



# Department of Energy Activities Relating to the Defense Nuclear Facilities Safety Board

## Fiscal Year 2023

Report to Congress  
April 2024

United States Department of Energy  
Washington, DC 20585

## Message from the Secretary

This is the U.S. Department of Energy's (Department or DOE), including the National Nuclear Security Administration, Fiscal Year 2023 annual report to Congress addressing the activities related to the Defense Nuclear Facilities Safety Board (DNFSB or Board) and status of Implementation Plans in response to accepted Board recommendations, as required by Section 316(b) of the Atomic Energy Act of 1954, as amended (AEA), codified at 42 United States Code (USC) §2286e(b) and Section 315(g)(1) of the AEA, codified at 42 USC § 2286d(g)(1).

The Board provides oversight and advice to the Secretary of Energy regarding the safety of the Department's defense nuclear facilities. The DNFSB's expertise in reviewing the content and implementation of standards and directives relating to the design, construction, operation, and decommissioning of the Department's defense nuclear facilities helps strengthen the Department's defense nuclear safety posture. We welcome the Board's advice, insights, and recommendations. Together, DOE and the DNFSB fulfill a shared goal to provide reasonable assurance of adequate protection of the DOE workforce and the public from operations conducted at the Department's defense nuclear facilities.

Pursuant to statutory requirements, this report is being provided to the following members of Congress:

- **The Honorable Patty Murray**  
Chair, Senate Committee on Appropriations
- **The Honorable Susan Collins**  
Vice Chair, Senate Committee on Appropriations
- **The Honorable Jack Reed**  
Chairman, Senate Committee on Armed Services
- **The Honorable Roger Wicker**  
Ranking Member, Senate Committee on Armed Services
- **The Honorable Joe Manchin**  
Chairman, Senate Committee on Energy and Natural Resources
- **The Honorable John Barrasso**  
Ranking Member, Senate Committee on Energy and Natural Resources
- **The Honorable Kay Granger**  
Chairwoman, House Committee on Appropriations
- **The Honorable Rosa DeLauro**  
Ranking Member, House Committee on Appropriations

- **The Honorable Mike Rogers**  
Chairman, House Committee on Armed Services
- **The Honorable Adam Smith**  
Ranking Member, House Committee on Armed Services
- **The Honorable Cathy McMorris Rodgers**  
Chair, House Committee on Energy and Commerce
- **The Honorable Frank Pallone, Jr.**  
Ranking Member, House Committee on Energy and Commerce

If you have any questions or need additional information, please contact Ms. Meg Roessing, Deputy Director for External Coordination, Office of Budget, Office of the Chief Financial Officer, at (202) 586-3128; or Ms. Danisha Craig, Senior Legislative Affairs Advisor (Senate) or Mr. Eric Delaney, Deputy Assistant Secretary for House Affairs, Office of Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,



Jennifer Granholm

## Executive Summary

This is the U.S. Department of Energy's (Department or DOE), including the National Nuclear Security Administration, annual report to Congress<sup>1</sup> regarding the Department's Fiscal Year (FY) 2023 activities related to the Defense Nuclear Facilities Safety Board (DNFSB or Board) and status of Implementation Plans (IPs) in response to accepted Board recommendations.<sup>2</sup>

It is the policy of DOE to provide reasonable assurance of adequate protection and safety of workers, the public, and the environment during the design, construction, operation, and decommissioning of its defense nuclear facilities (DNFs). This policy is implemented through the Department's nuclear safety program, which is comprised of a robust nuclear safety regulatory framework and multi-layered oversight by DOE line management and headquarters organizations. Oversight of DOE DNFs is supplemented by the DNFSB, an independent executive branch agency established by Congress in 1988, that provides analysis, advice, and recommendations to the Secretary of Energy regarding safety at DOE DNFs.

In FY 2023, DOE:

- Provided 2,150 documents to the DNFSB in response to 285 requests for information.
- Participated in 29 meetings or briefings with the Board.
- Completed responses to 21 of 25 Board reporting requirements. The remaining responses are projected to be completed in FY 2024.
- Participated in a DNFSB public hearing regarding Los Alamos National Laboratory activities.

Additional information regarding these and other interactions is detailed within the report.

As of the end of FY 2023, the status of open DOE IPs developed in response to accepted Board recommendations is as follows:

- **Recommendation 2019-1, Uncontrolled Hazard Scenarios and 10 CFR 830 Implementation at the Pantex Plant.** Sixty-eight of 69 IP actions have been completed. The remaining action is scheduled to be completed in FY 2024.
- **Recommendation 2020-1, Nuclear Safety Requirements.** DOE transmitted the IP to the DNFSB on June 27, 2022. The IP contains 17 milestones. Seven of 17 milestones were completed in FY 2023. The remaining items are on schedule as identified in the IP.

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<sup>1</sup> In accordance with Section 316(b) of the Atomic Energy Act of 1954, as amended (AEA), codified at 42 United States Code (USC) § 2286e(b).

<sup>2</sup> In accordance with Section 315(g)(1) of the AEA, codified at 42 USC § 2286d(g)(1).



# DEPARTMENT OF ENERGY ACTIVITIES RELATING TO THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

## FISCAL YEAR 2023

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## I. Legislative Language

This report is being provided to Congress in accordance with Section 316(b) of the Atomic Energy Act of 1954, as amended (AEA), codified at 42 United States Code (USC) § 2286e(b):

*DOE REPORT. The Secretary of Energy shall submit to the Committees on Armed Services, Appropriations, and Energy and Commerce of the House of Representatives and the Committees on Armed Services, Appropriations, and Energy and Natural Resources of the Senate each year, at the same time that the President submits the budget to Congress pursuant to section 1105(a) of Title 31 [United States Code], a written report concerning the activities of the Department of Energy under this subchapter, including all recommendations made by the Board, during the year preceding the year in which the report is submitted.*

This report also addresses Section 315(g)(1) of the AEA, codified at 42 USC § 2286d(g)(1), which states:

*Subject to paragraph (2), not later than one year after the date on which the Secretary of Energy transmits an implementation plan with respect to a recommendation (or part thereof) under subsection (f), the Secretary of Energy shall carry out and complete the implementation plan. If complete implementation of the plan takes more than 1 year, the Secretary of Energy shall submit a report to the Committees on Armed Services, Appropriations, and Energy and Commerce of the House of Representatives and the Committees on Armed Services, Appropriations, and Energy and Natural Resources of the Senate setting forth the reasons for the delay and when implementation will be completed.*

## II. Introduction

This report contains information regarding fiscal year (FY) 2023 activities between the U.S. Department of Energy (Department or DOE), including the National Nuclear Security Administration (NNSA or NA), and the Defense Nuclear Facility Safety Board (DNFSB or Board), on safety initiatives and activities at DOE defense nuclear facilities (DNFs), and the status of open DOE implementation plans (IPs) developed in response to DNFSB recommendations accepted by the Secretary of Energy (Secretary).

Section 318 of AEA, codified at 42 USC § 2286g, defines a DNF as:

- (1) A production facility or utilization facility (as defined in 42 USC §2014 [§ 11 of the AEA]) that is under the control or jurisdiction of the Secretary of Energy and that is operated for national security purposes, but the term does not include:
  - (a) Any facility or activity covered by Executive Order No. 12344, dated February 1, 1982 [50 USC § 2511 note], pertaining to the Naval nuclear propulsion program;
  - (b) Any facility or activity involved with the transportation of nuclear explosives or nuclear material;

- (c) Any facility that does not conduct atomic energy defense activities; or
  - (d) Any facility owned by the United States Enrichment Corporation.
- (2) A nuclear waste storage facility under the control or jurisdiction of the Secretary of Energy, but the term does not include a facility developed pursuant to the Nuclear Waste Policy Act of 1982 (42 USC 10101 et seq.) and licensed by the Nuclear Regulatory Commission.

**DOE Sites with Defense Nuclear Facilities**

Site		Location	DOE Program Office Responsible for DNFs*
Name	Acronym or Abbreviation		
Hanford Site	Hanford	Washington	EM, SC
Idaho Cleanup Project	ICP	Idaho	EM
Lawrence Livermore National Laboratory	LLNL	California	NA
Los Alamos National Laboratory	LANL	New Mexico	NA, EM
Nevada National Security Site	NNSS	Nevada	NA
Oak Ridge Office of Environmental Management	OREM	Tennessee	EM
Pantex Plant	Pantex	Texas	NA
Sandia National Laboratories – New Mexico	SNL-NM	New Mexico	NA
Savannah River Site	SRS	South Carolina	NA, EM
Waste Isolation Pilot Plant	WIPP	New Mexico	EM
Y-12 National Security Complex	Y-12	Tennessee	NA

\* EM = Office of Environmental Management; NA = National Nuclear Security Administration; SC = Office of Science

It is the policy of DOE to provide reasonable assurance of adequate protection and safety of workers, the public, and the environment during the design, construction, operation, and decommission of its DNFs. The Department protects its workers, the public, and the environment from hazards associated with its DNFs through a rigorous and proactive nuclear safety program that is comprised of a robust nuclear safety regulatory framework of Federal Regulations, DOE directives (i.e., Notices, Policies, Orders [O], Manuals, and Guides) and technical standards (STDs), and multi-layered oversight by DOE line management, management and operating contractors, federally managed field and headquarters Program Offices, the Office of Environment, Health, Safety, and Security, the Office of Enterprise Assessments, and Central Technical Authorities.

Oversight of DOE DNFs is supplemented by the DNFSB. DNFSB is an independent executive branch agency established by Congress in 1988 that provides advice and recommendations to the Secretary regarding the status and implementation of DOE nuclear safety programs

designed to provide protection of workers<sup>3</sup> and the public from operations conducted at DOE DNFs. The Board and the Department communicate and interact through a variety of mechanisms, including Board recommendations, reporting requirements, informational letters, public meetings, public hearings, briefings, discussions, and site visits. DNFSB:

- Reviews and evaluates the content and implementation of DOE standards and directives relating to the design, construction, operation, and decommissioning of DOE DNFs.
- Performs analyses of design and operational data from DOE DNFs.
- Performs investigations of safety-related practices, incidents, and accidents at DOE DNFs.
- Reviews the design and construction of new DOE DNFs.
- Makes recommendations regarding safety at DOE DNFs.

Within DOE, interactions with DNFSB are governed by DOE O 140.1A, *Interface with the Defense Nuclear Facilities Safety Board*, issued June 15, 2020, that emphasizes DOE line management accountability and establishes clear requirements and responsibilities for DOE Federal and contractor staff when communicating and/or interfacing with DNFSB. Additionally, a Memorandum of Understanding between DOE and DNFSB was executed on February 17, 2022, to improve agency-to-agency communication, transparency, and information sharing. Additional information regarding Departmental interactions with DNFSB is available at: <https://ehss.energy.gov/depref/>.

### III. Departmental Activities Related to the DNFSB

This section provides information regarding notable activities between DOE and DNFSB and other information related to nuclear safety at DOE DNFs. This section also provides information regarding responses to Board requests for information, meetings, and briefings between the two agencies, and the status of reporting requirements.

#### A. Departmental Activities

##### DNFSB Public Hearing regarding LANL Activities

On November 16, 2022, DOE and NNSA leadership provided testimony on the safety posture of LANL activities and ongoing safety basis and facility safety improvements at a public hearing conducted by the Board. NNSA also provided responses to questions taken for the record.

##### Facility Maintenance – Aging Infrastructure Management

In May 2022, DNFSB initiated a complex-wide review of Aging Infrastructure Management at five DNFs: Pantex, SRS, LANL, Hanford, and Y-12. DNFSB evaluated the flow down of DOE requirements into site procedures and the implementation and use of the software program, BUILDER, as a prioritization tool for funding decisions on work related to aging infrastructure. This complex-wide review was still ongoing at the end of FY 2023.

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<sup>3</sup> Public Law 116-92, the National Defense Authorization Act for FY 2020, § 3202, modified the DNFSB mission to include health and safety of employees and contractors at DOE DNFs.



## B. Program Office Activities

### Office of Environmental Management

#### *Programmatic Nuclear Safety Activities*

In FY 2023, the EM Office of the Chief of Nuclear Safety continued to perform oversight, provide technical support, and execute technical activities, as appropriate, in support of EM nuclear operations at DNFs. Specific activities included:

- Conducting training on the revised DOE-STD-5506-2021, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, (see additional detail below).
- Continuing to assist sites and other program offices with implementation of DOE-STD-5506-2021, as requested.
- Assisting Field Offices with supporting documentation (such as safety basis documents) for newly planned, or major modifications of, high-hazard DNFs.
- Continuing to provide technical expertise and support for the revised LANL Area G safety basis documents.
- Providing support for the Federal Readiness Review of the Idaho Cleanup Project Integrated Waste Treatment Unit facility.
- Providing support for the OREM Building 2026 Federal Operational Readiness Review for the Initial Processing Campaign.
- Supporting the implementation of DOE O 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, required project peer and external independent reviews with environment, safety, and health technical expertise. Some reviews included: SRS Saltstone Disposal Units 8-12, WIPP Safety Significant Confinement Ventilation System and Utility Shaft Projects, and the Hanford Waste Treatment Plant Project.

#### *DOE-STD-5506-2021 Training*

EM conducted training classes on the revised standard at:

- Oak Ridge in October 2022, February 2023, and July 2023;
- WIPP in December 2022;
- DOE Nuclear and Facility Safety Programs Workshop in Salt Lake City in October 2022;
- Albuquerque, NM in March 2023;
- LANL in May 2023; and
- ICP Site in June 2023 and August 2023.

Classes were well attended and included DNFSB participation.

*Improvements in Safety Oversight*

- EM increased safety oversight personnel staffing within the Chief of Nuclear Safety Organization with the goal of enhancing safety management program oversight and engagement.
- EM is revising its formal oversight program documentation to provide more detailed guidance on the implementation of an oversight process that will utilize the outcomes and information from Field Offices and contractor assurance systems.
- EM is implementing a more robust and agile management system for safety oversight to assure that identified issues are effectively managed and with corrective actions that are appropriate, complete, and implemented in accordance with requirements before closure.

National Nuclear Security Administration

*Programmatic Nuclear Safety Activities*

In FY 2023, the NNSA Office of Safety, Infrastructure, and Operations and Office of Acquisition and Project Management were restructured into three offices: the Office of Environment, Safety and Health; Office of Infrastructure; and Office of Partnership and Acquisition Services. The reorganization supports continued work toward improving technical expertise, operational excellence, performance culture, and nuclear safety.

In FY 2023 notable safety-related activities included:

- The resolution of the dosimetry issues at Pantex. Both Y-12 and Pantex now have fully compliant DOE Laboratory Accreditation Programs;
- Supporting the development of DOE O 421.1, *Nuclear Safety Basis*, DOE O 420.1, *Facility Safety*, and DOE-STD-1027, *Hazard Categorization of DOE Nuclear Facilities*, in response to DNFSB Recommendation 2020-1;
- Supporting safety basis reviews, including:
  - Y-12 Uranium Process Facility documented safety analysis (DSA) and technical safety requirement (TSR),
  - LANL Plutonium Facility–Building 4 (PF-4) DSA,
  - SRS Plutonium Processing Facility consolidated hazards analysis, and
  - NNS Device Assembly Facility DSA rewrite and U1A Enhanced Capabilities for Subcritical Experiments Preliminary DSA (PDSA).
- Leading the Pantex Safety Basis Redesign Initiative;
- Increasing project review safety engagement in NNSA Office of Infrastructure, and establishing integration between NNSA Office of Environment, Safety and Health subject matter experts and capital line-item projects;

- Development of a more consistent and data-driven measurement of safety of NNSA contractors by the Safety Performance Objectives, Measures and Commitments Working Group;
- Encouraging the implementation of DOE-STD-5506-2021, where applicable. Sites completed evaluations of the potential impacts of implementing the standard;
- Continued performance of nuclear explosive safety evaluations at applicable sites;
- Continuing to improve Facility Representatives, safety professionals, and other technical staff professional competence through high quality and position-specific training, mentoring, and other learning activities supporting Federal Technical Capabilities requirements;
- Continuing the implementation of the NNSA Safety Roadmap - a strategic plan providing direction for implementing initiatives designed to facilitate an effective and efficient safety oversight program; and
- Continuing to host bi-monthly safety conference calls with Field Offices to provide a forum for discussion of current events and challenges, sharing of lessons learned and best practices, and communicating NNSA-wide concerns and initiatives.

### *Improvements in Safety Oversight*

In FY 2023, NNSA continued to enhance the “One-NNSA” governance model, focusing on improvements to integrate activities between Headquarters and Field Office oversight. Highlights include:

- Office of Environment, Safety, and Health leadership and staff began conducting awareness visits to NNSA sites to establish communications with the Field Offices and become familiar with ongoing projects. Focus is being given to nuclear safety and DNFSB issues. The visits are expected to continue into FY 2024.
- Ongoing monthly meetings conducted between Headquarters and Field Offices to ensure Field Offices are properly resourced to support the NNSA Site Integrated Assessment Program schedule.
- Integration of the Biennial Review process with oversight of safety management systems and providing training on conducting and documenting performance-based oversight as part of the Biennial Review process.
- Continued support in Subterranean Operations – Safety and Oversight Integrated Project Team with the Office of Environment, Health, Safety, and Security; EM; and SC to review and develop improvements to DOE directives and regulations that pertain to DOE underground operations.

### C. Site-Specific Activities

#### Hanford Site

##### *Waste Treatment and Immobilization Plant*

In FY 2023, the Department continued commissioning activities for the Low Activity Waste Facility, Balance of Facilities, and Analytical Laboratory, collectively known as the Direct-Feed Low-Activity Waste Facilities. These facilities support feeding Hanford Tank Farms liquid waste directly to the Low Activity Waste Facility to create a stable waste form for disposal. Melter 1 heat-up and checkout was conducted in FY 2023.

In FY 2023, the Department reestablished design activities for the High-Level Waste facility. The request for proposal was issued to the incumbent contractor for the design work to be accomplished by FY 2027. Design has resumed in earnest and low-risk field work has been initiated.

On February 28, 2023, the Board transmitted a letter to the Secretary with a reporting requirement for a written response regarding the implementation of a cover block removal specific administrative controls (SAC) at the Tank Farms, which had not been included in the Low-Activity Waste Facility DSA. On April 28, 2023, the Department transmitted a letter regarding the planned safety improvements to address this concern.

##### *Central Waste Complex*

On November 16, 2021, the Board transmitted a letter to the Secretary documenting the results of the DNFSB November 2020 safety basis review of the Central Waste Complex. The letter identified several weaknesses and areas for improvement in the DSA and TSR documents. The Department continues to address the issues identified in the Board's letter as part of an ongoing update to the DSA and TSRs.

##### *242-A Evaporator Facility*

In FY 2023, discussions with the Board continued regarding commitments made by DOE in its August 28, 2014, response to a June 18, 2014, Board letter with a reporting requirement related to the 242-A Evaporator Facility safety basis. The Department's commitments were related to: (1) a fire-related vulnerability of safety-significant solenoid valves located in the condenser room, and (2) the adequacy of programmatic administrative controls for seismic shutdown. A briefing with the Board was held on October 12, 2022, to address the Board's concerns. On April 17, 2023, the Department transmitted a letter to the Board regarding the path forward to address the concerns. On June 27, 2023, the Board transmitted a letter to the Department, which noted the Board was encouraged by the revised path forward and included a reporting requirement for semi-annual briefings to monitor progress. The first of these briefings was held on September 19, 2023.

##### *Tank-Side Cesium Removal System*

In FY 2023, DNFSB continued discussions with DOE regarding the results of the Department's October 2021 readiness assessment of the Tank-Side Cesium Removal System, and a documented finding of threaded connector damage on the system's ion exchange column. On

October 6, 2022, the Board transmitted a letter to the Secretary with a reporting requirement for a briefing regarding the actions DOE would take to ensure the repaired connections perform their safety function and to ensure that similar conditions would not occur in the future. The Department briefed the Board on December 20, 2022, regarding actions taken. The Tank-Side Cesium Removal System successfully operated throughout FY 2023 enabling Hanford to treat more than 550,000 gallons of Tank Farm waste. The treated waste will be staged and used to feed the Low Activity Waste Facility.

### Idaho Cleanup Project

#### *DOE-STD-5506-2021 Implementation*

On February 24, 2023, the Board issued a letter to the Secretary with a reporting requirement for a briefing regarding: (1) whether, when, and how DOE intended to implement DOE-STD-5506-2021, at the ICP Site, and (2) any actions taken to address safety issues described in the report included in the letter. DOE provided a briefing to the Board on May 22, 2023, addressing the stated issues and noting the need to train personnel on the standard prior to its implementation at the ICP Site. Two training sessions were conducted at the ICP Site after the Board briefing. On July 26, 2023, DOE directed the site contractor to prepare a detailed cost estimate and proposed schedule to address the impacts of implementing the standard.

#### *Integrated Waste Treatment Unit*

On April 11, 2023, the new Waste Calcining Facility transferred sodium bearing waste to the Integrated Waste Treatment Unit. In mid-September 2023, the unit initiated an outage to support replacement of the Granular Activated Carbon bed media. The outage is planned to be completed in calendar year 2024.

#### *Accelerated Retrieval Projects*

In FY 2023, the Radioactive Waste Management Complex completed decontamination and demolition for Accelerated Retrieval Projects III, IV, and V to include associated airlocks and drum processing stations. Project II was still in process at the end of FY 2023.

#### *BN510 Drums*

In FY 2023, the Radioactive Waste Management Complex began shipments of BN510 drums (2019 and newer) to WIPP. BN510 drums older than 2019 are scheduled to be repackaged in standard waste boxes for future shipments to WIPP.

All drums associated with a criticality cleanout were inspected for liquids via Real Time Radiography. Of the drums inspected, approximately nine percent of the drums were found to contain liquids. These drums were segregated for future re-processing at the Advanced Mixed Waste Treatment Facility. No liquids were identified in the statistical sampling of non-criticality cleanout product drums.

### Los Alamos National Laboratory

On November 16, 2022, the Board held a public hearing in Santa Fe, New Mexico, to gather information regarding legacy cleanup activities, nuclear safety, and pit production at LANL.

Panel discussions took place between NNSA/LANL leadership and the Board, as well as public comment periods.

*Technical Area 54, Area G*

In FY 2023, DOE continued to proactively communicate with DNFSB regarding Area G activities. Fifty-nine shipments of TRU waste were sent to WIPP—surpassing the proposed goal of 40 shipments.

In FY 2023, DNFSB held multiple discussions with EM regarding the development of the Area G Atmospheric Dispersion Modeling Protocol and corresponding DSA. These discussions began in FY 2022 and continued throughout FY 2023, with EM fulfilling numerous requests for information, holding several discussions, and responding to follow-up correspondence from the Board.

In FY 2023, the Corrugated Metal Pipe Size-Reduction Project was approved for start-up. Twenty sections of pipe were retrieved, and five sections were size reduced in FY 2023. DNFSB was engaged during project activities including a stop work related to excavation pit compliance issues and the site-wide stop work due to a programmatic failure of the site-wide Training and Qualification program. The identified failures resulted in a TSR violation.

*LANL Remediated Nitrate Salt TRU Waste Stored at Waste Control Specialists, LLC*

In FY 2023, work continued in the development of a path forward for the permanent disposition of LANL-generated TRU waste currently being stored at the Waste Control Specialists, LLC facility in Texas. The Board was involved in meetings and discussions and has maintained cognizance throughout. A decision on the final disposition of the waste has not yet been made.

*Plutonium Facility—Building 4 (PF-4)*

In FY 2023, efforts to update the DSA continued. LANL progressed toward producing a revised DSA in accordance with DOE-STD-3009-2014, *Preparation of Nonreactor Nuclear Facility Documented Safety Analysis*. Key building blocks (e.g., hazards analyses) were completed in support of the accident analyses and derivation of controls. LANL expects to deliver the draft DSA for NNSA review and approval in FY 2024.

In FY 2023, LANL completed the Seismic Performance Reassessment Project, an analysis concluding that the seismic safety risk in PF-4 is acceptable until LANL updates the site-specific probabilistic seismic hazard analysis in FY 2025. DNFSB was engaged with LANL during this analysis and affirmed its technical viability. On August 15, 2023, the Board transmitted a letter to the Secretary noting that it considered the approach in assessing the seismic risk as a best practice that DOE should consider applying at other DNFs.

*Radiological Laboratory and Utility Office Building*

In FY 2023, NNSA approved the startup of Hazard Category 3 nuclear operations of this facility based on the completion of the readiness review. The Radiological Laboratory and Utility Office Building support the PF-4 missions and enable curtailing those operations historically performed in the Chemistry and Metallurgy Research Facility.

*LANL Transportation Safety Document*

On November 4, 2022, NNSA briefed the Board in response to a January 6, 2022, Board letter regarding onsite transportation of nuclear materials. In FY 2023, LANL developed and implemented compensatory measures to strengthen the rigor of controls for onsite transportation of nuclear materials. The compensatory measures were raised to TSR level controls in a revised version of the LANL transportation safety document. LANL is working on additional improvements while DOE, including NNSA, evaluates potential revisions to the safe harbor directives for transportation DSAs.

*Support for DNFSB oversight at LANL*

In FY 2023, LANL provided support for DNFSB oversight activities to include receiving 61 DNFSB visitors, attending over 300 hours of meetings, supporting 8 Board reviews, and responding to 14 document requests comprised of over 200 documents within an average time of 20 days.

Nevada National Security Site

*Device Assembly Facility National Criticality Experiments Research Center (NCERC)*

NNSA, LANL Nuclear Criticality Safety Division, and NCERC line management continued to identify and implement improvements that addressed concerns contained in a June 16, 2022, Board letter to the Secretary regarding concerns with the nuclear criticality safety program at the LANL-operated NCERC. NNSA briefed the Board on December 9, 2022, on the implemented and planned improvements.

In July 2023, as committed to the Board, NNSA completed an independent assessment of the NCERC nuclear criticality safety program in part to evaluate implemented corrective actions to weaknesses identified in the Board's June 16, 2022, letter. The assessment was shadowed by DNFSB. The results of the assessment concluded that some of the identified weaknesses were being addressed through corrective actions, although several of the DNFSB identified weaknesses remain unresolved.

In FY 2023, NNSA re-validated the analysis and evaluations of NCERC nuclear criticality safety evaluations to address DNFSB concerns regarding inadequate consideration of impacts of an increased seismic hazard. No additional issues were identified, and applicable technical documentation was revised as a result of the analysis and evaluations to explicitly address the concerns.

*Device Assembly Facility Fire Suppression System Water Tank*

In December 2022, an inspection revealed greater than expected corrosion of the Device Assembly Facility fire suppression system water tank interior. A Potential Inadequacy of the Safety Analysis was declared and compensatory measures for monitoring the tanks for leaks were established. No identified active water leaks were identified since implementing the compensatory measures. A Justification for Continued Operations identifying two general service water tanks as alternate sources for the fire suppression system was submitted to NNSA for approval. Repair of the existing water tank is anticipated to be completed in FY 2024. A new safety class water tank will be procured to replace the existing tank.

### *Device Assembly Facility DSA*

In FY 2023, the Device Assembly Facility DSA rewrite and associated draft safety basis documentation review was a primary focus of the DNFSB. Interactions throughout the year with the DNFSB and other stakeholders enabled effective comment resolution. The DSA rewrite is scheduled to be completed in FY 2024.

### *U1a Complex*

In FY 2023, construction activities were completed for underground and surface preparations for an eight-foot diameter borehole to provide a path for utilities from the surface. Activities for the borehole liner installation were initiated and will continue into FY 2024. In addition, a new refuge station was put into service on the east side of the underground facility. Mining operations were initiated for the Zeus Test Bed Facility Infrastructure Project. Ventilation improvements were also implemented with the installation of a booster fan.

FY 2023 saw continued progress toward the U1a hoist programmable logic controller replacement. The design subcontract procurement package was completed, and the award is anticipated to be issued in early FY 2024.

In FY 2023, NNSA coordinated with DNFSB during reviews of major modification safety basis documents, including the Enhanced Capabilities for Subcritical Experiments and Zeus Test Bed PDSAs. The PDSAs incorporate inherently safer design concepts and implement a compliant hierarchy control strategy to support safe operations. NNSA expects to approve the updated PDSAs in FY 2024.

In FY 2023, NNSA continued to reduce reliance on Specific Administrative Controls (SACs) in the existing U1a Complex safety basis in response to issues identified in a December 19, 2018, DNFSB letter.

### Oak Ridge Office of Environmental Management

#### *Transuranic Waste Processing Center*

During FY 2023, the TRU Waste Processing Center continued to reduce the inventory of TRU waste safely and systematically. DNFSB routinely visited and observed operations in FY 2023.

In October 2022, a new site contractor successfully assumed facility operations, with EM authorizing operations under enhanced Federal oversight. In FY 2023, 6 shipments of over 200 drums of waste were shipped to WIPP for final disposal. In July 2023, safety basis documents were approved by EM to address new work scopes associated with new waste types and operations.

#### *Uranium-233 Project*

During FY 2023, OREM continued to safely manage, store, and disposition U-233 material.

In June 2023, safety basis documents were approved by EM to address work scope governing activities associated with the Initial Processing Campaign. In October 2022, EM authorized the initiation of the Initial Processing Campaign. Four canisters in the hot cells were processed and the first shipment of Thorium-229 was completed. In February 2023, the first depleted-uranium



nitrate tank was solidified and validation of Waste Acceptance Criteria from NNSA was received. By the end of FY 2023, 4 solidified tanks were shipped for final disposition and approximately 140 canisters of material were processed.

## Pantex Plant

In June 2023, the DNFSB Vice Chair visited the Pantex site to observe an emergency exercise; participate in site management discussions regarding site separation, production status, conduct of operations, and explosive technology; and tour the site.

## *Safety Posture*

In FY 2022, the Board issued a letter to the NNSA Administrator that included a reporting requirement for a briefing on how NNSA plans to maintain the positive trajectory of its previously communicated improvement initiatives for conduct of operations and organizational culture at Pantex. The letter also addressed concerns with revisions to DOE-NA-STD-3016, *Hazard Analysis Reports for Nuclear Explosive Operations*, and co-located unit operations for nuclear weapons systems with conventional high explosives. NNSA and the site contractor provided a briefing to the Board on November 22, 2022, highlighting management approaches and strategies planned and in use. No other briefings or reports were requested.

## *Site Separation and Contract Transition*

In FY 2023, NNSA briefed the Board on the status of Pantex and Y-12 site contract separation and communicated the commitment to sustain the previously implemented improvement actions through site separation and contract transition activities.

## *Pit Inventory*

In FY 2022, the Board transmitted a letter to the NNSA Administrator requesting a report that addressed concerns regarding the slow rate at which Pantex was repackaging pits from traditional AL-R8s to AL-R8 sealed insert containers. In FY 2022, NNSA provided a report to the Board and committed to placing a higher priority on repackaging of the pits. In FY 2023, repackaged pits exceeded FY 2023 commitments and work continues to sustain the momentum into FY 2024.

## *Dosimetry*

In FY 2021 and FY 2022, DNFSB conducted a comprehensive review of the breakdown of the external dosimetry program at Pantex that occurred in 2020 resulting in a Board request for a report and a briefing on lessons learned from this breakdown and actions to prevent reoccurrence at Pantex and other DNFs. NNSA provided the report in October 2022 and conducted the Board briefing in November 2022, which noted the implementation of corrective actions, establishment of an Enterprise Dosimetry Program for Pantex and Y-12, and formal accreditation for the Enterprise Dosimetry Program through the DOE Laboratory Accreditation Program. Lessons learned were shared with other DNFs.

## *Legacy Conditions of Approval and Planned Improvements*

During FY 2022 and FY 2023, DNFSB conducted and completed a comprehensive review of the path to closure for various conditions of approval and planned improvements/upgrades to

Pantex safety bases and facilities. In January 2023, the Board transmitted a letter regarding the conclusions of this review. The letter noted, in general, responses provided technically defensible positions to support closure of the various conditions of approval and planned safety improvements and identified additional opportunities for safety improvement. The letter did not include reporting requirements.

#### *Fire Protection*

During FY 2023, the Pantex Plant Life Sustainment Plan for fire protection upgrades continued. Fire suppression system upgrades in four nuclear facilities were in progress at the end of FY 2023 and upgrades at five additional facilities are scheduled to begin in FY 2024.

In FY 2021, DNFSB initiated a comprehensive review of various aspects of fire protection at Pantex. The review was still ongoing at the end of FY 2023.

#### *Welding Program*

During FY 2022 and FY 2023, DNFSB conducted a thorough evaluation of the Welding Program at Pantex. On February 23, 2023, the Board transmitted a letter documenting the results of the review stating that Pantex is implementing a robust welding program, though opportunities for improvement were identified. DNFSB determined the welding program is consistent with industry practices and program requirements are being properly implemented. There were no reporting requirements, however, NNSA and Pantex are reviewing the opportunities for improvement.

#### *Probabilistic Seismic Hazards Analysis*

From FY 2020 through FY 2023, DNFSB conducted observations of the development of the 10-year Probabilistic Seismic Hazard Analysis at Pantex. As part of the review, DNFSB conducted a thorough review of the final analysis report, completed in September 2022. The DNFSB review was ongoing at the end of FY 2023.

#### *Building 12-44-5 Ceiling Replacement*

In June 2021, Pantex initiated construction in Building 12-44 Cell 5 to remove combustible material (wood) from the ceiling. Work in Cell 5 was completed in September 2022. DNFSB conducted oversight of the construction activities and reviewed the final quality submittal package. No major deficiencies were noted by DNFSB, but opportunities for improvement were communicated verbally. Pantex utilized the initial feedback to initiate an organizational assessment on the application of quality assurance requirements for all project work. The DNFSB review was still ongoing as of the end of FY 2023.

#### Savannah River Site

##### *Conduct of Operations*

In FY 2023, EM and the Savannah River Site continued implementing corrective actions and provided management attention to improve Conduct of Operations. There were three TSR violations in FY 2023, compared to six in FY 2022. Corrective actions are in development and compensatory measures were implemented with oversight from EM. The Conduct of Operations Improvement and Sustainment Plans were updated in FY 2023 to better focus on

front-line manager performance, continued training enhancements, and formalized independent assessments. In addition, two experienced Conduct of Operations coaches were hired to assist with improvement of overall conduct of operations performance.

*Savannah River National Laboratory – Safety Basis*

On April 5, 2023, DNFSB issued a final report to DOE regarding their review of the Savannah River National Laboratory DSA and TSR. The report contained four areas of concerns: 1) the use of programmatic Administrative Controls where SACs are warranted; 2) safety significant boundary of the fire water supply and sprinkler system; 3) material at risk undergoing temporary confinement changes; and 4) reliability of Safety Integrity Levels. On July 27, 2023, DOE presented corrective actions and an implementation schedule to the Board addressing the identified concerns. Subsequently, the DSA/TSR was revised resulting in 15 programmatic Administrative Controls being converted to SACs, in verbatim compliance with DOE-STD-1186, *Specific Administrative Controls*; strengthening of the fire water supply and sprinkler system controls; and material at risk during temporary confinement changes. Future revisions of the DSA and TSR will evaluate the remaining Administrative Controls for elevation to SACs.

*Building 235-F*

On November 2, 2021, the Board transmitted a letter to the Secretary requiring an annual report and briefing regarding five topic areas: 1) deactivation progress in Building 235-F; 2) the results of radiological surveys and inspections to verify that contamination in the facility is not spreading; 3) status updates on establishing a final end-state determination with regulatory authorities; 4) the updated schedules for activities required to achieve such a final end-state; and 5) any changes to the status of the E-5 ventilation system and sand filter, including any maintenance activities performed.

July 7, 2022, DOE provided the first briefing to the Board. On July 13, 2023, DOE provided the Board a second briefing and transmitted the required report on August 23, 2023. DOE completed Building 235-F deactivation activities in FY 2023 and closed out the deactivation project in March 2023.

*Liquid Waste Operations*

In FY 2023, improvements at the Salt Waste Processing Facility resulted in increased filtration and overall processing rates resulting in over 3,100,000 gallons of salt waste processed in FY 2023 as compared to the 1,600,000 gallons processed in FY 2022. The use of glycolic acid at the Defense Waste Processing Facility reduced the potential for hydrogen gas generation. This improved safety posture has allowed the facility to better match the increased salt waste volumes from the Salt Waste Processing Facility.

*Tritium Facilities*

On July 26, 2022, the Board issued a letter to the Secretary with a requirement for a report on the condition and structural integrity of the 296-H stack. In March 2023, the NNSA Administrator transmitted a letter to the Board that discussed planned revisions to the Combined Tritium Facility DSA in response to the July 26, 2022, letter. NNSA stated that the

facilities will continue to operate as currently configured and no additional controls are required.

On August 2, 2022, the Board transmitted a letter to the Secretary with a requirement for a report on DOE's approach for system health monitoring of the safety significant glovebox oxygen monitors in the Tritium Facilities. In December 2022, the NNSA Administrator transmitted a response to the Board including a report that presented data and conclusions regarding the glovebox oxygen monitoring systems. The report data supported the conclusion that assessing system health using component utilization provides a reliable indicator of system performance.

On August 11, 2022, the Board sent a letter to the NNSA Administrator with a reporting requirement for a briefing regarding the January 30, 2022, unplanned release of tritium and how NNSA plans to address the scenario in the DSA and implement operational improvements to protect workers from similar events in the future. NNSA conducted the briefing on November 30, 2022.

### *Savannah River Plutonium Processing Facility*

On August 3, 2023, the Board issued a letter to the Secretary that expressed safety concerns related to protecting facility workers and the proposed glovebox control designation. In September 2023, the NNSA Administrator responded to the Board letter including a report documenting a review conducted by NNSA and other DOE program and staff offices on the project's safety basis, primarily focused on hazard analysis and control derivation.

### Y-12 National Security Complex

In August 2023, DNFSB Vice Chair visited Y-12 for discussions with site management and facility familiarization tours.

### *Infrastructure*

Implementation of the Extended Life Program continued in FY 2023. The program focuses on the strategic maintenance and modernization of the infrastructure of Buildings 9215, 9204-2E, and 9995 to sustain safe enriched uranium mission operations until at least FY 2050.

The Extended Life Program contains three major elements: an IP, a Safety Strategy, and an Outage Program. The IP reinvestment activities in FY 2023 included removal of obsolete process equipment and installation of new equipment. Upgrades to key existing electrical infrastructure in Buildings 9215 and 9204-2E were also completed in FY 2023.

The Safety Strategy continued to focus on identifying and addressing gaps between the existing facility design and current regulatory codes and standards by providing data to identify and evaluate nuclear safety risks. Progress in FY 2023 included completion of evaluations of fire, ventilation, and lightning protection codes and requirements; updating the Probabilistic Seismic Hazard Analysis; and completion of natural phenomena hazard walkdowns.

The Outage Program, which drives planned dedicated maintenance periods for applicable facilities, received additional planner resources and craft execution to maximize the usefulness

of planned outages. Three planners were added to the outage team to support the four quarterly outages planned in FY 2024.

#### *Hazard Control Strategies*

In November 2022, the Board transmitted a letter raising concerns with the adequacy of control strategies to ensure that facility worker hazards related to uranium and reactive materials are being addressed. In response, a briefing was provided to the Board in March 2023, addressing actions and improvements taken to analyze hazards and implement control strategies for potential uranium pyrophoric events with a sudden energy release. The Board was satisfied with the response. A DNFSB review of the technical basis for the response is in progress.

#### *Nuclear Criticality Safety Program*

As part of a complex wide review of nuclear criticality safety, DNFSB initiated a review of the Y-12 nuclear criticality safety program. The review is now expected to conclude in FY 2024.

#### *Uranium Processing Facility*

In August 2023, the DNFSB Vice Chair visited the Uranium Processing Facility and toured the Main Processing Building and Salvage and Accountability Building. The visit focused on construction and installation progress since the last site visit.

In November 2022, DNFSB conducted a review of the facility that included observing procurement and construction activities at the Main Processing and Salvage and Accountability Buildings and various storage areas and reviewing project documentation. Follow-up and familiarity site visits occurred in January and July 2023. No issues were identified.

#### Waste Isolation Pilot Plant

In August 2023, the Board visited the plant for discussions with site management and facility familiarization tours.

#### *Contract Transition*

The transition to a new WIPP Management and Operating contractor, Salado Isolation Mining Contractors, began on November 14, 2022, and was completed on February 4, 2023. DNFSB was kept informed of the process during weekly conference calls and other communications and did not identify any concerns.

#### *Underground Ventilation System-700C Mine Fan*

Throughout FY 2023, DNFSB was updated regarding the operation of the continuous air monitors supporting the 700C mine fan. Actions were successfully taken to reduce the salt dust from mining operations build-up on the continuous air monitors by reducing airborne salt dust generation at its source. Corrective actions are planned to modify underground ventilation air flows to separate the mining from the disposal air flow to further alleviate salt dust buildup on the continuous air monitors. The status of corrective actions was communicated to the DNFSB during weekly conference calls.

### *Mining*

During FY 2023, DOE kept DNFSB regularly informed of mining operations including the completion of waste disposal Panel 8 and development of the West Mains toward future connection with the underground utility shaft station and planned Panel 11.

### *WIPP Waste Management*

Corrective action was taken in FY 2023 for waste shipments from the ICP Site that resulted in an FY 2022 DNFSB inquiry. The incidents involved containers from two shipments, which resulted in discovery of liquid in the shipping cask on one occasion and contamination on the top of another shipment requiring the shipments to be returned to the INL Site. These shipments were from a waste stream of compacted waste. Shipments from the INL Site composed of the waste stream involved in the FY 2022 incidents were resumed in November 2022 but were restricted to containers either recently packaged or, if older, overpacked.

### *Disposal Operations*

The final waste containers were emplaced in radiologically contaminated disposal Panel 7 on October 20, 2022. Subsequently, the first containers of waste were placed in Panel 8 on November 9, 2022. DNFSB was kept informed throughout the change in disposal panels.

### *Capital Assets Projects*

During FY 2023, DOE kept DNFSB informed of progress toward completion of construction of the Safety Significant Confinement Ventilation System and Utility Shaft projects. At the close of FY 2023, Safety Significant Confinement Ventilation System construction was nearing completion, and the Utility Shaft construction was completed to its maximum depth. The status of these projects was communicated to DNFSB during weekly calls and during onsite walkdowns in May and August 2023.

DNFSB expressed particular interest in the design of the Continuous Air Monitors for the Safety Significant Confinement Ventilation System and requested the design documents. On June 26, 2023, DNFSB formally requested a teleconference to discuss the design of the Continuous Air Monitors and provided Lines of Inquiry to be discussed. On August 8, 2023, WIPP provided written responses to the Lines of Inquiry. The teleconference was held on August 15, 2023, during which DNFSB indicated general satisfaction with the responses to the Lines of Inquiry but requested additional documents for review. The documents were provided and remained under review by DNFSB at the end of FY 2023.

## **D. Other Responses to DNFSB**

### Requests for Information

In FY 2023, the Department responded to 285 specific requests for information that resulted in providing over 2,150 documents to DNFSB.

### Meetings and Briefings with the Board

The Department participated in 29 meetings or briefings with the Board in FY 2023. Table 3.1 identifies the meetings and briefings and the DOE Program office(s) involved.

Table 3.1. FY 2023 DOE – Board Meetings or Briefings

Date	DOE Program Office	Subject
10/12/2022	EM	Briefing on EM Hanford 242-A Evaporator.
11/04/2022	NA	Briefing on LANL onsite Transportation Safety Document analysis and controls.
11/09/2022	DOE	Deputy Secretary discussion with DNFSB.
11/22/2022	NA	Briefing on Pantex safety initiatives.
11/30/2022	NA	Briefing on SRS unplanned tritium release.
12/08/2022	NA	Briefing on Pantex External Dosimetry Program concerns.
12/09/2022	NA	Briefing on nuclear criticality safety at NNSC NCERC.
12/20/2022	EM	Briefing on Hanford tank side cesium removal concerns.
01/25/2023	EM	EM-1 periodic discussions with DNFSB.
01/31/2023	NA	NA-1 periodic discussions with DNFSB – working lunch.
02/07/2023	NA	Briefing and demo of interactive software engineering lifecycle assurance.
02/10/2023	NA	Briefing on NNSA's disposition forensics evaluation analysis team program.
03/29/2023	NA	Briefing on Y-12 pyrophoric events analysis and controls.
04/05/2023	NA & EM	Briefing on FY 2022 DOE nuclear criticality safety programs.
04/19/2023	NA	NA-10 discussion with DNFSB.
04/24/2023	NA	Criticality safety support group briefing to the Board.
05/01/2023	NA	NA Administrator periodic discussions with DNFSB.
05/11/2023	NA & EM	Briefings on numerous topics during weeklong Board SRS visit.
05/22/2023	NA	Briefing on DOE oversight effectiveness.
05/22/2023	EM	Briefings on ICP flammable gas hazards and DOE-STD-5506-2021 implementation.
06/08/2023	EHSS	Briefing on DOE safety software registry status.
06/14/2023	NA	NNSA Production Office briefing on the status of the IP for Recommendation 2019-1, <i>Uncontrolled Hazard Scenarios and 10 CFR 830 Implementation at the Pantex Plant</i> and the status of the pending separation of the Pantex and Y12 contract.
07/13/2023	EM	Briefing on SRS Building 235-F safety.
07/27/2023	EM	Briefing on Savannah River National Laboratory safety basis SACs and fire protection equipment.
08/03/2023	EA	EA-1 discussion with DNFSB.
08/10/2023	EM	EM-1 periodic discussions with DNFSB.
09/13/2023	NA	NA-10 discussion with DNFSB.
09/19/2023	EM	Briefing on EM Hanford 242-A Evaporator new safety strategy implementation.
9/22/2023	DOE	S-1 discussion with DNFSB.

Reporting Requirements

The following table provides the status of DOE response to Board reporting requirements, pursuant to 42 USC Section 2286b(d).

**Table 3.2. FY 2023 Responses to Board Reporting Requirements**

Date of Letter	DOE Program Office and Site	Reporting Requirements	Completion Date
12/02/2021	EM, SRS	Annual report and briefing on updates regarding deactivation progress in SRS Building 235-F, the results of radiological surveys and inspections to verify that contamination in the facility is not spreading, status of establishing a final end state determination with regulatory authorities, and the schedules for activities required to achieve such a final end state.	Report: 08/23/2023 Briefing: 07/13/2023
01/06/2022	EM and NA, All DNF Sites	Annual report and briefing regarding the Department's Nuclear Criticality Safety Programs.	Report: 01/31/2023 Briefing: 04/05/2023
01/06/2022	NA and EM, LANL	A briefing and report to address questions pertaining to the adequacy of the LANL onsite transportation safety document and the onsite transportation safe harbors.	Report: 09/26/2022 Briefing: 11/04/2022
05/10/2022	NA, Pantex	A report and briefing on lessons learned from the Pantex external dosimetry program breakdown and actions to prevent recurrence at Pantex and other DNFs.	Report: 10/26/2022 Briefing: 12/08/2022
06/16/2022	DOE, All DNF Sites	Report on the implementation of the unreviewed safety question process following a probabilistic seismic hazard analysis update as detailed in the DNFSB TECH-47, <i>Seismic Hazard Assessments</i> . (Note: this reporting requirement is a follow-up to the previous Tech-47 response.)	Report: 11/02/2022
06/16/2022	NA, NNSS	A report and briefing addressing questions related to the nuclear criticality safety program at the NNSS National Criticality Experiments Research Center.	Report: 10/26/2022 Briefing: 12/09/2022
07/19/2022	EM, Hanford	A briefing that describes how the final revised safety strategy will meet DOE's safety requirements and address the Board's concern regarding safety significant scenarios for the Hanford 242-A Evaporator Facility.	Briefing: 10/12/2022



Date of Letter	DOE Program Office and Site	Reporting Requirements	Completion Date
07/20/2022	NA, Pantex	A briefing on how NNSA plans to maintain the positive trajectory of its previously communicated improvement initiatives for Pantex conduct of operations and organizational culture.	Briefing: 11/22/2022
07/26/2022	NA, SRS	A report on NNSA's assessment of the Savannah River Tritium Facilities 296-H stack collapse analyses, and specific safety concerns from the Board's review of the 296-H stack.	Report 03/17/2023
08/02/2022	NA, SRS	A report on NNSA's approach to system health monitoring for the Savannah River Tritium Facilities safety significant glovebox oxygen.	Report 12/20/2022
08/11/2022	NA, SRS	A briefing on plans to protect workers from similar events as the January 2022 unplanned tritium release from the Savannah River Tritium Facilities.	Briefing: 11/30/2022
08/11/2022	NA, LANL	Analysis conducted in response to Los Alamos Field Office direction relating to Plutonium Facility–Building 4 leak path factor calculations.	Report: 11/21/2022
08/17/2022	DOE, All DNF Sites	A report and briefing regarding DOE's plans to address the safety matters discussed in the Board staff report on Federal Oversight Effectiveness.	Report: 05/01/2023  Briefing: 05/22/2023
08/24/2022	DOE, All DNF Sites	A briefing by the end of January 2023 addressing DOE's plans for the Safety Software Central Registry.	Briefing: 10/04/2023
10/06/2022	EM, Hanford	A briefing on the Hanford Tank Side Cesium Removal system and ion-exchange column connection issues and actions to ensure that the repaired connections will perform their safety functions.	Briefing: 12/20/2022
11/18/2022	NA, Y12	A report and briefing on Y-12 actions taken to analyze hazards and implement control strategies for potential uranium pyrophoric events with a sudden energy release.	Report: 02/27/2023  Briefing: 03/29/2023
12/06/2022	NA, LANL	A report and briefing regarding the safety analysis of LANL Plutonium Facility-400 and operability of the High Efficient Particulate Air filter plenum deluge system.	Report: 02/27/2023  Briefing: 03/29/2023
02/24/2023	EM, ICP	A briefing that addresses whether, when, and how DOE intends to implement DOE-STD-5506-2021 at the ICP Site DNFs and any actions DOE is taking regarding the safety issues described in the Board's letter.	Briefing: 05/22/2023

Date of Letter	DOE Program Office and Site	Reporting Requirements	Completion Date
02/28/2023	EM, Hanford	A report on DOE's plans to ensure effective implementation of the Hanford cover block removal SAC for the implement of the Direct-Feed Low Activity Waste mission.	Report: 04/28/2023
03/29/2023	NA and EM, SRS	Multiple briefings, during weeklong Board Site visit to SRS, for DOE to discuss ongoing safety concerns with adequate protection of the public and workforce, as well as effectiveness of federal oversight in addressing those concerns.	Briefing: 05/11/2023
04/06/2023	EM, SRS	A report and briefing that describes the planned actions and timeline to address the improper designation of SACs and inappropriate classification of fire protection equipment at SRS or provide DOE leadership's position as to why additional corrective actions are not required.	Report: 08/23/2023 Briefing: 07/27/2023
06/20/2023	NA, LANL	A report with additional information pertaining to the November 16, 2022, DNFSB public hearing on the safety of the LANL Plutonium Facility.	FY 2024
06/27/2023	EM, Hanford	A briefing on the proposed path forward for the design and installation of several engineered controls for the Hanford Site 242-A Evaporator.	Briefing: 09/19/2023
08/03/2023	NA, SRS	A report and briefing regarding DOE's position on the adequacy of the safety strategy for facility worker protection, focusing on impacts to long-lead procurements, such as glovebox systems for the design of the SRS Plutonium Processing Facility.	FY 2024
06/27/2023	EM, Hanford	A semi-annual briefing on the proposed path forward for the design and installation of several engineered controls for the Hanford Site 242-A Evaporator.	FY 2024

## IV. Status of DOE Implementation Plans

### A. Process Overview

The Board issues recommendations to the Secretary, via letter and publication in the *Federal Register*, regarding measures it believes the Department should adopt to ensure adequate protection of workers and the public from activities conducted at DOE DNFs. By law, the Secretary is required to accept or reject, in whole or in part, the Board recommendation within 45 days of its publication in the *Federal Register* unless granted an extension by the Board. If the Secretary accepts all or part of the recommendation, an IP addressing the recommendation's concerns is required to be transmitted to the Board within 90 days of the publication of the Secretary's response, or an additional 45 days may be permitted upon notice of the need for additional time sent to Congress and the Board.

The Secretary is required to complete the items in the IP within one year of issuance. If additional time is needed, DOE is required to submit a report to Congress discussing the reasons for delay and when implementation will be completed. Generally, the scope and technical complexity of the nuclear safety issues usually require more than one year for completion.

Board recommendations, IPs, and a chronological record of related correspondence between DOE and the DNFSB are available on the DOE Office of the Departmental Representative to the DNFSB website at: <https://ehss.energy.gov/depdep/>.

## **B. Implementation Plan Status**

### Recommendation 2019-1: Uncontrolled Hazard Scenarios and 10 CFR 830 Implementation at the Pantex Plant

*Issue Date: February 20, 2019.*

NNSA briefed the Board in June 2023 regarding the status of IP actions. By the end of FY 2023, 68 of 69 improvement actions of the IP were completed. The remaining action is on schedule to be completed by the first quarter of FY 2024.

### Recommendation 2020-1: Nuclear Safety Requirements

*Issue Date: February 21, 2020.*

DOE transmitted the IP to the DNFSB on June 27, 2022. The IP contains 17 milestones. Seven of 17 milestones were completed in FY 2023. The remaining items are on schedule as identified in the IP.

To address aging infrastructure, DOE performed a broad-based benchmark review of NNSA, EM, and SC processes regarding safety-related infrastructure. Additionally, DOE continued developing and revising nuclear safety directives and technical standards including DOE-STD-1027-2018, CN 1, *Hazard Categorization of DOE Nuclear Facilities*, to improve DOE's hazard categorization process; DOE O 421.1, *Nuclear Safety Basis*, (new), to establish requirements for key safety basis concepts, and DOE O 420.1C, *Facility Safety*. Additionally, DOE Office of Enterprise Assessments continued conducting an independent review of the DOE safety basis development process.

## Appendix. Acronyms and Abbreviations

AEA	Atomic Energy Act of 1954, as amended
Board	Defense Nuclear Facilities Safety Board
CFR	Code of Federal Regulations
Department	Department of Energy
DNF	Defense Nuclear Facility
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
DSA	Documented Safety Analysis
EM	Office of Environmental Management
FY	Fiscal Year
Hanford	Hanford Site
ICP	Idaho Cleanup Project
IP	Implementation Plan
LANL	Los Alamos National Laboratory
LLNL	Lawrence Livermore National Laboratory
NA	National Nuclear Security Administration
NCERC	National Criticality Experiments Research Center
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
O	Order
OREM	Oak Ridge Office of Environmental Management
Pantex	Pantex Plant
PDSA	Preliminary Documented Safety Analysis
PF-4	Plutonium Facility—Building 4
SC	Office of Science
Secretary	Secretary of Energy
SAC	Specific Administrative Control
SNL	Sandia National Laboratories
SRS	Savannah River Site
STD	Standard
TRU	Transuranic
TSR	Technical Safety Requirement
USC	United States Code
WIPP	Waste Isolation Pilot Plant
Y-12	Y-12 National Security Complex