

Joyce L. Connery, Chair  
Thomas A. Summers, Vice Chair

## DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Washington, DC 20004-2901



December 19, 2023

The Honorable Jennifer M. Granholm  
Secretary of Energy  
U.S. Department of Energy  
1000 Independence Avenue, SW  
Washington, DC 20585-1000

Dear Secretary Granholm:

The Defense Nuclear Facilities Safety Board (Board) reviews and evaluates the content and implementation of the Department of Energy's (DOE) safety standards (e.g., directives and technical standards) pertaining to DOE's defense nuclear facilities. Additionally, the Board makes safety recommendations for necessary changes to those safety standards that will help to ensure DOE's adequate protection of public health and safety.

Under this authority, on December 16, 2022, the Board informed DOE that the Board had selected several safety standards to review in fiscal year (FY) 2023. Below is a summary of the safety reviews that the Board conducted in FY 2023.

- **DOE Handbook 3010**, *Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities*—In 2021, DOE proposed revisions to select portions of this safety handbook on airborne release fraction and respirable fraction experimental data for nonreactor nuclear facilities in the DOE complex. The Board's staff provided comments to DOE in October 2021, and DOE intends to respond to the comments in the near future. The staff will continue this effort in FY 2024.
- **DOE Handbook 1224**, *Hazard and Accident Analysis Handbook*—This safety handbook guides development of documented safety analyses for nuclear facilities to satisfy the safety requirements of the safe harbor methods set out in Title 10 Code of Federal Regulations Part 830, Subpart B. DOE proposed revisions to this handbook in 2020. The Board's staff provided comments in 2021 on the draft revision of the handbook and met with DOE personnel on several occasions in 2022 and 2023 to discuss the comments. The staff will continue this effort in FY 2024.
- **DOE Order 425.1**, *Verification of Readiness to Start Up or Restart Nuclear Facilities*—In 2021, DOE began revising this order that provides requirements governing conduct of readiness reviews and was originally issued (under a different identifying number) in response to Board Recommendation 92-6, *Operational Readiness Reviews*. The Board's staff provided comments in April 2023 on the

- proposed revision and met with DOE personnel on several occasions in 2023 to discuss DOE's response to the comments. The Board's letter of December 5, 2023, identified safety concerns with the proposed revision. The staff will continue this effort in FY 2024.
- **DOE Standard 1066, *Fire Protection***—The Board's staff provided significant comments to DOE in 2021 and 2022 on this safety standard that provides acceptable methods and approaches for meeting DOE's fire protection program and design requirements. In FY 2022 and FY 2023, the Board's staff met with the DOE Fire Safety Committee on several occasions to discuss the comments. DOE incorporated many of these comments in the revised standard issued in June 2023.
  - **DOE Handbook 1545, *Seismic Evaluation Procedure for Equipment in U.S. Department of Energy Facilities***—This new safety handbook provides comprehensive safety guidance for consistent seismic evaluations of equipment in DOE facilities. The Board's staff provided comments to DOE in February 2023 on the proposed handbook. The staff will continue this effort in FY 2024.
  - **DOE Standard 1129, *Tritium Handling and Safe Storage***—DOE did not revise this safety standard in FY 2023, as it originally intended. The staff plans to review the safety standard when DOE revises it.
  - **DOE Order 435.1, *Radioactive Waste Management***—The Board's staff reviewed an early draft of the revision to this order that added some content from DOE Manual 435.1-1, *Radioactive Waste Management Manual*. The staff provided comments to DOE in May 2023 and will continue this effort in FY 2024.
  - **DOE Limited Standard 3016, *Hazard Analysis Reports for Nuclear Explosive Operations***—In 2021, DOE proposed a revision to this safety standard on conduct of hazard analyses and preparation of hazard analysis reports for nuclear explosive operations conducted by DOE's National Nuclear Security Administration (NNSA). In 2022, DOE substantially reworked its revisions to address comments from various stakeholders, including the Board and its staff. DOE incorporated these comments in the revised standard issued in April 2023.
  - **DOE Standard 1239, *Chemical Safety Management Program***—This draft DOE standard provides expectations and guidance for managing chemical safety at DOE sites and facilities. The Board's staff provided comments to DOE in June 2023. The staff met with DOE personnel in August 2023 and will continue this effort in FY 2024.
  - **DOE Standard 1234, *Radioactive Material Storage Containers***—This new safety standard on storage container technical criteria will supersede DOE Manual 441.1-1, *Nuclear Material Packaging*, that was developed in response to Recommendation 2005-1, *Nuclear Material Packaging*. The Board's staff provided comments to DOE in September 2023 on the draft standard and will continue this effort in FY 2024.

- **DOE Order 251.1, *Departmental Directives Program***—In March 2023, the DOE Deputy Secretary issued a memorandum that directed revision of this order on DOE’s directives program. The Board’s staff provided comments to DOE in July 2023 on the proposed revision and will continue this effort in FY 2024.
- **DOE Order 414.1, *Quality Assurance***—In 2022, DOE began revising this order on quality assurance. The Board’s staff met with DOE personnel in June 2023 on the proposed revision and provided comments to DOE in July 2023. The staff will continue this effort in FY 2024.
- **DOE Order 421.1, *Nuclear Safety Basis***—DOE developed this new safety directive as part of the implementation plan for Recommendation 2020-1, *Nuclear Safety Requirements*. The Board’s staff met with DOE personnel on several occasions in 2023 and provided comments in September 2023 on an early draft version. The staff will continue this effort in FY 2024.

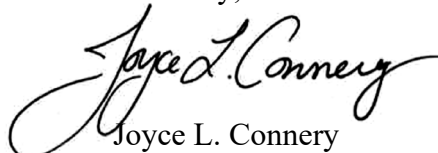
In determining which DOE safety standards and their implementations to review in FY 2024, the Board has considered those that it has already started reviewing, those that are planned for revision, those that have complex-wide effects, and those that establish controls for high-hazard activities. The Board has selected the following safety standards to review in FY 2024:

- **DOE Order 151.1, *Comprehensive Emergency Management System,***
- **DOE Order 251.1, *Departmental Directives Program,***
- **DOE Order 414.1, *Quality Assurance,***
- **DOE Order 421.1, *Nuclear Safety Basis,***
- **DOE Order 425.1, *Verification of Readiness to Start Up or Restart Nuclear Facilities,***
- **DOE Order 433.1, *Maintenance Management Program for DOE Nuclear Facilities,***
- **DOE Order 435.1, *Radioactive Waste Management,***
- **DOE Standard 1020, *Natural Phenomena Hazards Analysis and Design Criteria for DOE Facilities,***
- **DOE Standard 1027, *Hazard Categorization of DOE Nuclear Facilities,***
- **DOE Handbook 1220, *Natural Phenomena Hazards Analysis and Design Handbook for DOE Facilities,***
- **DOE Handbook 1224, *Hazard and Accident Analysis Handbook,***

- **DOE Standard 1234**, *Radioactive Material Storage Containers*,
- **DOE Standard 1239**, *Chemical Safety Management Program*,
- **DOE Handbook 1545**, *Seismic Evaluation Procedure for Equipment in U.S. Department of Energy Facilities*,
- **DOE Standard 3006**, *Planning and Conducting Readiness Reviews*,
- **DOE Handbook 3010**, *Airborne Release Fractions/Rates and Respirable Fractions for Nonreactor Nuclear Facilities*,
- **NNSA Supplemental Directive 251.1**, *Directives Management*, and
- Orders and technical standards that DOE revises as a result of its work on the implementation plan for Recommendation 2020-1, *Nuclear Safety Requirements* (e.g., **DOE Order 420.1**, *Facility Safety* and **DOE Standard 1104**, *Review and Approval of Nuclear Facility Safety Basis and Safety Design Basis Documents*).

The Board may elect to add or change reviews of DOE safety directives and technical standards as it deems appropriate. The Board also welcomes DOE's feedback on additional safety directives that warrant the Board's review.

Sincerely,

A handwritten signature in black ink, reading "Joyce L. Connery". The signature is written in a cursive style with a large, looping initial "J".

Joyce L. Connery  
Chair

c: Mr. Joe Olencz