The Secretary of Energy
Washington, DC 20585

June 11, 2020

The Honorable Bruce Hamilton
Chairman
Defense Nuclear Facilities Safety Board
625 Indiana Avenue NW, Suite 700
Washington, DC 20004

Dear Chairman Hamilton:

The Department of Energy (DOE) acknowledges receipt of Defense Nuclear Facilities Safety Board (DNFSB or Board) Recommendation 2020-1, *Nuclear Safety Requirements*, dated February 21, 2020, and published in the *Federal Register* on March 13, 2020.

The Board stated that the Recommendation is "intended to strengthen DOE's regulatory framework in its current form," and consists of actions which DOE understands are intended to improve its existing nuclear safety regulatory framework, rather than remedy Board-perceived flaws in such framework. DOE stated in its December 17, 2019, response to the Draft Recommendation 2020-1, that continuous improvement is a core value in maintaining a robust nuclear safety regulatory framework to ensure adequate protection of public and worker health and safety. DOE's recent actions to improve the framework include proposing to modify and improve Title 10 Code of Federal Regulations (CFR) Part 830, *Nuclear Safety Management*, and associated DOE nuclear safety directives and technical standards.

These efforts underscore DOE's goal to continuously improve its nuclear safety regulatory framework, which has helped DOE achieve and maintain an outstanding record of safety performance in recent decades. DOE does not agree with the DNFSB's assertion that the revisions proposed in the August 8, 2018, Notice of Proposed Rulemaking for 10 CFR Part 830 would erode DOE's nuclear safety regulatory framework. Rather, DOE believes that these proposed changes would improve the effectiveness and efficiency of that framework while continuing to ensure adequate protection of the public and worker health and safety across the DOE complex.

Following DOE's evaluation of Recommendation 2020-1, the Department partially accepts the Board's Recommendation as summarized below and detailed in the enclosure.

On June 9, 2020, DOE provided the Board staff with the draft Final Rule, which touches on certain sub-elements of Recommendation 2020-1. Because the

Department continues to consider these topics as part of its current rulemaking process, DOE rejects sub-recommendations 2.a, 2.b, 3.a, 4.a, and 4.b.

In addition, DOE rejects sub-recommendations 3.b, 3.c, and 4.e, as currently written because these topics are outside of the scope of the current rulemaking process to amend 10 CFR Part 830. However, DOE will perform a regulatory analysis to evaluate whether further changes to 10 CFR Part 830 should be proposed in an additional rulemaking.

As explained further in the enclosure to this letter, DOE partially accepts sub-recommendations 1.a, 4.c, and 4.d, and will develop an Implementation Plan to address these elements. We appreciate the Board's advice and will continue working closely with the Board to improve the Department's regulatory framework at DOE defense nuclear facilities in a manner that meets our shared objectives to ensure the continued safe, effective, and efficient execution of our mission. We look forward to working with the Board and its staff as we prepare the Implementation Plan.

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

Sincerely,

Dan Brouillette

Enclosure

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

The Department of Energy (DOE or Department) has evaluated Defense Nuclear Facilities Safety Board (DNFSB or Board) Recommendation 2020-1. The following discussion presents a detailed response for each DNFSB sub-recommendation, which reflects the Department's partial acceptance of Recommendation 2020-1 (Recommendation).

DOE disagrees with the DNFSB's assertion that the revisions proposed in the August 8, 2018, Notice of Proposed Rulemaking (NOPR) for 10 CFR Part 830, *Nuclear Safety Management*, would erode DOE's nuclear safety regulatory framework. Rather, DOE believes that these proposed changes would improve the effectiveness and efficiency of the framework while continuing to ensure adequate protection of public and worker health and safety at DOE defense nuclear facilities.

The DNFSB's Recommendation includes specific sub-recommendations related to two of the proposed revision topics identified in the NOPR: hazard categorization and the review and approval of safety documentation. Because the Department continues to consider these topics as part of its current rulemaking efforts, DOE rejects sub-recommendations 2.a, 2.b, 3.a, 4.a, and 4.b.

Following issuance of the Final Rule, DOE plans to evaluate affected directives and standards (primarily DOE-STD-1104-2016, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*, and DOE G 424.1-1B, *Implementation Guide for Use in Addressing Unreviewed Safety Question Requirements*) for conformance with any new requirements and provide any necessary implementation guidance. There will be an opportunity for the Board to engage in these revisions. Further discussion regarding these two topics is provided below.

In addition, DOE rejects sub-recommendations 3.b, 3.c, and 4.e as written because these topics are outside of the scope of the current rulemaking to amend 10 CFR Part 830. However, DOE will perform a regulatory analysis to evaluate whether changes to 10 CFR Part 830 should be pursued through an additional rulemaking.

SUB-RECOMMENDATION 1: AGING INFRASTRUCTURE

Sub-Recommendation 1.a. ***Develop and implement an approach including requirements to aging management that includes a formal process for identifying and performing infrastructure upgrades that are necessary to ensure facilities and structures, systems, and components can perform their safety functions.***

DOE partially 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 function. In the Department's December 17, 2019, response to the Draft Recommendation, we included 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 §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 aging facilities.

In responding to this sub-recommendation, however, DOE will ensure that nuclear safety is appropriately considered within existing organizations and committees in the Department who are charged with establishing Department-wide priorities and providing recommendations regarding infrastructure.

DOE has also been involved in the development of ANS-3.14-202x, *Process for Aging Management and Life Extension of Nonreactor Nuclear Facilities*, and will continue to support this effort to develop a consensus standard that is intended to guide the review and management of aging degradation mechanisms.

SUB-RECOMMENDATION 2: HAZARD CATEGORIZIES

Sub-Recommendation 2.a. ***Retain qualitative definitions of hazard categories in 10 CFR 830.***

DOE rejects this sub-recommendation because DOE is considering this matter in the current rulemaking. The August 8, 2018 NOPR proposed to remove Table 1 of Appendix A, which provides a qualitative concept of hazard categories, and replace that table with a formal definition in §830.3 for "Hazard Category 1, 2, and 3 DOE nuclear facilities" that references DOE-STD-1027-92 Change Notice 1.

The NOPR notes that the removal of Table 1 would allow for a clearer link between the HC determination and the methodology in DOE-STD-1027-92 Change Notice 1 (as required in 10 CFR §830.202(b)(3)). As proposed, the qualitative ordering in which HC 1 would have higher potential consequences and HC 3 would have lower potential consequences remains unchanged from the current method. However, the determination of hazard categorization has always required the use of a quantitative methodology consistent with DOE-STD-1027-92, Change Notice 1,, not on the guidance related to the qualitative concept provided in Table 1 of Appendix A to 10 CFR Part 830, Subpart B.

Sub-Recommendation 2.b. ***Revise 10 CFR 830 to mandate use of a single version of Standard 1027 when performing facility hazard categorization.***

DOE rejects this sub-recommendation because DOE is considering this matter in the current rulemaking. It is worth noting that DOE's current approach is as follows: Section 830.202(b)(3) mandates that each facility be categorized "consistent with DOE-STD-1027-92 (''Hazard Categorization and Accident Analysis Techniques for compliance with DOE Order 5480.23, Nuclear Safety Analysis Reports,'' Change Notice 1, September 1997)." DOE has allowed updates to the Standard, as in DOE-STD-1027-2018, that retain the same methodology as in DOE-STD-1027-92. The Recommendation states that "the words 'consistent with' introduce flexibility in implementation to not actually follow the requirements in DOE-STD-1027." DOE disagrees with this point. The rule *requires* that hazard categorization be conducted in a manner that is consistent with the methodology in DOE-STD-1027-92.

DOE provided the Board staff with a draft Final Rule on June 9, 2020. In the future, if DOE were to propose a new methodology for categorization, DOE would need to undertake a new rulemaking that would include the revised methodology for public comment and reference the new standard that includes the methodology.

SUB-RECOMMENDATION 3: DOE APPROVALS

Sub-Recommendation 3.a. ***Conduct a root cause analysis to identify the underlying issues prohibiting the current safety basis approval process from working efficiently and use the findings to improve DOE's approval process.***

DOE rejects this sub-recommendation because DOE is considering this matter in the current rulemaking. The Recommendation identifies a number of concerns with the NOPR regarding the deletion of the requirement for review and approval of the annual updates to the documented safety analysis (DSA). Sub-recommendations 3.a. and 4.a. recommend conducting a root cause analysis to identify underlying issues in the DSA annual submittal and approval process.

Prior to issuing the NOPR, DOE carefully considered the proposed changes. DOE is the approval authority of safety bases and can approve changes to safety bases outside of the annual update process. DOE does not believe that the proposed change to delete the requirement for review and approval of the annual updates "complicates DOE's ability to ensure the configuration of the facility, the processes, and the documentation" on the safety of DOE facilities, as asserted in the Recommendation. The following discussion provides an explanation of DOE's proposal in the NOPR to remove this requirement, and why DOE believes this would be an effective path forward.

In §830.203, *Unreviewed Safety Question Process*, DOE currently requires the contractor to obtain DOE approval prior to taking any action determined to involve an unreviewed safety question (USQ). DOE-STD-1104-2016 explains that "[s]ince a "positive" [USQD

determination (USQD)] indicates a situation that is not within the current DOE-approved safety envelope (i.e., a USQ), that situation or action(s) is required to be evaluated in accordance with 10 CFR Part 830 and approved by DOE."

Additionally, §830.202, *Safety Basis*, requires the contractor to annually submit to DOE either the updated DSA for approval or a letter stating that there have been no changes in the DSA since the prior submission. This effectively requires the contractor to submit changes to the DSA, for DOE approval, twice.

The requirement in §830.201 that a contractor must perform work in accordance with the safety basis remains unchanged. The NOPR proposes a change to clarify that work must be performed in accordance with "the DOE-approved safety basis" for a facility. This has always been the expectation as described in §830.207, *DOE approval of safety basis*; however, this change is proposed in the NOPR to further clarify the point.

In the NOPR, the language in §830.207(b) has also been proposed for revision and would be strengthened to say: "Pending issuance of a safety evaluation report in which DOE approves **an updated or amended** safety basis for **an existing** Hazard Category 1, 2, or 3 DOE nuclear facility, the contractor responsible for the facility must continue to perform work in accordance with the **DOE-approved** safety basis for the facility and maintain the existing safety basis consistent with the requirements of this Subpart" (emphasis added).

The NOPR's proposed change to eliminate the requirement for DOE to approve the annual update would rely on an effectively implemented process for USQs. This proposed change would allow the USQ process to be the primary mechanism by which DOE's approval for changes to the DSA, where appropriate, would be obtained. If new changes or planned DSA updates are proposed (which have not been approved by DOE through the USQ process), DOE would review and approve those changes as required by §830.207. The NOPR proposes to amend 10 CFR Part 830, Appendix A to Subpart B, Section F.3, to include revised text to clarify this process.

Sub-Recommendation 3.b. ***Add language to the rule to explain that DOE's review of safety basis updates should consider the cumulative effect of changes to the safety basis.***

DOE rejects this sub-recommendation because this topic is outside of the scope of the current rulemaking to amend 10 CFR Part 830. However, DOE will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through an additional rulemaking.

Sub-Recommendation 3.c. ***Revise the body of 10 CFR 830, Subpart B, to include formal DOE approval of justifications for continued operation and evaluations of the safety of a situation.***

DOE rejects this sub-recommendation because this topic is outside of the scope of the current rulemaking to amend 10 CFR Part 830. However, DOE will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through an additional rulemaking.

SUB-RECOMMENDATION 4: SAFETY BASIS PROCESS AND REQUIREMENTS

Sub-Recommendation 4.a. ***Conduct a root cause analysis to identify the underlying issues prohibiting contractors from developing and submitting a documented safety analysis on an annual schedule for DOE approval and use the findings to improve the submission process.***

DOE rejects this sub-recommendation because DOE is considering this matter in the current rulemaking. See discussion under sub-recommendation 3.a. for the basis for rejection of 4.a.

Sub-Recommendation 4.b. ***While conducting the analyses in 3.a. and 4.a. above, retain the requirement for contractors to submit a documented safety analysis on an annual schedule for DOE approval***

DOE rejects this sub-recommendation because DOE is considering this matter in the current rulemaking. See discussion under sub-recommendation 3.a for the basis for rejection of 4.b.

Sub-Recommendation 4.c. ***Specify what safety basis documentation a contractor must submit when seeking approval for an action involving a USQ (proposed 10 CFR 830.203(d)).***

DOE partially accepts this sub-recommendation and will evaluate DOE's nuclear safety management framework (i.e., DOE directives and technical standards) to determine whether improvements are necessary. DOE's understanding is that the Board staff is also in the process of reviewing DOE's implementation of USQ requirements for defense nuclear facilities. DOE looks forward to considering the results of this review, once complete, to inform DOE's path forward in this area. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 4.d. ***Establish requirements for USQs and TSRs in 10 CFR 830 and/or orders, by elevating key guidance on USQs and TSRs to clearly identified requirements.***

DOE partially accepts this sub-recommendation and will evaluate DOE's nuclear safety management framework (i.e., DOE directives and technical standards) to determine whether improvements are necessary. DOE's understanding is that the Board staff is also in the process of reviewing DOE's implementation of USQ and technical safety

requirements (TSR) for defense nuclear facilities. DOE looks forward to considering the results of these reviews, once complete, to inform DOE's path forward in this area. The Implementation Plan will further describe the steps that will be taken to address this sub-recommendation.

Sub-Recommendation 4.e. ***Establish requirements for and incorporate the concept of defense-in-depth and SACs and add a discussion of defense-in-depth and SACs to 10 CFR 830 under safety structures, systems, and components.***

DOE rejects this sub-recommendation because this topic is outside of the scope of the current rulemaking to amend 10 CFR Part 830. However, DOE will perform a regulatory analysis to evaluate whether any changes to 10 CFR Part 830 should be proposed through an additional rulemaking.