

U.S. Department of Energy
Washington, D.C.

ORDER

NE O 433.1

Approved: August-2025

SUBJECT: MAINTENANCE MANAGEMENT PROGRAM FOR DOE NUCLEAR FACILITIES

1. PURPOSE

To define the safety management program required by Title 10 Code of Federal Regulations (CFR) 830.204(b)(5) for maintenance and the reliable performance of structures, systems, and components (SSCs) that are part of the safety basis required by 10 CFR 830.202 at hazard category 1, 2, and 3 Department of Energy (DOE) nuclear facilities.

2. CANCELS/SUPERSEDES.

This Order applies in lieu of DOE O 433.1B (current version) with respect to the facilities and activities covered by paragraph 3 below. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive. Contractor Requirements Documents (CRDs) that have been incorporated into a contract remain in effect throughout the term of the contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.

3. APPLICABILITY.

- a. Departmental Elements. This Order applies to all Departmental elements including NNSA, and their associated field element(s),¹ to the extent they are involved with facilities and activities described in paragraph 3.b.
- b. NE Facilities and Activities. Except as stated in paragraph 3.d., this Order applies to all facilities and activities under the responsibility of the Office of Nuclear Energy (NE), including nuclear facilities and nuclear activities authorized by NE. Such nuclear activities include the design, construction, management, operation, decontamination, decommissioning, or demolition of nuclear facilities.

¹ Operations offices, service centers, site offices, area offices, field offices, government-owned government-operated facilities, and regional offices of federally-staffed laboratories that report directly to a DOE Headquarters office.

- c. Contractors. Except as stated in paragraph 3.d., this Order sets forth conditions to be applied to contractors performing work that involves facilities and activities described in paragraph 3.b. The CRD must be included in contracts under which the contractor is involved with such facilities and activities.
- d. Equivalencies and Exemptions.
 - (1) Exemption. In accordance with the responsibilities and authorities assigned by Executive Order 12344, codified at 50 United States Code (U.S.C.) sections 2406 and 2511 and to ensure consistency throughout the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) implements and oversees requirements and practices pertaining to this directive for activities under the Director's cognizance, as deemed appropriate.
 - (2) Exemption. This Order does not apply to activities regulated by either the Nuclear Regulatory Commission (NRC) or the authorities of a State under an agreement with the NRC per the Atomic Energy Act of 1954, as amended (AEA).
 - (3) Other Equivalencies/Exemptions. Any other equivalency or exemption to this Order requires the approval of NE's Safety Basis Approval Authority (SBAA). Requests for equivalencies/exemptions will be adjudicated by NE's SBAA within 14 calendar days of receipt of a substantially complete request.

4. REQUIREMENTS

. Graded approach is defined in 10 CFR 830.3. All hazard category 1, 2, or 3 nuclear facilities, as defined in NE Standard 1027 (NE-STD-1027), must conduct all maintenance of SSCs that are part of the safety basis in compliance with a nuclear maintenance management program (NMMP) through tailored application (e.g., graded approach) of the requirements.

- a. NMMPs for Prime Contractor facilities must demonstrate compliance with the requirements contained in the CRD of this Order (Attachment 1).
- b. Changes to NMMPs must be reviewed under the unreviewed safety question (USQ) process to ensure that SSCs are maintained and operated within the approved safety basis, as required by 10 CFR part 830, *Nuclear Safety Management, Subpart B, Safety Basis Requirements*. Changes which would result in an unreviewed safety question must be approved prior to the change taking effect.
- c. Assessments of NMMP implementation should be conducted in accordance with NE O 226.1, *Implementation of Department of Energy Oversight Policy*, to evaluate whether all CRD requirements are appropriately implemented.
- d. Periodic self assessments in accordance with NE O 226.1 should be conducted to evaluate the effectiveness of oversight of NMMPs.

- e. As applicable, a single maintenance program may be used to address the requirements of this Order and the requirements of DOE O 430.1B, *Real Property Asset Management*.

5. RESPONSIBILITIES

- a. Secretarial Officers.
 - (1) Ensure that the requirements of this Order are implemented for facilities, activities, or programs under their cognizance.
 - (2) Ensure that field office managers notify contracting officers when contracts are affected by this Order.
- b. Safety Basis Approval Authority.
 - (1) Ensure that maintenance activities and programs at hazard category 1, 2, and 3 nuclear facilities under their purview are conducted in compliance with the requirements of this Order.
 - (2) Ensure that sufficient resources are requested to meet the requirements of this Order and to ensure that safety SSCs are sufficiently maintained to perform their assigned safety function.
 - (3) Ensure that the requirements of this Order are incorporated into contracts, subcontracts, and support services contracts for hazard category 1, 2, and 3 nuclear facilities as appropriate
 - (4) Notify contracting officers when contracts are affected by this Order.
 - (5) Review NMMP program description documentation that demonstrates compliance with the Specific Requirements in the CRD, Attachment 1.
 - (6) Conduct comprehensive self assessments and assessments of contractor maintenance management programs as specified in paragraph 4 above and in accordance with NE O 226.1.
- c. Contracting Officers
 - (1) Incorporate the CRD into affected contracts in a timely manner when notified.
 - (2) Ensure that applicable maintenance related codes and standards are incorporated into contracts and other procurement documents.

6. REFERENCES

- a. NE O 226.1B, *Implementation of Department of Energy Oversight Policy*.
- b. DOE O 251.1E Chg 1, *Departmental Directives Program*, dated 12-18-24.

- c. DOE O 430.1B Chg 2, *Real Property Asset Management*, dated 4-25-11.
- d. NE-STD-1027, *Hazard Categorization of DOE Nuclear Facilities*.
- e. 10 CFR part 830, *Nuclear Safety Management*; Subpart A, *Quality Assurance Requirements*.
- f. 10 CFR part 830, *Nuclear Safety Management*; Subpart B, *Safety Basis Requirements*.
- g. Executive Order 12344, *Naval Nuclear Propulsion Program*.

7. **CONTACT**

Questions concerning this Order should be addressed to the Office of Nuclear Energy.

BY ORDER OF THE SECRETARY OF ENERGY:



JAMES P. DANLY
Deputy Secretary

CONTRACTOR REQUIREMENTS DOCUMENT
NE O 433.1, MAINTENANCE MANAGEMENT PROGRAM
FOR DOE NUCLEAR FACILITIES

Contractors at hazard category 1, 2, and 3 nuclear facilities must comply with the requirements listed in this Contractor Requirements Document (CRD) to the extent set forth in their contracts. Maintenance Management Program requirements applicable to this CRD are provided below. Regardless of the performer of the work, the contractor is responsible for complying with the requirements of this CRD and flowing down CRD requirements to subcontractors at any tier to the extent necessary to ensure contractor compliance.

The provisions of this CRD apply to Office of Nuclear Energy.

MAINTENANCE MANAGEMENT PROGRAM REQUIREMENTS
FOR DOE NUCLEAR FACILITIES

1. **GENERAL REQUIREMENTS.**

- a. Contractor organizations responsible for hazard category 1, 2, or 3 nuclear facilities, as defined by NE Standard 1027 (NE-STD-1027) must develop and implement a nuclear maintenance management program (NMMP) through tailored application (e.g., graded approach) of the Specific Requirements in this attachment. The definition of graded approach is provided in Title 10 Code of Federal Regulations (CFR) 830.3. The NMMP must describe the safety management program for maintenance and the reliable performance of structures, systems, and components (SSCs) that are part of the safety basis at hazard category 1, 2, and 3 Office of Nuclear Energy (NE) nuclear facilities.
- b. Contractor organizations must conduct all maintenance of SSCs that are part of the safety basis in compliance with an NMMP.
- c. Contractor organizations must ensure that equivalencies and exemptions from the maintenance management program elements of this attachment are identified, formally documented with supporting justification, and approved. DOE-STD-1271-2025.
- d. Contractor organizations must implement the NMMP through federal or contractor-approved documents, as appropriate. This is normally accomplished with a manual or a set of implementing procedures.
- e. Contractor organizations must submit NMMP description documentation to NE's Safety Basis Approval Authority for review prior to the startup of new hazard category 1, 2, and 3 nuclear facilities. NMMP description documentation must be, at a minimum, an applicability matrix or a combination of multiple documents. The following elements must be covered:
 - (1) Correlation of the Specific Requirements in this attachment to the applicable facilities;

- (2) Correlation of the implementing documents (procedures, work instructions, etc.) to the Specific Requirements in this attachment; and
- (3) Documentation of the basis for applying a graded approach, if applicable.
- f. Contractor organizations should conduct assessments of NMMP implementation, in accordance with NE O 226.1 and 10 CFR part 830, subpart A.
- g. Contractor organizations must review proposed changes to the NMMP, which could affect the performance of safety SSCs, as part of the ongoing unreviewed safety question (USQ) process. This review is intended to evaluate whether safety SSCs are maintained and operated within the approved safety basis, as required by 10 CFR 830.203.
- h. These requirements will be fully implemented within 1 year of issuance, unless a different implementation schedule is approved by the SO.

2. **SPECIFIC REQUIREMENTS**. The NMMP must clearly address the following:

- a. **Types of Maintenance**. The process for utilization of appropriate types of maintenance (e.g., preventive maintenance, predictive maintenance, reliability-centered maintenance, surveillance and testing, and corrective maintenance) to provide for safe, efficient, and reliable operation of safety SSCs.
- b. **Maintenance Procedures**. The process for developing and implementing documented and approved work instructions for work on safety SSCs (e.g., work packages, procedures, work instructions, and drawings).
- c. **Configuration Management**. The incorporation of the configuration management program to control approved modifications and to prevent unauthorized modifications to safety SSCs.
- d. **Suspect and Counterfeit Items**. The incorporation of the process to prevent the use of suspect and counterfeit items into maintenance procedures and work instructions.
- e. **Maintenance History**. The process for developing and maintaining documented and retrievable maintenance history (e.g., cost data, system availability data, and failure data) to support work planning, performance trending, analysis of problems to determine root causes of unplanned occurrences related to maintenance, and continuous program improvement.
- f. **Performance Measures**. The process for developing, maintaining, and communicating performance measures to identify maintenance issues requiring corrective action and lessons learned.
- g. **Facility Condition Inspection**. The process for conducting and implementing routine assessment of facilities to identify issues related to operability, and reliability.

- h. Post Maintenance Testing. The process for conducting post maintenance testing to verify that safety SSCs can perform their intended function when returned to service.