



The Secretary of Energy

Washington, DC 20585

October 07, 2024

The Honorable Joyce L. Connery
Chair
Defense Nuclear Facilities Safety Board
625 Indiana NW, Suite 700
Washington, DC 20004

Dear Chair Connery:

On May 3, 2024, the Department of Energy (DOE or Department) accepted the Defense Nuclear Facilities Safety Board (Board or DNFSB) Recommendation 2023-1, *Onsite Transportation Safety*, which was published in the *Federal Register* on May 24, 2024. Enclosed is the DOE Implementation Plan (IP) responding to the Recommendation in accordance with the Department's acceptance letter.

The IP details DOE's approach and actions to address Recommendation 2023-1. The Department is confident that execution of this IP will clarify onsite transportation safety requirements and meet the underlying safety improvement objectives of Recommendation 2023-1. DOE appreciates the Board's input and will continue working closely with the Board throughout the IP process as we work towards addressing our shared objectives of sustained improvements to the effectiveness and efficiency of DOE's nuclear safety framework and ensuring adequate protection of the environment, the public, and worker health and safety at DOE defense nuclear facilities.

DOE appreciates and values the input provided by DNFSB during the development of this IP.

If you have any questions, please contact Gregory Hatchett, Responsible Manager and DOE/NNSA Deputy Associate Administrator for Enterprise Stewardship, at (202) 586-6443.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Granholm".

Jennifer Granholm

Enclosure

U.S. Department of Energy

**Implementation Plan to Address
Defense Nuclear Facilities Safety Board Recommendation 2023-1
*Onsite Transportation Safety***



October 2024

DOE Implementation Plan to Address Recommendation 2023-1

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1.0 PURPOSE

The purpose of this Implementation Plan (IP) is to specify Department of Energy (DOE or Department) actions for addressing Defense Nuclear Facilities Safety Board (Board or DNFSB) Recommendation 2023-1, *Onsite Transportation Safety*. This IP details DOE actions to address each Sub-Recommendation within the Board's recommendation, consistent with the Secretary's acceptance on May 3, 2024.

2.0 BACKGROUND

DNFSB Recommendation 2023-1 identifies three Sub-Recommendations:

1. LANL TRANSPORTATION SAFETY DOCUMENT

- a. Revise the Los Alamos National Laboratory (LANL) Transportation Safety Document (TSD) to address the safety concerns identified in this Recommendation and to comply with a revised safe harbor methodology per Sub-Recommendation 2.a.
- b. Ensure compensatory safety measures remain in place until implementation of the LANL TSD is revised per Sub-Recommendation 1.a. above.

2. ONSITE TRANSPORTATION DIRECTIVES

- a. Rewrite DOE safe harbors for onsite transportation—DOE Order 460.1D, *Hazardous Materials Packaging and Transportation Safety* and DOE Guide 460.1-1, *Implementation Guide for Use with DOE O 460.1A, Packaging and Transportation Safety*—to:
 - i. Provide requirements and guidance to ensure TSDs comply with all applicable 10 CFR Part 830, *Nuclear Safety Management*, safety basis requirements including requirements related to accident evaluation and hazard controls.
 - ii. Include robust evaluation criteria to ensure TSDs demonstrate that safety controls are effective at reducing risk.
 - iii. Include implementation guidance for restricting public access to transportation routes and controlling onsite traffic during onsite transportation of radioactive materials.
- b. Change DOE Standard 1104, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*, to incorporate requirements and guidance for DOE review and approval of TSDs.
- c. Conduct an extent of condition review of TSDs for DOE sites with defense nuclear facilities to identify any near-term actions necessary to ensure safety until the safe harbors are revised and implemented.

3. DOE OVERSIGHT

- a. Perform an independent causal analysis for the safety issues identified in this Recommendation, including the effectiveness of DOE oversight of contractor TSDs, DOE's management of its onsite transportation directives, and DOE's evaluation of actions in response to the safety issues identified in the prior Board correspondence on onsite transportation safety. Identify and implement corrective actions to address appropriate causal analysis that preclude recurrence of the safety issues.

3.0 BASELINE ASSUMPTIONS

The key baseline assumptions associated with this IP are as follows:

- Major changes that reduce the action items in this IP must be approved by the Secretary of Energy and communicated to the Board prior to implementation.
- During the execution of this IP, DOE will interact with the DNFSB Staff regularly, either through periodic briefings or collaborative discussions, as DOE addresses the milestones in this IP. Frequent interactions with the DNFSB Staff will ensure that, as DOE completes these activities, full consideration is given to issues raised by the Board.
- DOE and DNFSB interactions will adhere to the February 17, 2022, *Memorandum of Understanding Between the U.S. Department of Energy and the Defense Nuclear Facilities Safety Board*.
- The extent of condition reviews will inform the proposed actions under recommendation 2 and 3.

4.0 ORGANIZATION AND MANAGEMENT

The overall management of this IP is the responsibility of the Deputy Associate Administrator for Enterprise Stewardship within DOE's National Nuclear Security Administration (DOE/NNSA) Office of Environment, Safety, and Health. However, all DOE programs with defense nuclear facilities are responsible for implementing individual actions.

The IP is deployed by five working groups, each responsible for leading elements of a Sub-Recommendation, as shown in Figure 1. The working groups are led by a group of DOE Principals that will provide strategic direction, manage the interfaces, resolve conflicts, and ensure the IP is executed from start to finish. The DOE Principals team is led by the Deputy Associate Administrator for Enterprise Stewardship and includes representatives from all DOE Program Offices responsible for DOE defense nuclear facilities.

Figure 1: Managing the Working Groups for a Department-Wide Effort



In addition to the DOE Program Offices responsible for DOE defense nuclear facilities, portions of the IP are led or implemented with input from Field Offices and Management & Operating partners to ensure operating experience is also informing the actions in the Sub-Recommendations, as well as complex-wide transparency. Each action in the IP has an office assigned as the lead. These lead offices will manage the working groups associated with the task, develop the deliverables, and share progress with the DOE Principals Team as work is completed. The lead offices are also responsible for escalating issues and communicating changes to the DOE Principals Team for resolution and response by interfacing teams as needed.

The writing teams for 2.a. and 2.b. will include membership from each DOE program office, who will provide subject matter expertise to develop the revised methodology and review standard. The review team for 2.a. will include Management & Operating partners.

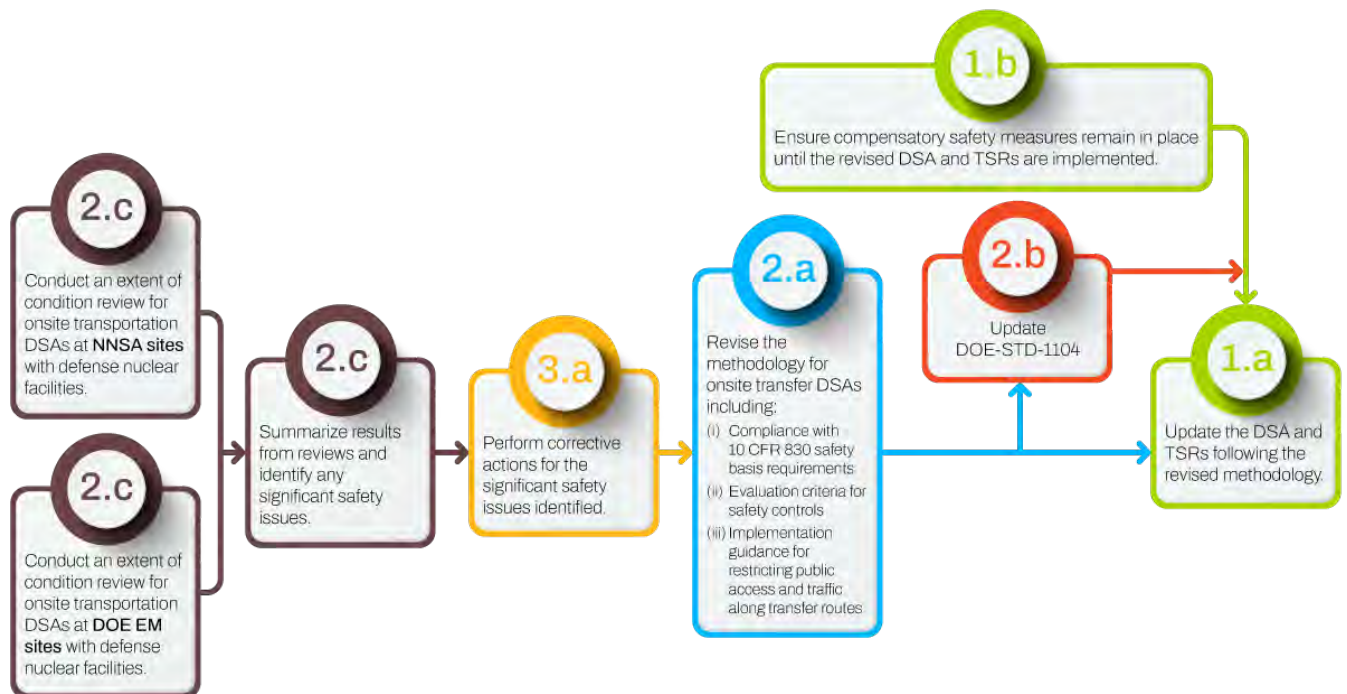
Consistent with DOE processes and DOE’s Memorandum of Understanding with the Board, DOE will engage DNFSB Staff during the development of products and deliverables identified in this IP. The Department will provide periodic updates, as requested, to ensure DNFSB staff remain informed of the status of implementation. Regular updates and discussions regarding Recommendation 2023-1 will be led by the Director of the Packaging and Transportation Division within DOE/NNSA’s Office of Environment, Safety, and Health.

5.0 ACTIONS AND SCHEDULE

Initial communication regarding issues with onsite transportation safety between DNFSB and DOE began in January 2022¹. Some actions in this IP were initiated prior to receiving Recommendation 2023-1 and the DOE Secretary’s acceptance.

Many of the actions in the IP are inter-dependent, so changes in the start and completion dates for early items could impact the later actions. Figure 2 provides a flow-diagram of the order of implementation and inter-dependencies of the actions in this IP.

Figure 2: Flow Diagram for 2023-1 Sub-Recommendations



¹ Letter to DOE Secretary Granholm, from Joyce Connery, Chair DNFSB, Subject: *Onsite Transportation Safety*, dated January 6, 2022.

Listed below are IP actions DOE intends to complete. Deliverables will be submitted to DNFSB:

SUB-RECOMMENDATION 1.A.

Revise the LANL TSD to address the safety concerns identified in this Recommendation and to comply with a revised safe harbor methodology per Sub-Recommendation 2.a.

DOE/NNSA's Los Alamos Field Office (NA-LA) will direct LANL to revise the DSA and Technical Safety Requirements (TSRs) consistent with the revised methodology and standard for review. The DSA and TSRs will be reviewed and approved following the revised standard. The time needed for LANL to revise their safety basis will depend on changes in the methodology.

Lead Responsible Organization: NA-LA

Deliverable: An approved DSA and TSRs following the revised methodology.

Expected Start Date: The DSA and TSRs revision will start once the revised methodology is issued and directed as a requirement to LANL.

Expected Completion Date: Within 24 months of issuance of the revised methodology.

SUB-RECOMMENDATION 1.B.

Ensure compensatory safety measures remain in place until implementation of a revised DSA and TSRs following a new methodology:

In September 2022², DOE/NNSA committed to baseline the LANL DSA controls with the Nevada National Security Site (NNSS) controls to identify near-term improvements. NA-LA identified a set of recommended compensatory safety measures for Triad National Security, LLC (Triad) to implement, ensuring adequate safety for onsite transportation at LANL, until DOE revises DOE Order 460.1D and DOE Guide 460.1-1.

Triad elevated the recommended compensatory safety measures to TSRs and submitted the revised DSA and TSRs to NA-LA in June 2023. By elevating the compensatory safety measures to TSRs, NA-LA has ensured the controls can only be changed through the Field Office Manager, the Safety Basis Approval Authority. As identified by DNFSB, Safety Basis Approval Authorities and Safety Basis Review Teams can change and even reduce commitments from previous approvals and reviews. Therefore, DOE agrees to ensure the level of safety met in the current TSRs will remain in place until the LANL DSA and TSRs are revised to address the requirements of a new methodology.

Lead Responsible Organization: NA-LA

Deliverable: Revised TSRs and letter documenting NA-LA approval.

Start Date: September 2022

Completion Date: On August 10, 2023, the TSRs with elevated safety measures were

² Letter to the DNFSB Chair Joyce Connery, from DOE Secretary Granholm, Subject: *Onsite Transportation Safety*, dated September 13, 2022.

approved by NA-LA. The elevated safety measures in the TSRs will remain in place until the revised LANL DSA and TSRs from Action Item 1.a. are implemented.

SUB-RECOMMENDATION 2.A.

Rewrite DOE safe harbors for onsite transportation—DOE Order 460.1D, *Hazardous Materials Packaging and Transportation Safety* and DOE Guide 460.1-1, *Implementation Guide for Use with DOE O 460.1A, Packaging and Transportation Safety*—to:

- i. Provide requirements and guidance to ensure TSDs comply with all applicable 10 CFR Part 830, *Nuclear Safety Management*, safety basis requirements including requirements related to accident evaluation and hazard controls.**
- ii. Include robust evaluation criteria to ensure TSDs demonstrate that safety controls are effective at reducing risk.**
- iii. Include implementation guidance for restricting public access to transportation routes and controlling onsite traffic during onsite transportation of radioactive materials.**

Once the extent of condition review summary report is complete, DOE will use the results to inform a revised methodology for onsite transportation.

Lead Responsible Organization: DOE EM

Deliverable: Revised methodology for onsite transportation of nuclear hazard category 2 and 3 activities to ensure compliance with 10 CFR Part 830, Subpart B.

Expected Start Date: 6 months from issuance of the final IP. Work on the methodology will start as soon as the extent of condition reviews are complete, and the Assessment Summary Report has been issued.

Expected Completion Date: 24 months from completion of the extent of condition Assessment Summary Report.

SUB-RECOMMENDATION 2.B.

Change DOE Standard 1104, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*, to incorporate requirements and guidance for DOE reviews and approves TSDs.

The revised methodology for preparing a DSA for onsite transportation will include evaluation criteria for demonstrating effective controls. DOE will use the evaluation criteria in the methodology to inform how onsite transportation DSAs should be evaluated, reviewed, and approved.

Lead Responsible Organization: DOE-EHSS-30

Deliverable: Revise DOE-STD-1104 to address specific requirements and guidance for safety basis review teams evaluating DSAs for onsite transportation.

Expected Start Date: Work on the revised standard can begin after the methodology is complete.

Expected Completion Date: 18 months from completion of the revised methodology.

SUB-RECOMMENDATION 2.C.

Conduct an extent of condition review of TSDs for DOE sites with defense nuclear facilities to identify any near-term actions necessary to ensure safety until the safe harbors are revised and implemented.

DOE identified the comprehensive set of onsite transportation activities of radioactive materials subject to 10 CFR Part 830 Subpart B at DOE sites with defense nuclear facilities. The set is limited to nine sites within the DOE-EM and DOE/NNSA programs (Table 1).

Table 1: Summary of Sites and Programs Within the Extent of Condition Review

Responsible Program	Site
DOE-EM	Hanford
	Idaho Cleanup Project
	Oak Ridge National Laboratory
	Savannah River Site
NNSA	Los Alamos National Laboratory
	Lawrence Livermore National Laboratory
	Nevada National Security Site
	Pantex Plant
	Y-12 National Security Complex

Prior to issuance of Recommendation 2023-1, DOE-EM conducted an extent of condition review for a subset of sites under its purview. To complete this effort, DOE-EM will ensure all onsite transportation subject to 10 CFR Part 830 Subpart B (onsite transportation DSAs) at DOE EM sites with defense nuclear facilities has been reviewed, will identify any near-term actions necessary to ensure safety until the methodology is revised and implemented, and will evaluate variation between DSAs and TSRs at different sites to understand how current methodologies are implemented.

Lead Responsible Organization: DOE EM

Milestone 1: Assessment Report documenting results of the DOE-EM extent of condition review for onsite transportation DSAs at DOE EM sites with defense nuclear facilities.

DOE/NNSA will conduct an extent of condition review for onsite transportation DSAs at DOE/NNSA sites with defense nuclear facilities to identify any near-term actions necessary to ensure safety until the methodology is revised and implemented. The review team will evaluate variation between DSAs and TSRs at different sites to understand how current methodologies are being implemented.

Lead Responsible Organization: DOE/NNSA

Milestone 2: Assessment Report documenting results of the DOE/NNSA extent of condition review for onsite transportation DSAs at DOE/NNSA sites with defense nuclear facilities.

Once both reviews are completed, DOE and DOE/NNSA will review the results and identify any significant safety issues and common areas of concern for onsite transportation safety. DOE will issue the results of the reviews in a single summary report. The summary report will be used to inform actions necessary for Sub-Recommendations 2.a., 2.b., and 3.a.

Lead Responsible Organization: DOE/NNSA and DOE EM

Deliverable: Assessment summary report documenting results of the DOE-EM and DOE/NNSA extent of condition reviews. The assessment summary report will identify any significant safety issues for which further analysis and corrective actions are necessary in Sub-Recommendation 3.a.

Expected Start Date: Upon issuance of the final IP, October 2024.

Expected Completion Date: 6 months from issuance of the final IP.

SUB-RECOMMENDATION 3.A.

Perform an independent causal analysis for the safety issues identified in this Recommendation, including the effectiveness of DOE oversight of contractor TSDs, DOE's management of its onsite transportation directives, and DOE's evaluation of and actions in response to the safety issues identified in prior Board correspondence on onsite transportation safety. Identify and implement corrective actions to address appropriate causal analysis results that preclude recurrence of the safety issues.

After the extent of condition reviews are complete, DOE and DOE/NNSA will review the results and for the significant safety issues, DOE and DOE/NNSA will evaluate the causes and determine corrective actions that can resolve the safety issues. The focus of this effort will be corrective actions of the significant safety issues and continuous improvement for onsite transportation safety at DOE sites with defense nuclear facilities, consistent with Integrated Safety Management.

Lead Responsible Organization: DOE/NNSA and DOE EM

Deliverable: Summary of the corrective actions for significant safety issues identified in the extent of condition reviews.

Expected Start Date: Upon completion of both the DOE EM and DOE/NNSA extent of condition reviews.

Expected Completion Date: The completion dates will depend on the safety issues identified and the complexity of the corrective actions necessary to resolve the issue at the site(s) impacted.

6.0 SUMMARY

This IP prioritizes and schedules the actions that impact safety; those that inform the best outcomes for updating our methodology and evaluation criteria; and the those that improve our directives, standards, and safety basis documentation (Figure 3). The Department believes the actions described in this IP will adequately address safety deficiencies in LANL's Transportation Safety Document, strengthen the regulatory safety framework, and improve onsite transportation at DOE sites with defense nuclear facilities.

Figure 3: Deliverables for 2023-1

