history/valve condition. Per TA55-DOP-1189 *Annual Fire Suppression Control Valve and Fire Hydrant Inspection, Testing, and Maintenance.* The fire water isolation valves are operated on an annual basis and are **currently being exercised** (June 2017): **1.2 Scope** This procedure applies to the TA-55, PF-4, PF-10, PF-11, PF-6, PF-8, and TA-55 non- nuclear buildings Fire Water Supply System (FWSS), Fire Sprinkler System (FSS) control valves and fire main water loop supplied fire hydrants. This procedure ensures that each control valve is operated through a full close and open cycle to clear the operating stem and wedge guides of naturally occurring encrustation or other debris. This procedure is performed by personnel meeting the requirements in section 2.1G. This procedure

			satisfies the following NFPA annual requirements: **NFPA 25, 13.3.3.1** E ach control valve shall be operated annually through its full range and returned to its normal position. **NFPA 25, 13.3.3.2** Post indicator valves shall be opened until spring or torsion is felt in the rod, indicating that the rod has not become detached from the valve. **NFPA 25, 13.3.3.3** Post indicator and outside screw and yoke valves shall be backed a one-quarter turn from the fully open position to prevent jamming. **NFPA 25, 13.3.3.4** A main drain test shall be conducted any time the control valve is closed and reopened at system riser. **NFPA 25, 13.3.4.1** The operating stems of outside screw and yoke valves shall be lubricated annually. **NFPA 25, 13.3.4.2** The valve then shall be completely closed and reopened to test its operation and distribute the lubricant. **NFPA 25, 7.4.2.1** Hydrants shall be lubricated annually to ensure that all stems, caps, plugs, and threads are in proper operating condition. **NFPA 25, 7.4.2.1** After operation, dry barrel and wall hydrants shall be observed for proper drainage from the barrel.
2.	Mr. McConnell	Board Member Connery	Provide a crosswalk of those items that were taken out of TRP III that will be invested in other ways. See attached.
3.	Mr. Kacich	Board Member Santos	Provide an estimate of the percentage of special nuclear material that sits in certified containers today with no damage

			ratios. Of the special nuclear material inventory at TA55 in certified containers, approximately 1% is not credited with damage ratio less than one. This material exists mostly inside of gloveboxes in the weapons grade plutonium areas, where crediting of certified containers is not implemented.

Please provide responses to these Questions for the Record, any supplements to or clarifications to testimony, and any additional written testimony to the DNFSB by July 7, 2017, when the record for this hearing will be closed. Please direct the requested information to:

James Biggins
General Counsel
Executive Secretary for the Hearing
Defense Nuclear Facilities Safety Board

Site Name	Project Name	Congressional Reporting Summary	Work Type Group	Earliest Start FY	Total Project Cost (TPC)	Formerly TRP III Scope?
LANL	PF-4 Safety and Compliance System Upgrades	Repair and evaluation of the H-wall separating the North and South Side of the facility, egress issues, fire wall penetrations, pressure monitors, potable water, and other safety and compliance related systems require more than minor maintenance activities to support enduring operations and ensure the operability of credited systems at PF-4.	Recapitalization	2017	$2,500,000	**No**
LANL	PF-4 Ventilation and Confinement System Upgrades Portfolio	Scope of this project at PF-4 will include Duct Anchoring and replacement of fan motors and variable frequency drives, Electrical Anchoring, Replacement of Damper Actuator, Installation of Small Control System, Roof Girder Support and Corridor Wall Fire Barrier (TA-55-Seismic).	Recapitalization	2017	$11,000,000	**Yes**
LANL	LANL PF-4 Fire Wall Upgrades	LANL PF-4 Fire Wall Upgrades supports the expansion of programmatic operations in PF-4 for Directed Stockpile Work (DSW), Life Extension Programs (LEP's) and Plutonium Sustainment. The fire wall modifications will segregate the first floor of PF-4 into four distinct fire areas in support of programmatic equipment and process expansion with concurrent maximum possible fire loss increases.	Recapitalization	2018	$7,000,000	**No**
LANL	LANL PF-4 Fire Water Loop Component Replacements (Wet Pipe Tank & Power)	TA-55, PF-4 Fire Water Loop Component Replacements support programmatic operations in PF-4 for DSW, LEP's and Plutonium Sustainment. The fire water loop component replacements support programmatic operations and utilization of PF-4 in MODE-1 with the ability to perform nuclear material movements. Without a credited operational fire suppression system, the facility ceases SNM (special nuclear material operations) within the time frames prescribed in the DSA (Documented Safety Analysis) and programmatic utilization of SNM material to include waste processing must cease.	Recapitalization	2018	$7,395,000	**No**
LANL	LANL PF-4 Fire Water Loop Component Replacements (Pumps & Boiler Replacement)	This project will install Fire Water Loop Component Replacements to support programmatic operations in PF-4 in support of DSW, LEPs and Plutonium Sustainment. Failure to address these deficiencies in a timely manner could result in restricted operations, which prohibit any work with special nuclear material (SNM) and thus the loss of programmatic function of PF-4. It is considered likely that PF-4 will be unable to meet safety requirements and may have to cease operations due to the deficiencies that the this project will correct. In fact, there have been two recent outages due to failures of a diesel fire pump, one which lasted three weeks. Outages have the potential to cost the Programs up to $1,000,000 per day.	Recapitalization	2019	$8,655,000	**No**

Site Name	Project Name	Congressional Reporting Summary	Work Type Group	Earliest Start FY	Total Project Cost (TPC)	Formerly TRP III Scope?
LANL	LANL PF-4 North Fire Suppression Cast Iron Fittings Refurbishment	This project will be to evaluate, quantify and replace the required number of cast iron fittings in the Fire Suppression System that do not meet PC-3 seismic criteria. The design and implementation of this project will be subdivided between the north and the north side of the mezzanine, first floor, and basement of PF-4.	Recapitalization	2022	$4,750,000	**No**
LANL	LANL PF-4 South Fire Suppression Cast Iron Fittings Refurbishment	This project will be to evaluate, quantify and replace the required number of cast iron fittings in the Fire Suppression System that do not meet PC-3 seismic criteria. The design and implementation of this project will be subdivided between the north and the south side of the mezzanine, first floor, and basement of PF-4.	Recapitalization	2022	$4,750,000	**No**
LANL	LANL PF-4 Main Floor Seismic Interaction Safety Upgrades	Remediate issues between seismically qualified structures, systems and components (SSCs) and SSCs with lower performance requirements which may entail either the fire suppression system component needing to be rerouted, or the structure that has the potential to fall on the component would need to be seismically anchored. A walk down of the systems, design of the change to mitigate the issue, and implementation of the change are required.	Recapitalization	2020	$5,000,000	**No**
LANL	LANL PF-4 Basement and Mezzanines Seismic Interaction Safety Upgrades	Remediate issues between seismically qualified structures, systems and components (SSCs) and SSCs with lower performance requirements which may entail either the fire suppression system component needing to be rerouted, or the structure that has the potential to fall on the component would need to be seismically anchored. A walk down of the systems, design of the change to mitigate the issue, and implementation of the change are required.	Recapitalization	2020	$4,400,000	**No**
LANL	LANL PF-4 Zone 2 Bleed Off Fans Replacement	This project is a series of recapitalization modifications to support a more robust ventilation system to include Safety Class power for fans, dampers, and control system with redundancy and separation to preclude common mode failures and allow for maintenance. Modification of the individual components of the existing PF-4 ventilation systems to achieve a more robust ventilation system is the proposed path forward. A seismic equipment list will be developed, for a series of modification options strengthens the ventilation components through the replacement of the Zone 1 and 2 fans with Safety Class power and controls to ensure loss of normal power does not create flow reversals and major facility contamination events.	Recapitalization	2021	$4,200,000	**Yes**

Site Name	Project Name	Congressional Reporting Summary	Work Type Group	Earliest Start FY	Total Project Cost (TPC)	Formerly TRP III Scope?
LANL	LANL PF-4 Zone 1 Exhaust Fan Replacement	This project is a series of recapitalization modifications supports a more robust ventilation system to include Safety Class power for fans, dampers, and control system with redundancy and separation to preclude common mode failures and allow for maintenance. Modification of the individual components of the existing PF-4 ventilation systems to achieve a more robust ventilation system is the proposed path forward. A seismic equipment list will be developed, for a series of modification options strengthens the ventilation components through the replacement of the Zone 2 bleed-off fans with Safety Class power and controls. The ventilation control system would be interfaced to control all the PF-4 ventilation fans and dampers for integrated control and be separated from the existing Facility Control System (FCS).	Recapitalization	2022	$4,000,000	**Yes**
LANL	LANL PF-4 Controls Systems Upgrades	Part of implementation of a series of recapitalization modifications supports a more robust ventilation system to include Safety Class power for fans, dampers, and control system with redundancy and separation to preclude common mode failures and allow for maintenance. Modification of the individual components of the existing PF-4 ventilation systems to achieve a more robust ventilation system is the proposed path forward. A seismic equipment list will be developed in FY-17, but the preferred series of modification options strengthens the ventilation components through the replacement of the Zone 2 bleed-off fans (4 fans) with Safety Class power and controls. Inclusion of Safety Class power and control to the Zone 1 exhaust (8 fans) ensures loss of normal power does not create flow reversals and major facility contamination events. The ventilation control system would be interfaced to control all the PF-4 ventilation fans and dampers for integrated control and be separated from the existing Facility Control System (FCS).	Recapitalization	2023	$6,500,000	**Yes**
LANL	LANL PF-4 Generator and Power Supply Upgrades	Part of implementation of a series of recapitalization modifications supports a more robust ventilation system to include Safety Class power for fans, dampers, and control system with redundancy and separation to preclude common mode failures and allow for maintenance. Modification of the individual components of the existing PF-4 ventilation systems to achieve a more robust ventilation system is the proposed path forward. A seismic equipment list will be developed, for a series of modification options strengthens the ventilation components through the replacement of the Zone 1 and 2 fans with Safety Class power and controls to ensure loss of normal power does not create flow reversals and major facility contamination events.	Recapitalization	2024	$7,000,000	**Yes**

Site Name	Project Name	Congressional Reporting Summary	Work Type Group	Earliest Start FY	Total Project Cost (TPC)	Formerly TRP III Scope?
LANL	LANL PF-4 High Pressure Feed Separation	The purpose of this portfolio is to remove the non-seismically qualified buildings from Fire Water yard main water supply. This portfolio has been split into two discrete projects. The first will separate the high pressure feed from the fire water loop and the second will separate buildings that are not seismically qualified from the fire water loop.	Recapitalization	2023	$8,000,000	**Yes**
LANL	LANL PF-4 Non-Seismic Building Separation	This portfolio of projects is to remove the non-seismically qualified buildings from Fire Water yard main water supply. This portfolio has been split into two discrete projects. The first will separate the high pressure feed from the fire water loop and the second will separate buildings that are not seismically qualified from the fire water loop.	Recapitalization	2024	$6,350,000	**Yes**