



U.S. DEPARTMENT OF
ENERGY

**Report on the Secretary of
Energy's Final Decision For
Defense Nuclear Facilities
Safety Board
Recommendation 2020-1,
Nuclear Safety
Requirements**

**Report to Congress
October 2021**

**United States Department of Energy
Washington, DC 20585**

Message from the Secretary

This report, together with its attachments, documents the Secretary of Energy's final decision and the reasoning for such decision regarding Defense Nuclear Facilities Safety Board (DNFSB or Board) Recommendation 2020-1, *Nuclear Safety Requirements*. This report is in accordance with 42 United States Code (U.S.C.) Section 2286d paragraph (e), which states:

If the Secretary of Energy, in a response under subsection (c)(1), rejects (in whole or part) any recommendation made by the Board under section 2286a of this title, the Board shall either reaffirm its original recommendation or make a revised recommendation and shall notify the Secretary of its action. Within 30 days after receiving the notice of the Board's action under this subsection, the Secretary shall consider the Board's action and make a final decision on whether to implement all or part of the Board's recommendations. Subject to subsection (i), the Secretary shall publish the final decision and the reasoning for such decision in the Federal Register and shall transmit 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 a written report containing that decision and reasoning.

Pursuant to statutory requirements, this report is being provided to:

- **The Honorable Jack Reed**
Chairman, Senate Committee on Armed Services
- **The Honorable James Inhofe**
Ranking Member, Senate Committee on Armed Services
- **The Honorable Patrick Leahy**
Chairman, Senate Committee on Appropriations
- **The Honorable Richard Shelby**
Vice Chairman, Senate Committee on Appropriations
- **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 Adam Smith**
Chairman, House Committee on Armed Services
- **The Honorable Mike Rogers**
Ranking Member, House Committee on Armed Service
- **The Honorable Rosa DeLauro**
Chairwoman, House Committee on Appropriations
- **The Honorable Kay Granger**
Ranking Member, House Committee on Appropriations
- **The Honorable Frank Pallone**
Chairman, House Committee on Energy and Commerce
- **The Honorable Cathy McMorris Rodgers**
Ranking Member, House Committee on Energy and Commerce

If you have any questions or need additional information, please contact Mr. Matthew B. Moury, Associate Under Secretary for Environment, Health, Safety and Security, at (202) 586-5175; Ms. Katie Donley, Deputy Director for External Coordination, Office of the Chief Financial Officer, at (202) 586-0176; or Mr. Ali Nouri, Assistant Secretary for Congressional and Intergovernmental Affairs, or Ms. Elizabeth Noll, Deputy Assistant Secretary for House Affairs, Office of Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,



Jennifer Granholm

Report on the Secretary of Energy's Final Decision and Reasoning Regarding Defense Nuclear Facilities Safety Board Recommendation 2020-1, *Nuclear Safety Requirements*

The DNFSB issued Recommendation 2020-1 on February 21, 2020. The Secretary of Energy responded to the DNFSB in the letter dated June 11, 2020, indicating that the Department of Energy (DOE) partially accepted Recommendation 2020-1. In response to the partial acceptance, the DNFSB revised and reaffirmed Recommendation 2020-1 on June 1, 2021. In this revision and reaffirmation, the Board acknowledged DOE's completion of the rulemaking for 10 Code of Federal Regulations (CFR) Part 830, *Nuclear Safety Management*, and made a number of revisions to specific sub-recommendation within Recommendation 2020-1.

In a letter to the DNFSB dated September 8, 2021, the Secretary of Energy accepted Recommendation 2020-1, and provided details of this acceptance. This response constitutes the Secretary's final decision for the Recommendation. The Secretary of Energy's final decision and reasoning is included as attachments to this report.



The Secretary of Energy

Washington, DC 20585

September 8, 2021

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

Dear Chair Connery:

The Department of Energy (DOE) acknowledges receipt of your letter dated June 1, 2021, which both reaffirms and revises Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2020-1, *Nuclear Safety Requirements*. The initial issuance of Recommendation 2020-1, dated February 21, 2020, asserted that DOE's August 2018 proposed revisions to Title 10 Code of Federal Regulations (CFR) Part 830, *Nuclear Safety Management*, would erode DOE's nuclear safety regulatory framework. In its June 11, 2020, response which states that "the changes to 10 CFR Part 830 will improve the effectiveness and efficiency of DOE's nuclear safety framework while continuing to ensure adequate protection of public and worker health and safety across the DOE complex," DOE disagreed with the DNFSB's assertions. On October 19, 2020, DOE published the Final Rule amending 10 CFR Part 830, addressing and incorporating comments from the DNFSB and members of the public as part of the formal rulemaking process. (85 Fed. Reg. 66201).

Following our recent evaluation of your updated Recommendation 2020-1, the Department continues to conclude that its current regulatory framework, as revised by the October 2020 rulemaking, provides adequate protection of public and worker health and safety across the DOE complex. However, I accept Recommendation 2020-1, as detailed in the enclosure, which constitutes my Final Decision for this Recommendation. DOE agrees with addressing the technical concerns raised by the Board, but DOE cannot commit to a specific outcome in a future rulemaking and will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through a future rulemaking process.

The enclosure updates DOE's June 11, 2020, response for several sub-recommendations to reflect revisions to Recommendation 2020-1. We believe DOE's implementation plan will meet the safety improvement objectives of the DNFSB's Recommendation.

DOE appreciates the Board's advice and will continue working closely with the Board and its staff to continuously improve DOE's nuclear safety regulatory framework in a manner that meets our shared objective to ensure the continued safe, effective, and efficient execution of DOE's mission.

To ensure that our implementation plan will meet the underlying safety improvement objectives of the DNFSB's Recommendation, DOE will engage in frequent staff level interactions during the preparation of the plan. The Board cited these constructive interactions during the most recent preparation of an implementation plan as a potential best practice, and we look forward to enhancing and improving our interactions during this process as well.

If you have any questions, please contact Mr. Matthew Moury, Associate Under Secretary for Environment, Health, Safety and Security, at 202-586-1285.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. Granholm', with a stylized flourish at the end.

Jennifer Granholm

Enclosure

**Enclosure – Department of Energy Response to DNFSB
Recommendation 2020-1, *Nuclear Safety Requirements***

The Department of Energy (DOE or Department) has evaluated the reaffirmed and revised Defense Nuclear Facilities Safety Board (DNFSB or Board) Recommendation 2020-1, dated June 1, 2021. The following discussion presents a detailed response for each DNFSB sub-recommendation, which reflects the Department's acceptance of Recommendation 2020-1, and constitutes the Secretary's Final Decision for this Recommendation.

As described in DOE's June 11, 2020, initial response to Recommendation 2020-1, DOE disagreed with the DNFSB's assertion that the revisions proposed in the August 8, 2018, Notice of Proposed Rulemaking (NPR) for 10 CFR Part 830, *Nuclear Safety Management*, will erode DOE's nuclear safety regulatory framework. Rather, DOE believes that these proposed changes will improve the effectiveness and efficiency of the framework while continuing to ensure adequate protection of environment, public, and worker health and safety at DOE defense nuclear facilities. On October 19, 2020, DOE published the Final Rule amending 10 CFR Part 830, addressing and incorporating comments from the DNFSB and members of the public as part of the formal rulemaking process. (85 Fed. Reg. 66201).

The DNFSB's June 1, 2021, letter both revises and reaffirms DNFSB Recommendation 2020-1, *Nuclear Safety Requirements*, in response to DOE's June 11, 2020, response and to DOE's completion of the rulemaking. Given the revisions made to the Recommendation, the following reflects DOE's revised response.

While accepting Recommendation 2020-1, DOE accepts sub-recommendations 3.c, 5.d, and 5.e with the understanding that DOE cannot commit to a specific outcome in a future rulemaking as doing so would be inconsistent with its requirements under the Administrative Procedure Act. DOE will perform a regulatory analysis to evaluate whether changes to 10 CFR Part 830 should be pursued through a future rulemaking effort.

SUB-RECOMMENDATION 1: AGING INFRASTRUCTURE

Sub-Recommendation 1.a. Develop and implement an integrated approach - including requirements - for the management of aging infrastructure that includes formal processes to identify and perform infrastructure upgrades necessary to ensure facilities and structures, systems, and components can perform their safety functions.

DOE accepts this sub-recommendation. DOE believes its nuclear safety regulatory framework has requirements in place to ensure facilities and safety structures, systems, and components (SSCs), both active and passive, perform their safety functions. In the Department's December 17, 2019, response to the Draft Recommendation, the Department included an extensive discussion regarding DOE's expectations for the performance of safety SSCs within DOE's policy documents. At the highest level, compliance with 10 CFR Part 830, including the requirement in 10 CFR § 830.204(b)(4) to "...demonstrate the adequacy of these [hazard] controls to eliminate, limit, or mitigate identified hazards...", is required for all Hazard Category (HC) 1, 2, and 3 nuclear facilities, and applies to new and existing facilities.

DOE will benchmark existing successful aging management processes, such as the Extended Life Program at Y-12, and infrastructure upgrade programming systems, such as Science-based Infrastructure Stewardship, to enhance its processes to identify, prioritize, and plan safety-related infrastructure upgrades at Defense Nuclear Facilities. DOE will ensure funding necessary to complete upgrades designated through these evaluation and prioritization processes is clearly identified as part of the federal budgeting process. Given the multiple government-wide priorities that are considered as part of the budgeting process, DOE recognizes that not all upgrades are likely to be able to be funded in any given budgeting cycle. DOE will continue its risk-based budgeting prioritization approach and will continue taking other mitigating steps, as appropriate, to continue to maintain adequate safety. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

SUB-RECOMMENDATION 2: HAZARD CATEGORIES

Sub-Recommendation 2.a. Revise DOE Standard 1027-2018 to address the deficiencies noted in the Board's letter dated January 19, 2021.

DOE accepts this sub-recommendation. During the DNFSB staff's recent 2020 review of the content and technical basis of DOE Standard 1027-2018, Change Notice 1, *Hazard Categorization of DOE Nuclear Facilities*, DOE and the DNFSB staff had multiple meetings to discuss the DNFSB staff's questions and concerns. The DNFSB staff's outstanding issues were identified in the Board's letter dated January 19, 2021. The letter was provided to DOE for information. DOE has reviewed this letter and will work with the Board staff to further understand these concerns as part of future work on DOE Standard 1027 (as described in response to sub-Recommendation 2.b, below). Further, it should be noted that as a result of the Board's review of hazard categorization, NNSA

Supplemental Directive (SD) Guide (G)-1027, Admin Change 2, was issued on May 10, 2021, that clarified the use of the calculated threshold quantities and provided additional historical perspective on use of International Commission for Radiation Protection (ICRP) guidance. DOE believes that the changes address some of the Board's concerns identified in the letter.

Sub-Recommendation 2.b. Mandate use of the updated version of DOE Standard 1027 when performing facility hazard categorization of new defense nuclear facilities.

DOE accepts this sub-recommendation. DOE plans future work on DOE Standard 1027, including an evaluation of DOE-STD-1027-2018, a potential revision of the Standard, and a potential revision to 10 CFR Part 830 to incorporate Standard(s) used by the Department for hazard categorization. This work will inform any requirements to be considered for the future. As part of this effort DOE will perform a regulatory analysis to evaluate potential changes to the Rule.

DOE's current approach is consistent with 10 CFR Part 830, which allows updates to DOE-STD-1027, such as in DOE-STD-1027-2018, that are consistent with the methodology of DOE-STD-1027-92, Change Notice 1. In DOE's June 11, 2020 response, we noted that if DOE were to propose a new methodology for categorization, DOE would need to undertake a new rulemaking effort that would include proposing the revised methodology for public comment and reference the new Standard that includes the methodology. This remains the case. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 2.c. Review existing hazard category 3 and below hazard category 3 defense nuclear facilities to confirm they are appropriately categorized.

DOE accepts this sub-recommendation. The DNFSB's review does not provide sufficient data, nor has DOE's oversight indicated that use of the hazard categorization standards has led to under categorization that would necessitate additional reviews. However, concurrent with DOE's resolution to sub-Recommendation 2.b, DOE will evaluate the nuclear safety management framework (i.e., DOE directives and technical standards) to determine the best approach to establish requirements that would provide greater confidence that defense nuclear facilities, including below hazard category 3 facilities, are appropriately categorized. The Implementation Plan will identify the specific steps that will be taken to address this sub-recommendation.

SUB-RECOMMENDATION 3: DOE APPROVALS

Sub-Recommendation 3.a. *Establish requirements in DOE Standard 1104 for timely periodic DOE reviews of facility safety bases to ensure they meet the requirements of 10 CFR 830.*

DOE accepts this sub-recommendation. DOE commits to evaluating DOE Standard 1104 or other DOE directive(s) and revising directives and technical standards, as necessary, to incorporate DOE's expectations for the review of facility safety bases to ensure they meet the requirements of 10 CFR Part 830. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 3.b. *Establish clear requirements in DOE Standard 1104 for DOE approval of JCOs and ESSs for PISAs that result in a positive USQ determination.*

DOE accepts this sub-recommendation. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 3.c. *Update 10 CFR 830 to incorporate the requirements established per items 3.a and 3.b.*

DOE accepts this sub-recommendation with the understanding that while the Department has accepted sub-recommendations 3.a and 3.b, any future resulting requirements can be implemented in several policy documents (i.e., DOE rules, directives, or technical standards) and DOE cannot commit to a specific outcome in a future rulemaking. However, DOE will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through a future rulemaking process.

SUB-RECOMMENDATION 4: EVALUATION OF DSA PREPARATION AND REVIEW PROCESSES.

Sub-Recommendation 4.a. *Conduct an independent review of contractor and federal processes to identify and evaluate the underlying issues that prevented the annual submittal and approval of high-quality safety basis documents, and use the findings to improve the relevant processes.*

DOE accepts this sub-Recommendation. This sub-Recommendation is related to the Board's concerns with the deletion of the requirement for review and approval of the annual updates to the DSA in the recent 10 CFR Part 830 Rulemaking (final Rule published October 19, 2020, 85 Fed. Reg. 66201). DOE's acceptance of this sub-Recommendation does not constitute its agreement that there is a safety concern associated with the October 19, 2020, final Rule, nor that there were underlying safety

issues with the annual submittal and approval of high-quality safety basis documents. However, DOE is committed to continuous improvement and will conduct an independent review of the current safety basis development processes to determine whether improvements may be made for future submittals.

SUB-RECOMMENDATION 5: SAFETY BASIS PROCESS AND REQUIREMENTS

Sub-Recommendation 5.a. *Establish clear requirements for USQs and JCOs in an order or invoked standard, including elevation of key concepts and guidance from DOE Guide 424.1-1. While developing these requirements, address issues discussed in the Board's letter dated July 10, 2020.*

DOE accepts this sub-recommendation. DOE will evaluate the nuclear safety management framework (i.e., DOE directives and technical standards) to determine the best approach to establish requirements for USQs and JCOs. The Board's July 10, 2020, letter will be considered as part of this effort. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 5.b. *Establish clear requirements for TSRs in an order or invoked standard, including elevation of key concepts and guidance from DOE Guide 423.1-1. While developing these requirements, address issues discussed in DNFSB Technical Report 45, Violations of the Nuclear Safety Basis.*

DOE accepts this sub-recommendation. DOE will evaluate the nuclear safety management framework (i.e., DOE directives and technical standards) to determine the best approach to establish requirements for Technical Safety Requirements. The Board's Technical Report 45 will be considered as part of this effort. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 5.c. *Establish requirements for SACs by invoking DOE Standard 1186 in an appropriate DOE order.*

DOE accepts this sub-recommendation. DOE will evaluate the nuclear safety management framework (i.e., DOE directives and technical standards) to determine the best approach to establish requirements for Specific Administrative Controls. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 5.d. Update 10 CFR 830 to incorporate the requirements established per items 5.a through 5.c.

DOE accepts this sub-recommendation with the understanding that while the Department has accepted sub-recommendations 5.a through 5.c, any future resulting requirements can be implemented in several policy documents (i.e., DOE rules, directives, or technical standards) and DOE cannot commit to a specific outcome in a future rulemaking effort. However, DOE will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through an additional rulemaking process.

Sub-Recommendation 5.e. Establish requirements in 10 CFR 830 regarding the concept of defense-in-depth.

DOE accepts this sub-recommendation with the understanding that while the Department agrees to evaluate the need for additional requirements regarding the concept of defense-in-depth, DOE cannot commit to a specific outcome in a future rulemaking process. However, DOE will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through an additional rulemaking process.