U.S. Department of Energy
Washington, DC

ORDER

NE O 470.1

Approved: August-2025

SUBJECT: OFFICE OF NUCLEAR ENERGY SAFEGUARDS AND SECURITY

1. PURPOSE. This Order establishes a comprehensive framework of programs and requirements within Department of Energy's (DOE's) Office of Nuclear Energy (NE) to ensure the protection, control, and accountability of DOE NE assets. It details specific security measures tailored to the needs of DOE NE, emphasizing a performance-based strategy that grants significant decision-making authority to NE's Safety Basis Approval Authority (SBAA) or Field Element Manager (FEM), as applicable. The approach prioritizes achieving desired outcomes and results over merely fulfilling requirements, offering flexibility in how goals are accomplished and emphasizing continuous improvement, proactive risk management, demonstrated performance, and data-driven decision-making to ensure optimal results.

2. CANCELS/SUPERSEDES. This Order applies in lieu of DOE O 470.1A, DOE O 470.3C, DOE O 470.4C, DOE O 471.B, DOE O 473.1A, DOE O 473.2A, and DOE O 474.2A, with respect to the facilities and activities covered by section 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contract unless and until the contract or regulatory commitment is modified to either eliminate requirements that are no longer applicable or substitute a new set of requirements.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 the facilities and activities described in paragraph 3.b.

   b. NE Facilities. Except as stated in paragraph 3.d., this Order applies to all facilities and activities under the responsibility of 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 or its requirements 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, *Naval Nuclear Propulsion Program*, codified at 50 United States Code (U.S.C.) sections 2406, *Deputy Administrator for Naval Reactors*, and 2511, *Naval Nuclear Propulsion Program*, and to ensure consistency through the joint Navy/DOE Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee 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 SBAA or FEM, as applicable. Requests for equivalencies/exemptions will be adjudicated by the SBAA or FEM, as applicable, within 14 calendar days of receipt of a substantially complete request.

4. REQUIREMENTS Requirements for the protection of NE assets as outlined in Attachments 1 and 2, as applicable.

a. Delegation of Safeguards and Security (S&S) Authorities.

(1) Each delegation must be formally documented. It may be included in other security plans or documentation approved by or according to direction from the office which is delegating authority.

(2) Each delegator remains responsible for the delegate's acts or omissions in carrying out the purpose of the delegation.

(3) Security risk acceptance is an inherently federal function and cannot be delegated.

b. Site Security Plan.

(1) Each nuclear facility subject to this Order must have a security plan that addresses site-specific security requirements and procedures, consistent with the applicable laws, regulations, executive orders, other national-level requirements, and DOE

directives (if specifically identified in this Order).

(2) The ODSA shall submit a security plan to the ODFSA for review and approval. The ODFSA shall review the security plan in consultation with cognizant Office of Environment, Health, Safety, and Security technical experts, National Nuclear Security Administration Office of Defense Nuclear Security and Office of Counterterrorism and Counterproliferation, and DOE legal counsel for consistency with applicable requirements. If no objections or requests for modification are communicated in writing to the ODSA within 5 business days of submission, the plan will be deemed approved and must be promptly implemented. In the event of any ODFSA objection or request for modification, the ODSA shall re-submit a revised draft security plan within 5 business days following the ODFSA response for review and approval subject to the same procedures. Any proposed amendment to, or waiver of, the security plan shall be subject to the same review and approval procedures as the initial security plan.

5. RESPONSIBILITIES.

a. Secretary of Energy.

(1) Ensures an effective S&S Program is established and executed for the protection of special nuclear material (SNM), facilities, and other Departmental assets under the authorities granted by relevant Executive Orders; the *Department of Energy Organization Act*, as amended (42 U.S.C. Sections 7101, *Definitions*, to 7352, *Contents of review*); and the *Atomic Energy Act of 1954*, as amended (42 U.S.C. Sections 2011 et seq.); and in accordance with P.L. 106-65, *National Defense Authorization Act for FY 2000*.

(2) Designates senior Departmental officials to direct and administer the S&S Program.

(3) Delegates, in writing, all responsibilities and authorities as necessary for the administration of the S&S Program.

b. The Deputy Secretary.

(1) Develops and operates S&S policies.

c. Under Secretary for Science and Innovation.

(1) Manages and implements S&S programs administered by its subordinate offices, including provision of the appropriate level of authorities and resources to effectively manage and execute S&S responsibilities, ensuring compliance with DOE directives.

d. Assistant Secretary for Nuclear Energy.

(1) Provides guidance and oversight to ensure S&S Planning Programs under their cognizance are adequately implemented, managed, and maintained.

(2) Designates DOE Cognizant Security Office (CSOs) under their purview.

(3) Delegates authority to the Officially Designated Federal Security Authority (ODFSA).

(4) Administers assigned S&S programs or functions.

(5) Designates the SBAA and delegates authority to the SBAA.

e. Safety Basis Approval Authority (SBAA).

(1) Administers the program planning requirements for the purposes of protecting S&S interests, for nuclear facilities.

(2) Ensures COs incorporate the CRD into applicable contracts, for nuclear facilities.

f. Field Element Manager (FEM).

(3) Administers the program planning requirements for the purposes of protecting S&S interests, for non-nuclear facilities.

(4) Ensures COs incorporate the CRD into applicable contracts, for non-nuclear facilities.

g. Officially Designated Federal Security Authority (ODFSA).

(1) Executes requirements and responsibilities that are formally delegated from NE-1.

(2) Approves security plans (SPs) that protect assets under their cognizance or raises objections for consideration.

(3) Accepts or transmits the security risk for assets under their cognizance.

(4) Approves scoping documentation and analysis required to support security planning.

(5) Approves configuration of SNM that requires a roll-up analysis.

(6) Approves Performance Assurance plans.

(7) Approves compensatory measures of essential elements.

(8) Approves the scenarios, level of rigor, and documentation required for

roll-up analysis.

(9) Approves reviews of existing equivalencies and exemptions to determine applicability.

(10) Initiate a consultation with DOE's Material Risk Review Committee (MRRC) on initial security plan acceptance, and prior to any decisions on exceptions, exemptions, roll-up or equivalency driven changes to security plan.

h. Assistant General Counsel for International and National Security Programs

(1) Review Site Security Plan for consistency with applicable requirements.

6. Director, Office of Environmental, Health, Safety and Security

(1) Review Site Security Plan for consistency with applicable requirements.

(2) These responsibilities may be delegated as appropriate.

7. Administrator, National Nuclear Security Administration

(1) Review Site Security Plan for consistency with applicable requirements

(2) Provide classified assessments in support of security plan acceptance and a review for any exceptions, roll ups, or equivalencies

(3) These responsibilities may be delegated as appropriate.

8. Officially Designated Security Authority (ODSA).

(1) Executes those responsibilities formally delegated.

(2) Ensures security protocols are followed and deviations are documented and approved.

(3) Submits security plans to the ODFSA for approval.

9. Contracting Officers (COs).

(1) Incorporate the CRD, or its requirements, into affected contracts and procurement requests in a timely manner when notified.

10. INVOKED STANDARDS. This Order does not invoke any DOE technical standards or industry standards as required methods unless specifically included in the references. Any technical standard or industry standard that is mentioned in or referenced by this Order is not invoked by this Order.

11. REFERENCES.

10 CFR 707, *Workplace Substance Abuse Programs at DOE Sites*.

10 CFR 710, *Procedures for Determining Eligibility for Access to Classified Matter and Special Nuclear Material*.

10 CFR 712, *Human Reliability Program*.

10 CFR 824, *Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations*.

10 CFR 835, *Occupational Radiation Protection*, Subpart M and Appendix E

10 CFR 851, *Worker Safety and Health Program*.

10 CFR 860, *Trespassing on Department of Energy Property*.

10 CFR Part 1017, *Identification and Protection of Unclassified Controlled Nuclear Information, current version*.

10 CFR 1016 *Safeguarding of Restricted Data by Access Permittees*.

10 CFR 1045, *Nuclear Classification and Declassification, current version*.

10 CFR 1046, *Medical, Physical Readiness, Training, and Access Authorization Standards for Protective Force Personnel*.

10 CFR 1047, *Limited Arrest Authority and Use of Force by Protective Force Officers.*

29 CFR 1910, *Occupational Safety and Health Standards*.

32 CFR 117, *National Industrial Security Program Operating Manual (NISPOM), current version*.

32 CFR 2001, *Classified National Security Information, current version*.

32 CFR 2002, *Controlled Unclassified Information*

42 U.S.C. sections 2011 to 2296, *Atomic Energy Act of 1954*, as amended.

42 U.S.C. sections 7101 to 7352, *Department of Energy Organization Act*, as amended.

49 CFR Part 173, *Shippers–General Requirements for Shipments and Packagings*.

50 USC 2661(a)-(b). *Protection of certain nuclear facilities and assets from unmanned aircraft.*

92 Statute 1101, *Inspector General Act of 1978*, as amended.

DOE O 470.3, *Design Basis Threat (DBT) Order*, current version.

EO 12829, *National Industrial Security Program*, current version.

EO 13526, *Classified National Security Information*, current version.

EO 12968, *Access to Classified Information*, as amended

EO 13467, *Reforming Processes Related to Suitability for Government Employment, Fitness for Contractor Employees, and Eligibility for Access to Classified National Security Information*, as amended.

EO 12344, *Naval Nuclear Propulsion*

P.L. 103-353, *Uniformed Services Employment and Reemployment Rights Act of 1994*.

P.L. 111-272, *Law Enforcement Officers Safety Act.*

P.L. 114-328, 2017 *National Defense Authorization Act*.

P.L. 90-618, *Gun Control Act of 1968.*

PPD-21, *Critical Infrastructure Security and Resilience*, current version.

HSPD-12, *Directive on Policy for a Common Identification Standard for Federal Employees and Contractors*.

Presidential Memorandum for Heads of Executive Departments and Agencies, subject: *Tracing of Firearms in Connection with Criminal Investigations*, dated January 16, 2013.

NOTE: *Whenever a legal, regulatory, or other external standard, or a DOE Policy, Order, Notice or Manual is referenced, and such standard is amended or superseded, the successor standard is applicable under this Order. DOE Orders referenced in this Order can be located on the DOE Directives webpage, https://www.directives.doe.gov/.*

5. DEFINITIONS. Terms used in the DOE Safeguards and Security programs are defined and located on the Policy Information Resource website, http://pir.doe.gov.

6. CONTACT. Address inquiries to the Office of Nuclear Energy

BY ORDER OF THE SECRETARY OF ENERGY:

JAMES P. DANLY
Deputy Secretary

ATTACHMENT 1.

CONTRACTOR REQUIREMENTS DOCUMENT NE O 470.1,

OFFICE OF NUCLEAR ENERGY SAFEGUARDS AND SECURITY

This Contractor Requirements Document (CRD) establishes Safeguards and Security (S&S) planning requirements for Department of Energy (DOE) Office of Nuclear Energy contractors.

Regardless of the performer of the work, site/facility contractors with the CRD incorporated into their contracts are responsible for compliance with the CRD. Affected site/facility contractors are responsible for flowing down the requirements of the CRD to subcontracts at any tier to the extent necessary to ensure compliance with the requirements.

A violation of the provisions of the CRD or Attachment 2 relating to the safeguarding or security of Restricted Data or other classified information may result in a civil penalty pursuant to subsection a of section 234B of the Atomic Energy Act (42 United States Code [U.S.C.] section 2282b, Civil monetary penalties for violations of DOE regulations regarding security of classified or sensitive information or data). The procedures for the assessment of civil penalties are set forth in Title 10, Code of Federal Regulations (CFR), Part 824, *Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations.*

In addition to the requirements set forth in this CRD, contractors are responsible for complying with Attachment 2 to NE O 470.1 referenced in and made a part of this CRD, which provide program requirements and/or information applicable to contracts in which this CRD is inserted.

ATTACHMENT 2.
SECURITY PLANS AND ANALYSIS

This Attachment provides requirements associated with NE O 470.1 and requirements applicable to contracts in which the associated CRD (Attachment 1 to NE O 470.1) is inserted.

1. DOE NE S&S PHYSICAL PROTECTION STRATEGY.

   a. Purpose. This Order defines the physical protection strategies for protection of DOE NE assets. It differs from the DOE Order 470.3C, *Design Basis Threat (DBT)* strategy because it is tailored to DOE NE assets and uses site-specific local threat assessment (LTA) results and approval by the NE SBAA or FEM, as applicable, to develop:

      (1) Adversary numbers, capabilities, equipment, and tactics.

      (2) Analytical methods to establish risk reporting.

      (3) Risk acceptance thresholds.

      (4) Risk reporting expectations.

      (5) Risk acceptance authorities.

   b. Security Asset Categorization. DOE NE possesses assets that must be protected by S&S systems against local threats based on consequence of loss or sabotage with affects outside the distance established by the ODFSA. These assets include:

      (1) SNM.

      (2) Chemical, radiological material, nuclear material, and select agents and toxins.

      (3) Classified matter.

   c. Security Risk Acceptance. Contractors will analyze and communicate system effectiveness or overall security risk to DOE NE.

   d. Graded Protection Concept. DOE NE will provide each site with items listed in section a. (1–5) based on LTA results. The graded protection approach categorizes DOE NE assets.

   e. Roll-up of SNM. Roll-up is considered when a defined threat has the capability to accumulate lesser categories of SNM to greater quantities, raising the total SNM quantity to a higher category of SNM. Accumulation occurs when the defined roll-up threat could move material to a single location and complete adversarial tasks. The LTA, material characterization, and associated analysis provides the basis for determining credibility of roll-up. The ODFSA approves the configuration of SNM that requires a roll-up analysis and scenarios, level of rigor, and documentation required for roll-up analysis and initiates consultation with the

MRRC prior to decision.

f. Insider Threat. An insider is anyone with authorized, unescorted access to any part of DOE NE facilities and programs, including personnel, information, equipment, networks, and systems. Insiders may operate alone, in collusion with, or in support of an adversary. The insider must be analyzed based on LTA results and DOE NE direction.

2. PROTECTIVE FORCE OPERATIONS.

a. Requirements. The contractor will establish and maintain standardized requirements for managing, administering training programs, maintaining qualifications, and executing operations for various Protective Force (PF) activities. The contractor will:

(1) Implement the requirements within 10 CFR Part 1046, Medical, Physical Readiness, Training, and Access Authorization Standards for Protective Force Personnel, and 10 CFR Part 1047, Limited Arrest Authority and Use of Force by Protective Force Officers, as applicable.

(2) Base PF planning on threat guidance and adversary capabilities.

(3) Develop, maintain, and implement formal written guidance governing arming and arrest authority, officer involved shooting, use of force, rules of engagement (ROEs), and fresh pursuit. This guidance must be approved by the ODFSA who coordinates with NE General Counsel for review and consultation.

b. MANAGEMENT. Establish and implement PF Management in accordance with applicable DOE regulations.

(1) Contingency Planning. Due to the national security sensitivity of NE assets, DOE NE is responsible for enacting measures and approving ODSA-submitted training and qualification exemptions that prevent disruptions in PF staffing that could subject sensitive facilities to periods of significant vulnerability.

c. MEDICAL, PHYSICAL READINESS, AND TRAINING REQUIREMENTS FOR PF PERSONNEL. Establish and implement medical, physical readiness, and training requirements to ensure all PF personnel can respond to emergencies within their site-specific response times in accordance with applicable DOE regulations. These requirements should be based on a site-specific analysis approved by the ODSA. All Security Police Officers (SPOs) and candidates must demonstrate general fitness measures related to their site and position, including muscular strength, muscular endurance, aerobic endurance, anaerobic endurance, agility, power, and mobility.

d. DUTIES. The contractor will establish and implement PF duties in accordance with applicable DOE regulations and site-specific operational needs.

e. WEAPONS AND MUNITIONS. The contractor will establish and implement PF weapons and munitions requirements in accordance with applicable DOE regulations.

(1) Firearms Modifications. The ODSA will provide written approval for:

- Installation of weapon accessories.
- Installation of aftermarket triggers for sniper/designated marksman rifles.

(2) Firearms and Munitions Handling and Storage. The ODSA will approve the storage of firearms, ammunition, pyrotechnics, and explosives.

(a) Firearms and Munitions Inventory. The ODSA will approve the conduct and documentation for inventory of:

- Firearms.
- Ammunition, pyrotechnics, and explosives.

f. FACILITIES AND EQUIPMENT.

(1) Facilities. The contractor will establish and implement PF facilities and equipment requirements in accordance with applicable DOE regulations.

(a) Personal Protective Armor. The contractor will:

i. Issue personal protective armor for all SPOs as identified or required through local analysis.

ii. Ensure issued protective armor for SPOs provides Type III protection, at a minimum, as established by the current National Institute of Justice (NIJ) Standard.

iii. Wear protective armor as directed by the ODSA.

(b) Chemical Personal Protective Equipment (PPE). The contractor will:

i. Base the deployment and use of chemical PPE on the results of an analysis, LTA, or site operational consideration.

ii. Station or position protective mask so it can be donned in a time as identified by the ODSA

3. PERFORMANCE TESTING. The contractor will document and performance test all major PF job function in accordance with applicable DOE regulations.

a. Use and conduct Performance Test Planning, including Safety, Command and Control, and Engagement Simulation Systems (ESSs), in accordance with procedures approved by the ODFSA.

4. PHYSICAL PROTECTION PROGRAM.

a. REQUIREMENTS. The contractor will establish and maintain standardized requirements for execution of operations for the physical protection activities.

b. PHYSICAL PROTECTION PLANNING. The contractor develops local physical protection strategies, which are documented in a security plan and approved by the ODFSA.

(1) Document security areas in a security plan approved by the ODFSA.

(a) Trespassing complies with 42 U.S.C. § 2278a, *Trespass upon Commission installations* and 10 CFR Part 860, *Trespassing on Department of Energy Property*.

(2) Posting and prohibited articles comply with the following:

(a) 42 U.S.C. § 2278a, *Trespass upon Commission installations*

(b) 18 U.S.C. § 930, *Possession of firearms and dangerous weapons in Federal facilities* 21 USC 841, *Prohibited acts,* et. seq

(c) 42 U.S.C. § 7270b, *Trespass on Strategic Petroleum Reserve facilities*

(d) 10 CFR Part 860, *Trespassing on Department of Energy Property*

(e) 10 CFR Part 1048, *Trespassing on Strategic Petroleum Reserve Facilities and Property*

(f) 41 CFR Chapter 102-74 Subpart C, *Conduct on Federal Property*

(3) The following plans, programs, and strategies are developed locally, taking into account local analysis and under the direction of the ODSA. They are documented in a security plan and approved by the ODSA:

(a) Controlled article plan

(b) Medical devices with the ability to transmit or record data

(approved by ODFSA in accordance with 32 CFR 2001.41, *Responsibilities of holders*)

(c) Security Locks and Key program

(d) Physical barriers for classified information, safeguards information, and SNM

(e) Secure Storage Protection program

(f) Vault construction and protection

(g) Entry/exit screening plan

(h) Physical protection strategies classified or controlled unclassified information

(i) Physical protection strategies for NE assets

(j) Emergency response plan for security areas

(k) Protection measures for transportation of SNM

(l) SNM storage locations and PF Post construction requirements.

c. PHYSICAL PROTECTION SYSTEMS (PPS).

(1) The contractor develops PPS network plans, procedures, equipment, and strategies, considering local analysis. They are documented in a security plan or procedure:

(a) Cyber security plan

(b) Communication for PPS equipment

(c) Wireless communications design

(d) Considerations for the protection of PPS networks and wireless technologies

(e) PPS maintenance program

(f) PPS used in the protection of DOE assets

(g) Alarms rate thresholds

(h) PPS testing program

(i) Compensatory measures

(j) Security electrical power and lighting requirements

(k) Auxiliary power and lighting plan.

(2) Special Access Program Facilities (SAPFs) and Sensitive Compartmented Information Facilities (SCIFs) will adhere to applicable federal requirements.

5. VETTING.

a. PERSONNEL SECURITY. Requirements applicable to determining eligibility for access to classified information, including Restricted Data and SNM, are contained in Atomic Energy Act of 1954, as amended, EO 12968, EO 10865, EO 13467, 10 CFR Part 710, DOE O 472.2A, *Personnel Security,* and various Office of the Director of National Intelligence directives.

b. BADGING. A site-specific Badge Program is developed locally and documented in a security plan approved by the ODFSA

(1) Requirements applicable to Homeland Security Presidential Directive 12 (HSPD-12) are outlined in DOE O 206.2, *Identity, Credential, and Access Management* and DOE O 472.2A, *Personnel Security*. OPM Memorandum, Final Credentialing Standards for Issuing Personal Identity Verification Cards under HSPD-12, dated July 31, 2008, and OPM Memorandum, Credentialing Standards Procedures for Issuing Personal Identity Verification Cards under HSPD-12 and New Requirement for Suspension or Revocation of Eligibility for Personal Identity Verification Credentials, dated December 15, 2020.

(2) Individuals involved in the security process must receive training and qualifications that match their job duties and responsibilities. The ODSA ensures that employees are properly trained for security duties.

c. HUMAN RELIABILITY PROGRAM (HRP). Requirements applicable to HRP are contained in 10 CFR Part 712, *Human Reliability Program*.

d. UNCLASSIFIED FOREIGN NATIONAL ACCESS PROGRAM. Requirements applicable to unclassified foreign national access are contained in DOE O 142.3B.

6. INFORMATION SECURITY.

a. CLASSIFICATION OFFICE PROGRAM.

(1) Headquarters, Office of Classification, is solely responsible for appointing Classification Officers, who are the responsible persons for implementing the local classification program (10 CFR Part 1045, *Nuclear Classification and Declassification* and DOE Order 475.2B, Identifying Classified Information). The contractor will maintain a

program that identifies activities that generate classified information, documents, and/or material when required. The ODSA directs the development of a local classification program and ensures it is documented in an approved security plan.

(2) Identify, mark, handle, store, protect, disposition, and destroy classified information in accordance with classification and marking guides, training, and locally developed procedures.

(3) Security plans, reference documents, and applicable local procedures for protecting classified information.

b. UNCLASSIFIED CONTROLLED NUCLEAR INFORMATION. Requirements applicable to Unclassified Controlled Nuclear Information (UCNI) are contained in 10 CFR Part 1017, *Identification and Protection of Unclassified Controlled Nuclear Information*.

c. CONTROLLED UNCLASSIFIED INFORMATION. Requirements applicable to Controlled Unclassified Information are contained in 32 CFR Part 2002, *Controlled Unclassified Information (CUI)*.

d. OPERATIONS SECURITY. Develop Operations Security (OPSEC) plans at the direction of the ODSA and document them in local procedures to integrate with applicable programs to protect identified critical program information (CPI) as set forth in the National Security Presidential Memorandum-28.

e. TECHNICAL SECURITY. Requirements applicable to the Technical Security Program (TSP) are contained in DOE O 470.6, *Technical Security Program*, Chg 1 (MinChg): January 11, 2017 or successor document.

7. NUCLEAR MATERIAL CONTROL AND ACCOUNTABILITY AND NUCLEAR MATERIAL MANAGEMENT.

a. Purpose and Applicability. This Order establishes requirements for developing, implementing, and maintaining a nuclear material control and accountability (MC&A) program within DOE NE, and for DOE NE-owned materials at other facilities that are exempt from licensing by the Nuclear Regulatory Commission (NRC). This Order addresses the safeguards and security of accountable nuclear materials as well as mandatory elements of nuclear materials management oversight and reporting. Accountable Nuclear Material is established in the Accountable Nuclear Material Table below. Nuclear Safety requirements may be found in 10 CFR 830, 10 CFR 835 and Safety-related DOE Directives.

b. Requirements for Nuclear Materials Management and Safeguards System Reporting and Data Submission, have been incorporated into the Nuclear Materials Management and Safeguards System (NMMSS) User Guide.

c. This Order complies with the following CFRs, U.S. Directives, EOs, and Public Laws:

(1) 10 CFR 830, *Nuclear Safety Requirements*.

(2) 10 CFR 835, *Occupational Radiation Protection*.

(3) 41 CFR 109, *Department of Energy Property Management Regulations (DOEPMR).*

(4) 41 CFR 109, 1.53, *Management of High Risk Personal Property*.

(5) 48 CFR 952.204-2, *Security Requirements*.

(6) NE O 231.1, *Environment, Safety and Health Reporting*, current version.

(7) DOE M 142.2-1, *Manual for Implementation of the Voluntary Offer Safeguards Agreement and Additional Protocol with the IAEA*, current version.

(8) All applicable Presidential EOs.

(9) EO 12344: *Codified at 50 USC sections 2406 and 2511 regarding the Naval Nuclear Propulsion Program*.

(10) PL 106-65, *Establishes authority for the NNSA Administrator* under section 3212(d).

(11) PL 83-703, *The Atomic Energy Act of 1954*, as amended.

d. Depleted uranium or thorium in manufactured items, such as crane weights, ballast, thoriated lenses, and shielded containers (e.g., shielded drums, pigs, etc.), are excluded from the requirements of this Order for accounting and reporting.

e. For sites/facilities possessing SNM, other accountable nuclear material (OANM), or material controlled and accounted for as SNM, a comprehensive materials control and accountability (MC&A) Plan that is developed and implemented by the site/facility operator that defines the program at the site must be reviewed and approved by the ODFSA. ODFSA approval authorizes the MC&A plan as the official authority document for implementing the requirements of this directive. The MC&A Plan must include all fundamental commitments that define the bounds within which the MC&A program will function and the detailed level of performance and be based on the graded safeguards concept. See the Graded Safeguards Table below. Implementation of this DOE Order will be determined by the site facility MC&A Plan. The ODSA directs the development, implementation, and maintenance of the MC&A program elements.

f. A site/facility with an MC&A program must designate a senior representative to serve as the Contractor’s primary point of contact on nuclear materials management functions, activities, and issues.

g. For DOE to Department of Defense (DoD) weapons transfers, SNM in weapons must

not be transferred to DoD under 42 U.S.C. §2121(b), *Material for Department of Defense Use*, until DOE has received direction from the President.

h. The contractor will:

(1) PROGRAM MANAGEMENT. Develop a detailed MC&A Plan that outlines specific roles, responsibilities, training, and procedures promotes clarity and accountability. The program should document control measures and program elements, be graded based on potential loss consequences, monitor effectiveness and respond to loss indicators, and integrate with S&S programs. This structured approach reduces confusion and ensures that all personnel are aware of their duties, leading to more efficient operations.

(2) MATERIAL ACCOUNTING. Ensure each facility has a system that tracks SNM inventories, documenting SNM transactions, issuing periodic reports, and assisting with the detection of unauthorized system access, data falsification, and SNM gains or losses. Each facility must have an accountability system that provides continuity of knowledge for SNM from receipt or production to disposition and include access authorization to the accountability system. Each facility must be able to produce an inventory of all nuclear material in the accountability system upon request. The accountability system shall be maintained and updated in a timely manner, as approved by the MC&A Plan.

(3) MATERIAL CONTROL. Ensure each facility implements a Material Control Program consistent with the graded safeguards concept to ensure that SNM is not removed from an authorized location without approval or timely detection of an unauthorized removal. This includes access controls, material surveillance, material containment, detection and assessment, incident reporting and response.

(4) MEASUREMENTS. Ensures all facilities possessing SNM implement Measurements and Measurement Control programs. The Measurements program must provide measured values with uncertainties sufficient to detect theft or diversion of SNM. The Measurement Control program must ensure the quality of measurements made for MC&A purposes. The Measurement program elements include measurement types, methods, control, bulk sampling. Measurements are required as directed in the MC&A Plan.

(5) PHYSICAL INVENTORY. Ensures the facility implements a documented Physical Inventory program for SNM to provide assurance that materials are present in their stated quantities at a confidence level appropriate for a graded safeguards strategy and in authorized locations to detect unauthorized removals or discrepancies. The Physical Inventory program outlines procedures for conducting, verifying, and reconciling inventories. The Physical Inventory

program ensures that discrepancies between the physical inventory and the accounting records system are detected and resolved. The physical inventory elements will include periodic physical inventories, special inventories, and IAEA inventories (if applicable). Substitution material should be considered in the facility Physical Inventory Plan. Physical inventories are conducted at a frequency commensurate with a graded safeguards strategy.

(6) NUCLEAR MATERIAL INVENTORY ASSESSMENT. Prepare and submit an annual Nuclear Material Inventory Assessment (NMIA) report for the specified accountable nuclear materials per annual guidance unless otherwise amended or exempted.

(7) NUCLEAR MATERIAL FORECAST ALLOTMENT REQUEST. Prepare and submit an annual Nuclear Material Forecast and Allotment Request (NMFAR) for specified activities utilizing accountable nuclear materials per annual guidance unless otherwise amended or exempted.

(8) NUCLEAR MATERIAL MANAGEMENT PLAN. Prepare and submit an annual Nuclear Material Management Plan (NMMP) for the specified accountable nuclear materials per annual guidance unless otherwise amended or exempted.

(9) INVENTORY CHARACTERIZATION AND DATA MANAGEMENT. Establish, assign, and/or manage inventory characterization data per guidance unless otherwise amended or exempted. Conduct an annual review of project numbers and report the results to NMMSS to ensure correlation of the accountable nuclear material inventory with an approved funding source.

Accountable Nuclear Material					
Material Type	**SNM or OANM**	**Reportable Quantity***	**Weight Field Used for Element**	**Weight Field Used for Isotope**	**Material Type Code**
Depleted Uranium (U)**	OANM	kilogram	total U	U-235	10
Enriched Uranium (EU)	SNM	gram	total U	U-235	20
Normal Uranium	OANM	kilogram	total U	—	81
Uranium-233[3a]	SNM	gram	total U	U-233	70
Plutonium-242[1](Pu)	SNM	gram	total Pu	Pu-242	40
Plutonium-239-241	SNM	gram	total Pu	Pu-239 + Pu-241	50
Plutonium-238[2]	SNM	tenth of a gram	total Pu	Pu-238	83
Americium-241[3] (Am)	SNM	gram	total Am	Am-241	44
Americium-243[3]	SNM	gram	total Am	Am-243	45
Curium (Cm)	OANM	gram	total Cm	Cm-246	46
Deuterium[4,6,7] (D)	OANM	100 kilograms	D_2O	D_2	86
Enriched Lithium (Li)	OANM	kilogram	total Li	Li-6	60
Neptunium-237 (Np)[3]	SNM	gram	total Np	—	82
Thorium (Th)	OANM	kilogram	total Th	—	88
Tritium[5] (H-3)	OANM	gram	total H-3	—	87
Uranium in Cascades	SNM	gram	total U	U-235	89

* The minimum amount of material reportable to the NMMSS. Quantities of one-half or greater of a reporting unit are rounded upward and are subject to the requirements of accountable nuclear material.

** DU is required to be accounted for and reported at the 1-kg level if it is considered a credible substitution material for SNM.

1 Report as Pu-242 (MT 40) if the contained Pu-242 is 20% or greater of total plutonium by weight; otherwise, report as Pu-239-241 (MT 50).

2 Report as Pu-238 (MT 83) if the contained Pu-238 is 10% or greater of total plutonium by weight; otherwise, report as Pu-239-241 (MT 50).

3. Americium and Np-237 contained in SNM are not required to be accounted for until separated. If separated, these materials must be controlled and accounted for as SNM.

3a. Report as U-233 (MT 70) if the contained U-233 is 10% or greater of total uranium by weight; otherwise, account as U-235 (MT 10, 20, or 81).

4. For deuterium in the form of heavy water, both the element and isotope weight fields will be used; otherwise, report isotope weight only.

5. Tritium contained in water (H_2O or D_2O) used as a moderator in a nuclear reactor is not an accountable material.

6. For weapon components with deuterium, the accountable quantity is 1/10 kg.

7. Deuterium and deuterium compounds are subject to export control requirements in 10 CFR 110.24, *General license for the export of deuterium for nuclear end use*, and 10 CFR 110.54 (a)(1), *Reporting requirements*.

Graded Safeguards Table									
Material Types	Attractiveness Level	Pu/U-233[2] Category (kg)				Contained U-235/Separated Np-237/Separated Am-241 and Am-243 Category (kg)			
		I	II	III	IV[1]	I	II	III	IV[1]
WEAPONS Assembled weapons and test devices	A	All	N/A	N/A	N/A	All	N/A	N/A	N/A
PURE PRODUCTS Pits, major components, button ingots, recastable metal, directly convertible materials	B	≥2	≥0.4<2	≥0.2<0.4	<0.2	≥5	≥1<5	≥0.4<1	<0.4
HIGH-GRADE MATERIALS Carbides, oxides, nitrates, solutions (≥25g/L) etc.; fuel elements and assemblies; alloys and mixtures; UF_4 or UF_6 (≥50% enriched)	C	≥6	≥2<6	≥0.4<2	<0.4	≥20	≥6<20	≥2<6	<2
LOW-GRADE MATERIALS UF_4 or UF_6 (≥20% and <50% enriched); Solutions (1–25 g/L); process residues requiring extensive reprocessing; Pu-238 (except waste)	D	N/A	≥16	≥3<16	<3	N/A	≥50	≥8<50	<8
ALL OTHER MATERIALS Highly irradiated forms, solutions (<1g/L), compounds; uranium containing <20% U- 235 or <10% U-233(any form, any quantity)	E	N/A	N/A	N/A	Reportable Quantities	N/A	/A	N/A	Reportable Quantities

[1] The lower limit for Category IV is equal to reportable quantities in this Order.

[2] In items that contain U-233 and U-235, if the contained U-233 is 10% or greater of total uranium by weight, then the effective quantity of U-233 = (contained U-233 + contained U-235). The category is then determined by using the effective quantity of U-233 compared with the Pu/U-233 side of the table.

8. PROGRAM MANAGEMENT.

a. SAFEGUARDS AND SECURITY PLANNING.

(1) All DOE NE facilities and sites or contractor facilities with DOE

NE security assets must have a current Security Plan approved by the ODFSA, as informed by a Material Risk Review Committee review.

(2) Security Plans must be based on a documented analysis considering LTAs, risk identification, and consequences of asset loss or misuse.

(3) Each DOE NE site must have plans and procedures for integration and communication among various organizations (e.g., security, counterintelligence, emergency management, fire, medical departments, etc.) to address responses to real-time and potential security and non-security events.

(4) The ODSA ensures that an S&S training program is implemented for personnel performing S&S tasks.

(5) S&S awareness programs are responsible for communicating personal security responsibilities through briefings and supplemental awareness activities to all individuals at a facility or site.

(6) NE elements will comply with PPD-21, Critical Infrastructure Security and Resilience.

b. RECORDS. Security-related records must be retained in accordance with the National Archives and Records Administration (NARA) General Records Schedule (GRS) 5.6, *Security Records*.

c. FACILITY CLEARANCES (FCL) AND REGISTRATION AND FOREIGN OWNERSHIP, CONTROL, OR INFLUENCE DETERMINATIONS (FOCI). DOE NE contractors require an active FCL and favorable FOCI determination when the contract or subcontract to be awarded is expected to require employees to have access authorizations. These contractors will submit information to DOE NE according to the baseline requirements in 32 CFR 117, *National Industrial Security Program Operating Manual*, 48 CFR 904.70 *Facility Clearance*, 48 CFR 952, *Solicitation Provisions and Contract Clauses,* 10 U.S.C. 4874(a–b) *Award of certain contracts to entities controlled by a foreign government: prohibition*.

e. CONTROL OF CLASSIFIED VISITS.

(1) Requirements. Protect classified information and matter by ensuring that only individuals with the appropriate security clearances, need to know, and programmatic authorizations have access during visits. Establish and maintain a classified visit program, if required, in accordance with baseline requirements in 32 CFR 117.16, *Visits and meetings*.

f. INCIDENTS OF SECURITY CONCERN (IOSCs).

(1) Requirements. An IOSC is an action (or inaction) contrary to S&S requirements, one which meets DOE reporting requirements because it poses a threat to national security or DOE security assets: i.e., property, personnel, information, capabilities. IOSCs are categorized based on significance—e.g., Category A (more significant) or Category B (less significant)—and type. The IOSC type is based on whether compromise or loss occurred; Security Interest (SI), loss or compromise occurred or is suspected, Procedural Interest (PI), a procedural noncompliance that did not result in loss or compromise, or Management Interest (MI), an IOSC reported primarily for management awareness. The ODSA establishes and administers an IOSC program utilizing a graded approach based on event severity. The ODSA also develops and approves the criteria and methodology for implementation locally. The ODFSA will be notified and involved for all Category A IOSCs and SIs including the loss, theft, or compromise of significant security assets with the exception of UCNI and Unclassified Nuclear Naval Propulsion Information.

(2) Reporting. Reports of loss, compromise, or suspected compromise of classified information, foreign or domestic, must be reported to the cognizant security agency (CSA) in accordance with 32 CFR 117.8, *Reporting requirements for contractors*.