



Defense Nuclear Facilities Safety Board

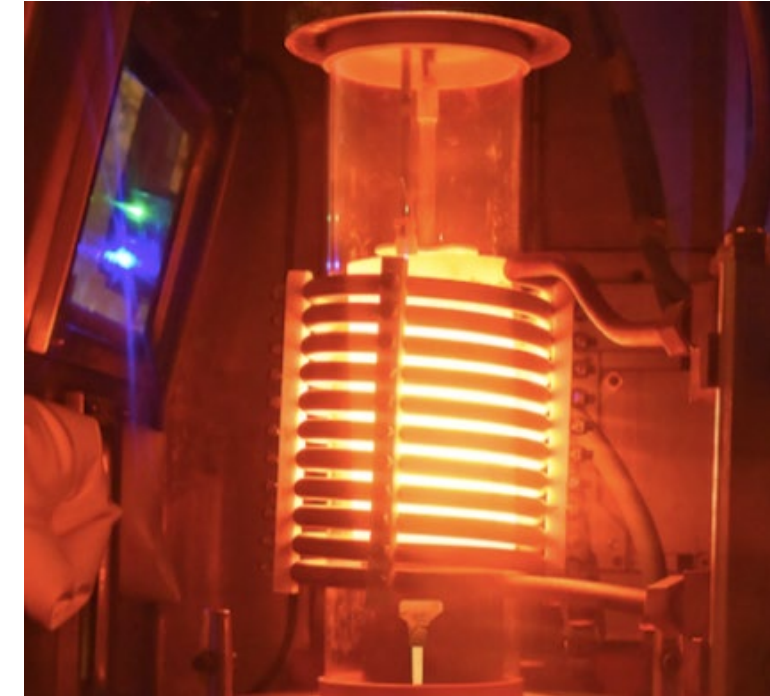
Community Outreach Event

July 28, 2025



Establishment of the DNFSB

- US nuclear weapons are produced in the Department of Energy's (DOE) defense nuclear facilities for the Department of Defense. Defense nuclear facilities also stabilize (i.e., clean up) radioactive wastes from previous nuclear weapons manufacturing.
- Late 1980s:
 - High profile nuclear accidents (e.g., Chernobyl).
 - Congress questioned DOE's ability to manage the complex safely and wanted a body of experts to report unbiased and timely information on the state of the DOE defense nuclear complex.
 - Spearheaded by Senator John Glenn.
- Congress established the Defense Nuclear Facilities Safety Board (DNFSB) and charged it with identifying potential issues of adequate protection at defense nuclear facilities, advising the Secretary of Energy of those issues, and informing the public.



Molten plutonium for weapons production at the Plutonium Facility at Los Alamos National Laboratory.

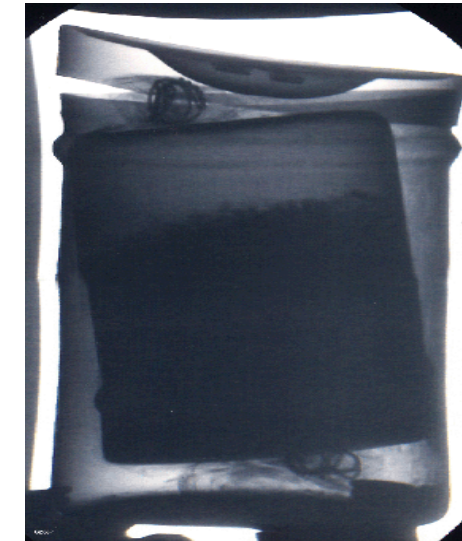


Retrieval of liquid high-level radioactive waste at the Hanford Tank Farms



Who is DNFSB?

- By statute, DNFSB Members are required to be “respected experts in the field of nuclear safety with a demonstrated competence and knowledge relevant to the independent investigative and oversight functions of the Board.”
- DNFSB has a highly-trained technical staff—Nearly all have master’s degrees, and many have doctorates in fields like nuclear, chemical, mechanical, earthquake, and fire protection engineering.
 - Many have a decade or more of experience in the nuclear weapons complex and cannot be easily replaced.
 - DNFSB staffing is statutorily capped at 130 FTE.
- DNFSB has a 35-year history of providing independent analysis, advice, and recommendations to the Secretary of Energy to ensure the health and safety of the public and workers at defense nuclear facilities.



Breached nuclear waste container due to plutonium reaction



Temporary disposal of nuclear waste at Idaho National Laboratory



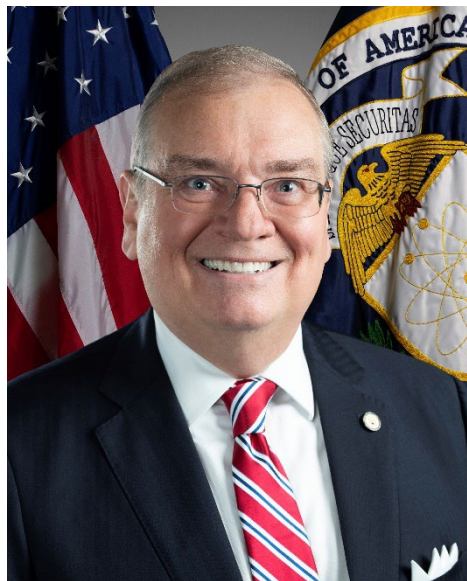
Spent fuel pool at Hanford K Reactor



DNFSB Overview

“The mission of the Board shall be to provide independent analysis, advice, and recommendations to the Secretary of Energy to inform the Secretary, in the role of the Secretary as operator and regulator of the defense nuclear facilities of the Department of Energy, in providing adequate protection of public health and safety at such defense nuclear facilities, including with respect to the health and safety of employees and contractors at such facilities.” - Atomic Energy Act of 1954, as amended

Current Board Members



Thomas A. Summers
Acting Chairman



Dr. Patricia L. Lee
Member

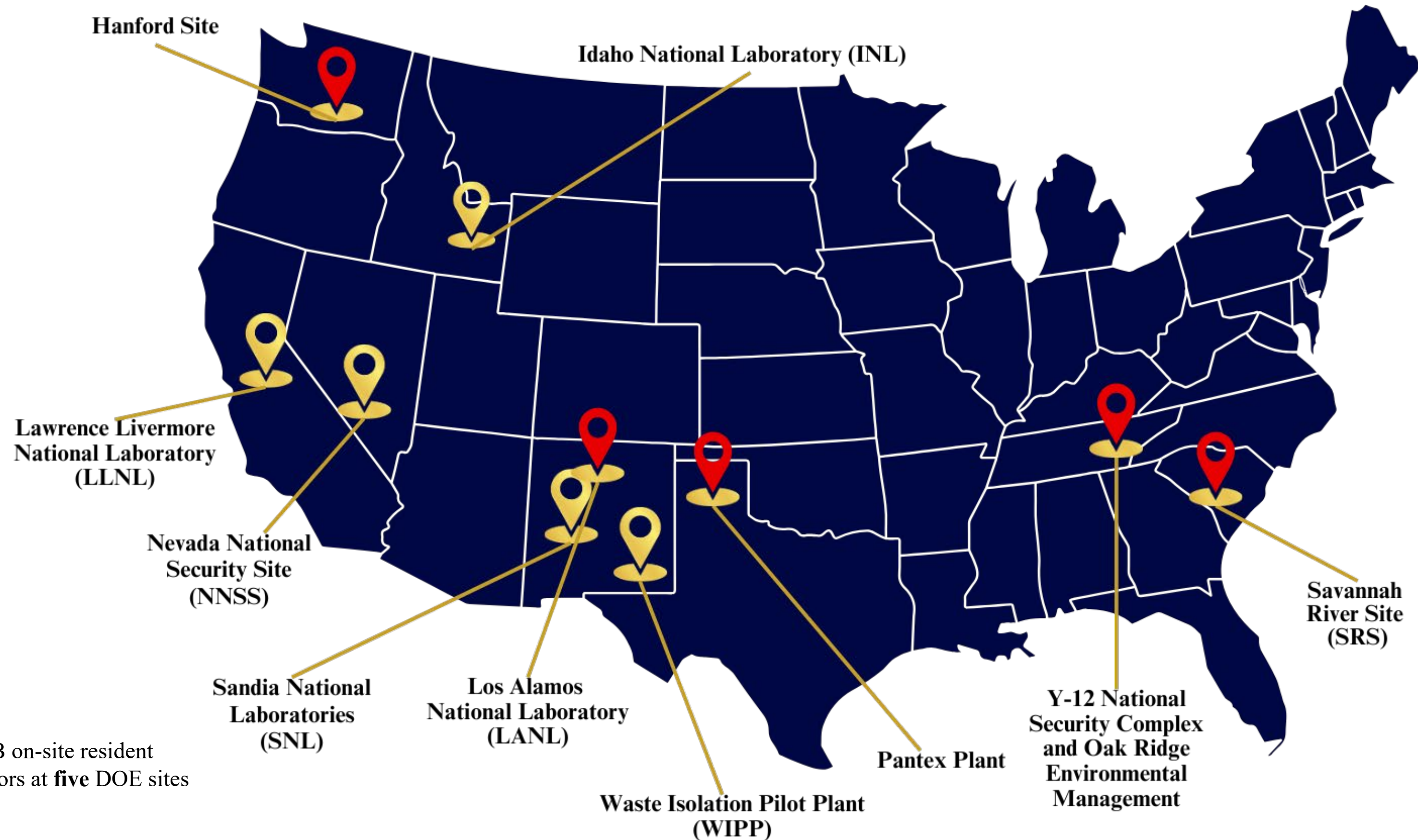


3 Vacancies

Given the loss of Board quorum, the DNFSB Chair is empowered by the Atomic Energy Act to carry out the functions of the Board, in consultation with any other remaining Board Members, for a period of one year.



DOE Sites with Defense Nuclear Facilities





Scope of DNFSB Safety Oversight

- Complex, high-hazard operations involving the assembly or disassembly of nuclear weapons, or the operation of nuclear facilities related to DOE's national defense mission.
- Remediation of nuclear wastes and legacy facilities from more than 80 years of DOE defense nuclear operations.
- Design and construction of new DOE defense nuclear facilities.
- Aging and deteriorating mission critical infrastructure at DOE defense nuclear facilities/sites.
- Adequacy of DOE safety standards related to design, construction, operation, and decommissioning of defense nuclear facilities.



Typical glovebox



WIPP transuranic waste



DNFSB Statutory Authorities

JD



Hanford cesium and strontium capsules

- Issue formal recommendations to the Secretary of Energy about adequate protection of public health and safety.
- Levy reporting requirements on the Secretary of Energy.
- Conduct open or closed hearings and meetings, including the power to subpoena witnesses, if needed.
- Conduct investigations and special studies.

DOE is required by law to grant the Board *“prompt and unfettered access to such facilities, personnel, and information as the Board considers necessary to carry out its responsibilities.”*



Transuranic waste shipment approaching WIPP



DNFSB's Tools to Voice Nuclear Safety

RECOMMENDATIONS

Recommendations: Require DOE to either:

- (a) fix issues that challenge the adequate protection of the health and safety of the public and workers at defense nuclear facilities or
- (b) inform Congress why it rejected the DNFSB's Recommendation.

REPORTING

REQUIREMENTS

Reporting Requirements: DOE must provide its analyses or actions it plans to take (or has taken) to remediate safety issues at defense nuclear facilities.

ADVICE LETTERS AND REPORTS

Advice Letters and Reports: Advise DOE on questionable practices, potential root causes, or problems impacting multiple defense nuclear facilities.

DAILY/WEEKLY STAFF-TO-STAFF DISCUSSIONS

Staff-To-Staff Discussions: Promote staff-to-staff fixes to identified nuclear safety issues as early as possible. DOE and its contractors often appreciate DNFSB staff feedback and the opportunity to address issues at the lowest level.



Los Alamos Resident Inspectors



David Gutowski

Chemical/Nuclear Engineer



Eric Freeman

Nuclear Engineer



Jason Kemp

Fire Protection Engineer

Resident Inspectors are the DNFSB's eyes and ears at DOE's defense nuclear facilities. Everyday, they can observe high-hazard nuclear work, monitor nuclear facility conditions, hear concerns from the workforce, and represent DNFSB with site DOE and contractor leadership. They play an invaluable role in DNFSB's nuclear safety oversight.



Los Alamos National Laboratory (LANL)

Functions: Manufacturing and surveillance of plutonium pits for nuclear weapons, production of heat-source plutonium power sources used for national security and NASA, cleaning up legacy radioactive waste, and researching tritium systems in the nuclear weapons stockpile.

Current Safety Issues:

- Ensuring safety systems in the Plutonium Facility are upgraded and replaced in a timely manner to safely support the increased mission.
- Evaluating changes to the safety strategy and safety systems to ensure the public and workers are adequately protected from radioactive materials that could be released from earthquakes and fires.
- Monitoring for safety challenges as mission-work increases.
- Resolving deficiencies in the safety analysis and controls used to transport radioactive materials on laboratory property.
- Improving safety controls to protect the public and workers from significant quantities of legacy radioactive waste at Area G.



Ventilation system fan planned for replacement.



Excavation of Corrugated Metal Pipes at Area G. 10



Ensuring DOE can Safely Transport Nuclear Materials Within its Site Boundaries

Transportation of radioactive materials between DOE's defense nuclear facilities occurs frequently to support its national security and environmental cleanup missions. DOE requires contractors to develop a "transportation safety document," which identifies what types of transportation accidents could happen and how they could be prevented or mitigated. The DNFSB issued [Recommendation 2023-1, Onsite Transportation Safety](#). In the Recommendation, the DNFSB identified specific concerns at LANL and that DOE needed to improve guidance on developing transportation safety documents.



Roadway guardrail for a steep cliff at LANL

LANL was not analyzing accidents like a vehicle crash off a steep cliff and did not have adequate safety controls in its transportation safety document. This was particularly concerning given the amount of radioactive material that could be moved in a vehicle and the proximity of the public to the roads at the laboratory.





Flanged Tritium Waste Containers (FTWC)

- Four FTWCs must be removed from Area G for proper disposal.
- DOE plans to—in a controlled manner—open the containers to relieve pressure to support proper disposal.
- LANL personnel have extensively practiced the necessary activities under oversight from DOE and DNFSB.



AL-M1.



AL-M1 in FTWC.



FTWCs in their storage shed.



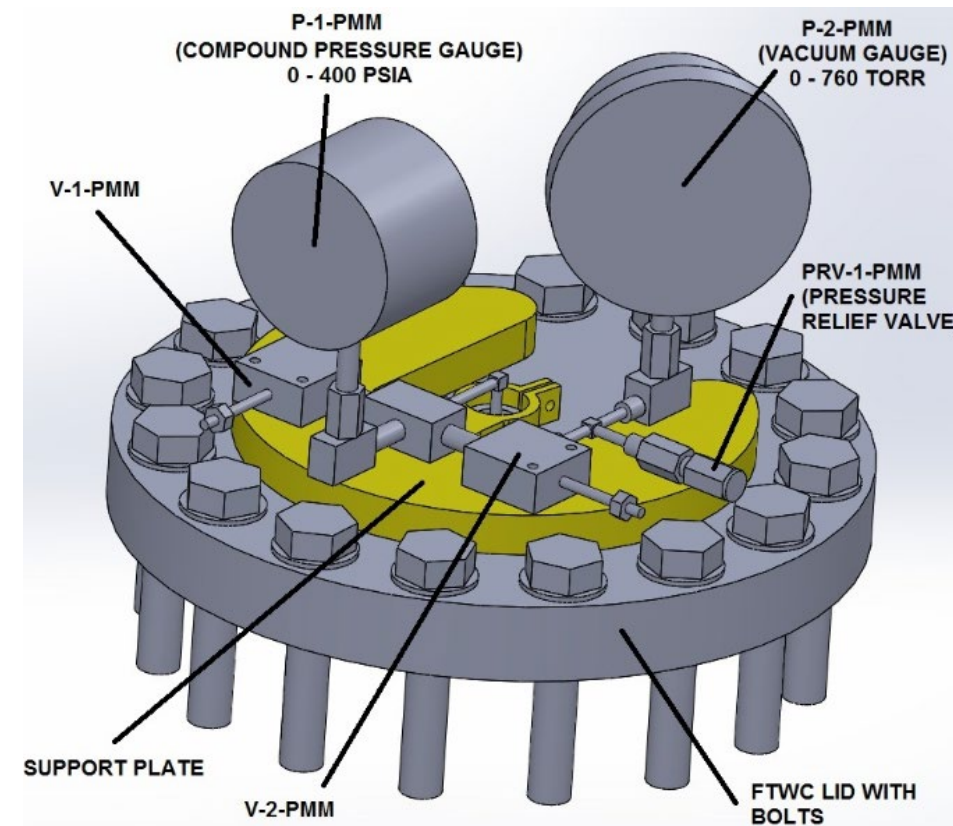
FTWC storage location at Area G.



Flanged Tritium Waste Containers (FTWC)

DNFSB Perspective

- The amount of radioactive tritium in these containers is small.
- Overall nuclear safety risk to the public is low.
- DOE proposed an adequate set of safety controls. Any release of radioactive material to the environment is expected to be very small, well controlled, and present minimal hazard.
- However, the safety risks to the workers performing the operations increases with time due to potentially increasing amounts of flammable gas.
- Consequently, performing FTWC headspace mitigation as soon as practicable, as DOE has proposed, will result in a safe outcome for the public and workers at Los Alamos.



Drawing of pressure relief manifold (top left), mock setup for practicing pressure mitigation activities (top right), and demonstration of remote movement (bottom left).



DNFSB Activities Related to LANL

Recent Board letters to Board

- [June 12, 2025](#): LANL PF-4 Decontamination and decommissioning (D&D) work planning and control.
- [March 17, 2025](#): Board review of three DOE nuclear criticality safety programs (including LANL).
- [June 20, 2023](#): Request for information pertaining to the November 16, 2022, DNFSB public hearing on PF-4 safety.
- [December 6, 2022](#): PF-400 ventilation system.
- [August 17, 2022](#): LANL Area G safety posture.
- [August 11, 2022](#): LANL's efforts to update the leak path factor analysis for the PF-4 safety basis.
- [August 11, 2022](#): LANL PF-4 safety basis addendum that supports heat source plutonium operations.

Active DNFSB Safety Reviews

- Area G safety basis
- PF-4 safety basis
- Glovebox design, installation, and testing



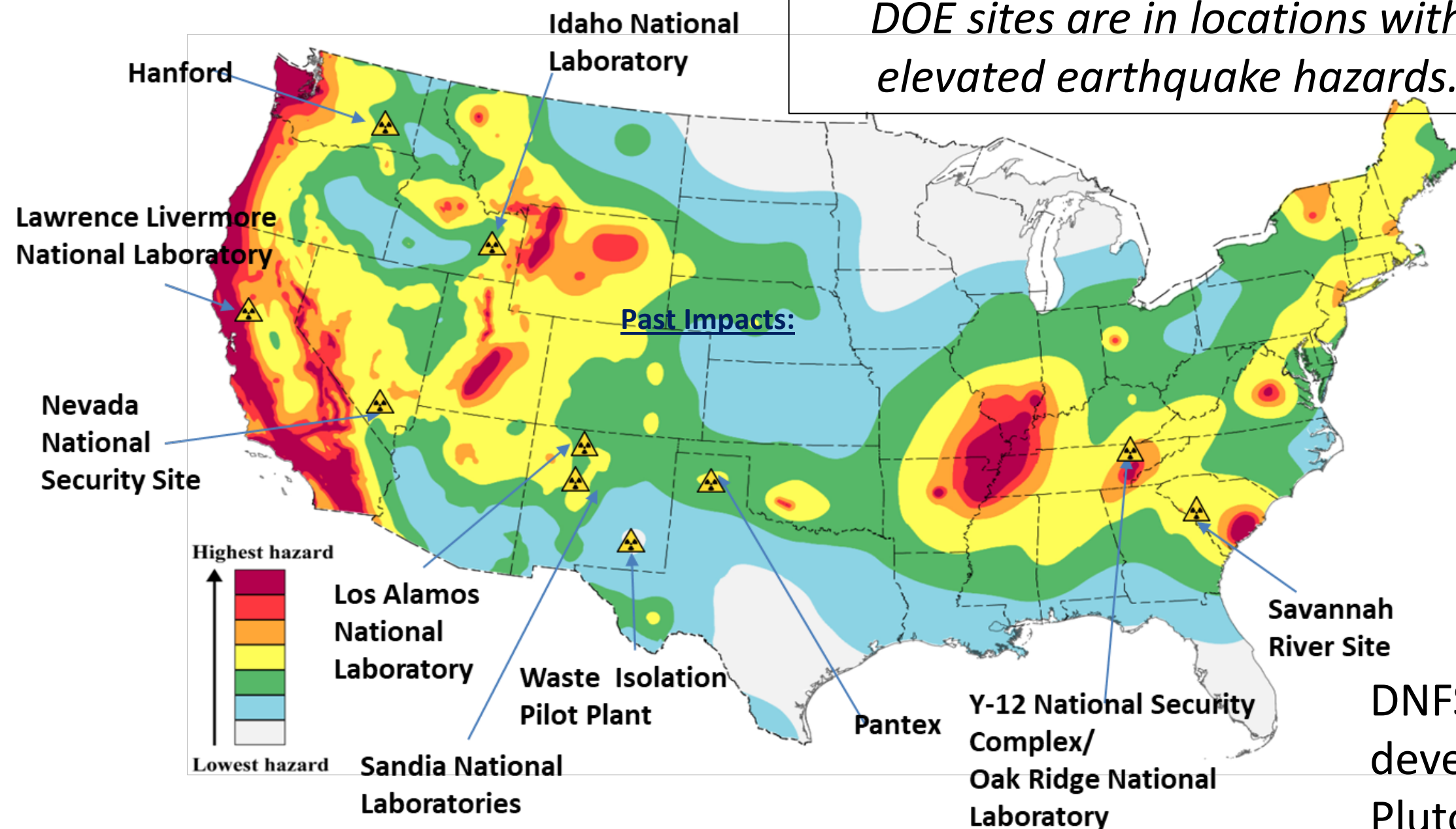
DNFSB staff discuss work planning and control with LANL personnel.



Safeguarding DOE's Defense Nuclear Facilities Against Earthquakes

Past Impact

Earthquakes pose a major threat to defense nuclear facilities, and many DOE sites are in locations with elevated earthquake hazards.



DNFSB worked with DOE to conduct testing and develop a state-of-the-art model to ensure the Plutonium Facility at LANL would prevent the release of radioactive material following a significant increase in predicted earthquake strength.

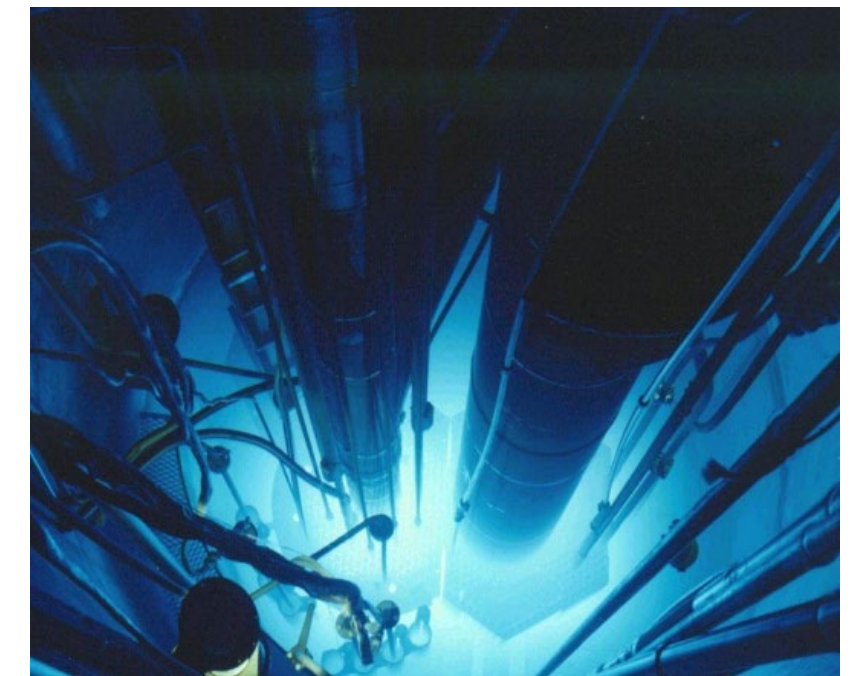
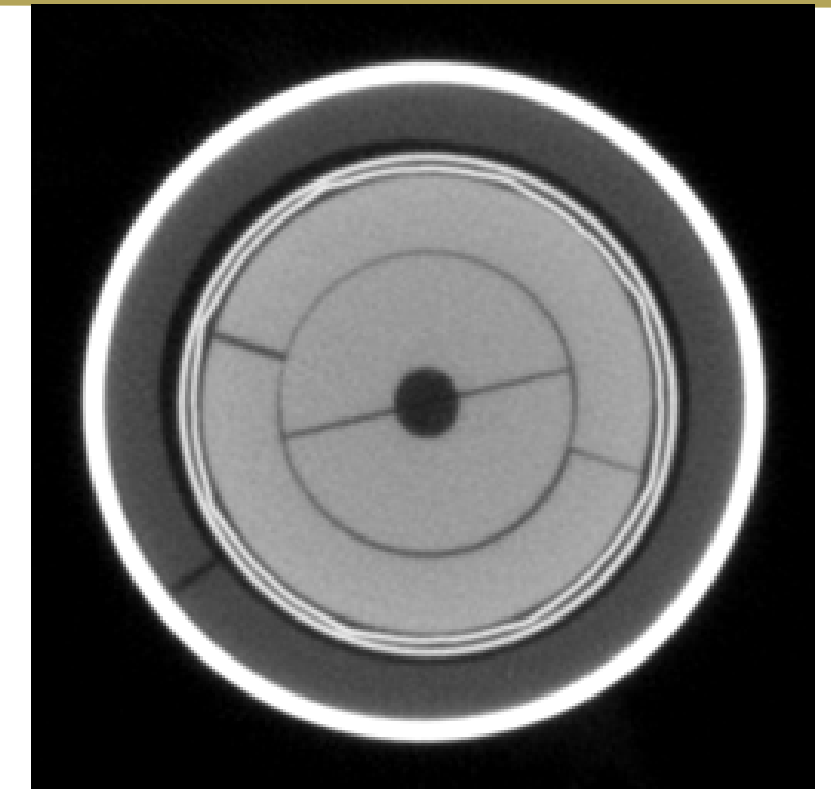
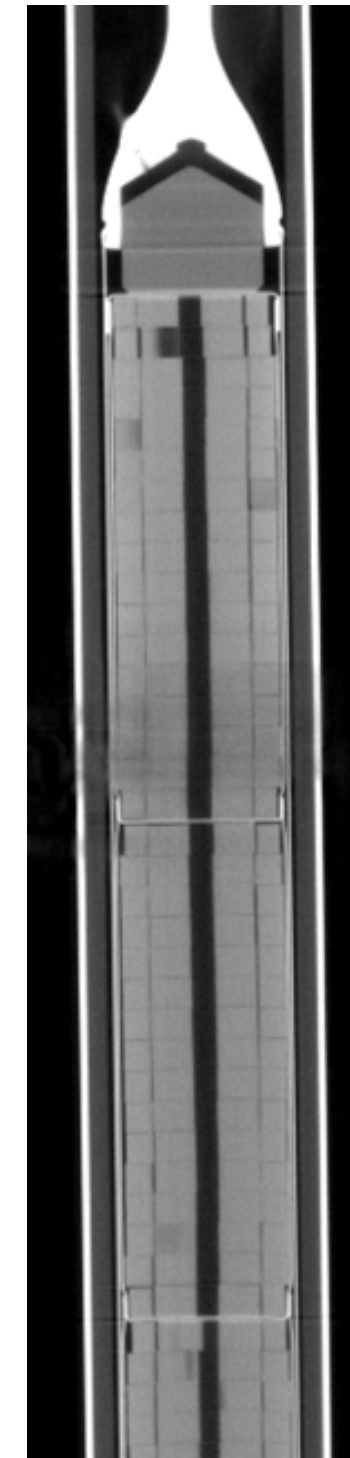


Sandia National Laboratories (SNL)

Functions: Conduct research and development to support national security, nuclear stockpile stewardship, and ensure the nuclear arsenal is safe, secure, reliable, and can fully support national deterrence policy.

Current Safety Issues:

- Ensuring the nuclear fuel used in the Annular Core Research Reactor Fuel Health Evaluation meets requirements to prevent the release of radioactive materials.
- Strengthening the formality of operations and maintenance, particularly lifting and handling activities, to minimize accidents that can release radioactive materials and injure workers.
- Improving ability of the Emergency Management program to respond to an accident that threatens public and worker safety.



Imaging scans of nuclear fuel (left and top) used in the Annular Core Research Reactor at Sandia National Laboratories (bottom). 16



Sandia National Laboratories

Past Impacts:

DNFSB safety review of numerous hoisting and rigging events at the Annular Core Research Reactor Facility prompted a decision by laboratory management to replace a 40-year-old crane with a new state-of-the-art crane with active safety controls.



Current overhead crane in the Annular Core Research Reactor high bay.



DNFSB reviews led to improvements in SNL emergency management. Image: New Emergency Operations Center at SNL.



DNFSB Activities Related to SNL

Recent Board letters to DOE

- [December 16, 2022](#): SNL Technical Area V conduct of operations

Active Safety Reviews

- Annular Core Research Reactor fuel health evaluation
- Conceptual design for the Combined Radiation Environments for Survivability Testing (CREST) Facility project



DOE is designing CREST, a new hazard category 2 nuclear facility, with a nuclear reactor and a coupled accelerator to support the nuclear weapons stockpile.



Waste Isolation Pilot Plant (WIPP)

Functions: WIPP is the nation's only repository for the disposal of transuranic waste—a form of radioactive waste. The waste is disposed nearly one-half mile below the surface in a salt bed formed 250 million years ago. The facility began operation in 1999.

Current Safety Issues:

- Demonstrating that the continuous air monitors used to detect the release of radioactive material and direct airflow to safety related high efficiency particulate air will function properly in harsh underground environments (salt & soot).
- Ensuring effective aging safety infrastructure management systems needed to conduct WIPP's important mission and keep workers safe.
 - Shafts and escapeway hoists – considered obsolete.
 - 30-year-old waste hoist motor replacement.



WIPP Site - Carlsbad, NM.

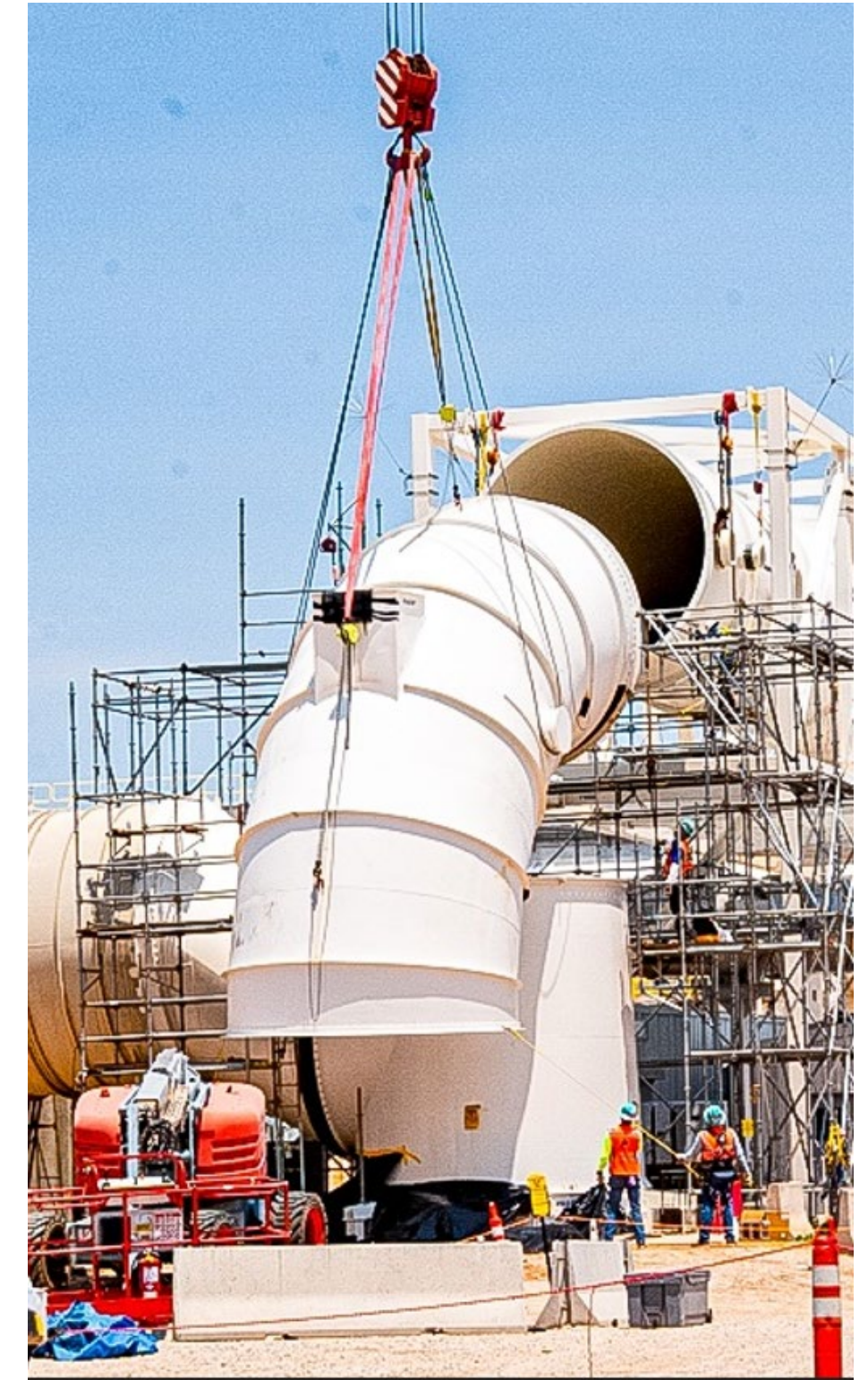


Ensuring the SSCVS Will Function in the Event of a Release of Radioactive Material



Safety Significant Confinement Ventilation System

DNFSB advised DOE in a letter dated May 15, 2024, that the continuous air monitors that activate the Safety Significant Confinement Ventilation System at WIPP had not been tested in conditions representative of the dusty-salt environment where they will need to function. After DNFSB engaged, DOE agreed to start the system in the direct-filtration mode (a safe condition) until they could resolve these concerns.



Final connection in progress



DNFSB Activities Related to WIPP



Safety Significant Confinement Ventilation System

Recent Board letters to DOE

- [June 18, 2025](#): WIPP shafts and hoists
- [May 15, 2024](#): WIPP continuous air monitor design
- [August 17, 2022](#): WIPP 700C fan restart

Active Safety Reviews

- WIPP SSCVS Readiness Review Activities
- Continuous Air Monitor Testing Plans
- Contractor Issues Management, Causal Analysis, and Corrective Actions



Addressing Safety Allegations from Workers and the Public

The DNFSB makes it easy for anyone to [submit safety allegations in a confidential manner](#). The DNFSB reviews all safety concerns within its jurisdiction promptly and dispositions them in accordance with veracity and safety significance.

The DNFSB received multiple concerns from employees at the Pantex Plant about the lack of discipline applied to nuclear explosive operations, the training and qualification program, excessive overtime work, and how management views safety. This is important because workers need to strictly follow procedures to prevent accidents. For example:

- DNFSB reviewed the allegation, confirmed certain issues, and sent a letter to DOE dated [June 9, 2021](#).
- In a response dated [August 5, 2021](#), DOE improved worker training and reinforced expectations on how work is performed to prevent accidents and unnecessary rework.





Questions?



www.dnfsb.gov

DNFSB recommendations, letters, reports, site weekly reports, impacts, and more.