

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

ORDER

DOE O 452.8A

Approved: 08-05-2026

SUBJECT: CONTROL OF NUCLEAR WEAPON DATA

1. PURPOSE. This Order defines nuclear weapon data (NWD) and establishes the policy for control of NWD in accordance with Title 42 of the United States Code (U.S.C.) § 23, Development and Control of Atomic Energy.
2. CANCELLATION. This Order cancels United States (U.S.) Department of Energy (DOE) O 452.8, *Control of Nuclear Weapon Data*, dated July 21, 2011. Cancellation of a directive does not, by itself, modify or otherwise affect any contractual or regulatory obligation to comply with the directive.

Requirements of this Order apply to contractors when incorporated into contracts in accordance with applicable acquisition and contract management processes.

3. APPLICABILITY.
 - a. Departmental Applicability. This Order applies to all DOE elements that create, use, store, transmit, or transfer NWD matter, including documents, materials, and hardware. The National Nuclear Security Administration (NNSA) Administrator must ensure that NNSA employees comply with their responsibilities under this Order. Nothing in this Order will be construed to interfere with the NNSA Administrator's authority under Section 3212(d) of Public Law 106-65, National Defense Authorization Act for Fiscal Year 2000, to establish Administration-specific policies, unless disapproved by the Secretary.
 - b. DOE Contractors. This Order applies to DOE contractors performing work that creates, accesses, uses, stores, transmits, or transfers NWD matter. The requirements of this Order shall be incorporated into applicable contracts, including Management and Operating contracts. The contractor is responsible for flowing down the requirements of this Contractor Requirements Document, if applicable. Contractors shall comply with the requirements of applicable federal, state, and local laws and regulations in carrying out the requirements of this Order unless relief has been granted in writing. Omission of any applicable law or regulation from the Order does not affect the obligation of the contractor to comply with such law or regulation. Contractors must comply with the requirements of this Order, except to the extent modified by the equivalencies or exemptions identified herein or issued to the contractor in writing by DOE utilizing the process outlined in DOE O 251.1E, *Departmental Directives Program*, including as amended or updated.

- c. Equivalencies and Exemptions. Equivalencies and exemptions to this Order must be processed in accordance with DOE O 251.1, current version, and directed to the NWD Manager. The following DOE elements are exempted because they do not require access to NWD: Office of Economic Impact and Diversity, Energy Information Administration, Office of Electricity Delivery and Energy Reliability, Office of Energy Efficiency and Renewable Energy, Office of Fossil Energy, Office of Human Capital Management, Office of Management, Bonneville Power Administration, Southeastern Power Administration, Southwestern Power Administration, and Western Area Power Administration.
- d. Naval Nuclear Propulsion Program. In accordance with the responsibilities and authorities assigned by Executive Order 12344, Naval Nuclear Propulsion Program, codified at 50 U.S.C. §§ 2406, Deputy Administrator for Naval Reactors, and 2511, Naval Nuclear Propulsion Program, the Deputy Administrator for Naval Reactors (Director) will implement and oversee requirements and practices pertaining to this Order for activities under the Director's cognizance, as deemed appropriate.

4. REQUIREMENTS.

NWD is the label for restricted data (RD) and formerly restricted data (FRD) pertaining to nuclear weapons. The portion of RD that is identified as NWD includes the design, manufacture, utilization, theory, development, storage, characteristics, performance, and effects of nuclear explosives, nuclear explosive devices, nuclear weapons, or nuclear weapon components. All FRD is NWD and pertains primarily to the military utilization of nuclear weapons. DOE and the Department of War (DoW) are jointly responsible for protecting NWD. The NWD Manager will identify and coordinate with a DoW representative to ensure that NWD is consistently protected across both departments and throughout the federal government.

Certain RD NWD at the Secret and Top Secret classification levels are Critical Nuclear Weapon Design Information (CNWDI). Within NWD, there are additional need-to-know protection categories known as "Sigmas." The currently active Sigma NWD categories are Sigma 14, Sigma 15, and Sigma 20.

All federal and contractor personnel throughout DOE and its laboratories, plants, and sites must protect NWD in accordance with the following requirements:

- a. Requirements for Access to NWD. Individuals must possess the following to gain access to NWD:
 - (1) A need to know for NWD.
 - (2) A security clearance or access authorization as defined by Table 1.

Table 1: Security clearance/access authorization requirements for NWD access.

Clearance/Access Authorization NWD Type	DOE Q	DOE L	Final Top Secret + RD/FRD Read-In + CNWDI Brief	Final Top Secret + RD/FRD Read-In	Final Secret + RD/FRD Read-In
C//FRD	Yes	Yes	Yes	Yes	Yes
C//RD	Yes	Yes	Yes	Yes	Yes
S//FRD	Yes	Yes	Yes	Yes	Yes
S//RD	Yes	No	Yes	Yes	Yes
S//RD/CNWDI	Yes	No	Yes	No	No
TS//FRD	Yes	No	Yes	Yes	No
TS//RD	Yes	No	Yes	Yes	No
TS//RD/CNWDI	Yes	No	Yes	No	No

- (3) Individuals requiring access to Sigma NWD categories must follow the references indicated in Section 4.f. of this Order.
- (4) Foreign nationals may be granted access to NWD only as permitted under agreements for cooperation and as authorized by statutory determinations pursuant to sections 123, 141, and 144 of the *Atomic Energy Act* (AEA).

b. Marking NWD.

- (1) All NWD matter containing CNWDI, as indicated by a classification guide, must have the marking CRITICAL NUCLEAR WEAPON DESIGN INFORMATION included above the mandated classification category marking.
- (2) All newly created NWD or existing NWD, the content of which has been modified, must be reviewed for Sigma content and appropriately marked. See Section 4.f of this Order.
- (3) Prior to release or distribution within the Nuclear Security Enterprise (NSE), unmodified legacy NWD must be reviewed for Sigma 14, 15, and 20 content and be brought up to current marking standards.
- (4) Prior to release or distribution outside of the NSE, NWD must be reviewed and brought up to current marking standards.
- (5) Unmodified legacy NWD with obsolete Sigma markings does not require review or remarking when accessed.

- (6) Historical documents must be reviewed for active Sigma content and brought up to current marking standards prior to distribution. When possible, site technical information offices or equivalent and the Office of Scientific and Technical Information (OSTI) must be notified of marking changes.

c. Transmission, Distribution, Communication, and Dissemination of NWD.

- (1) Recipients' access to NWD, CNWDI, and applicable Sigma NWD categories must be verified prior to transmission, distribution, communication, or dissemination.
- (2) Recipients' need to know for NWD, CNWDI, and applicable Sigma NWD categories must be verified prior to transmission, distribution, communication, or dissemination.
- (3) Prior to any distribution or transmission of NWD matter, markings must meet requirements as specified in Section 4.b of this Order.
- (4) Secure point-to-point telecommunication transmission of NWD using appropriately certified secure telecommunication systems is permitted at both Secret and Top Secret levels, consistent with approved local security plans.

d. Handling, Storage, and Destruction of NWD.

- (1) Multiple copies, obsolete matter, and classified waste must be kept to a minimum. Classified matter must be destroyed in accordance with records disposition schedules, including National Archives and Records Administration General Records Schedules, DOE records schedules, and relevant DOE policies.
- (2) NWD must be stored consistent with National Standards for protection of classified information and set forth in relevant policies including but not limited to those at the DOE and NNSA levels.
- (3) All Top Secret NWD is accountable.

e. NWD in the Electronic Environment.

- (1) NWD residing on computer systems must be protected consistent applicable National Security System baseline requirements and those set forth in relevant policies, including but not limited to those at the DOE and NNSA levels.

- (2) NWD must only exist on networks that have controls in place to ensure NWD is only accessible by individuals with valid need to know for NWD and for the specific information being accessed, the appropriate security clearance or access authorization for the classification level/category of the specific information, and any applicable Sigma access authorizations, if permitted.
- (3) Sigma NWD is not permitted on NSN/SIPRNet.

f. Sigma NWD.

- (1) For specific details pertaining to protecting Sigma 14 and Sigma 15, including accessing, marking, handling, and dissemination, refer to DOE O 452.7, *Protection of Use Control Vulnerabilities and Designs*, current version.
- (2) For specific details pertaining to protecting Sigma 20, including accessing, marking, handling, and dissemination, refer to DOE O 457.1, *Nuclear Counterterrorism*, current version.
- (3) Sigma NWD is not permitted on SIPRNet.

g. Obsolete Sigma NWD Categories.

- (4) Disestablishment of Sigma 18 NWD. This Order disestablishes Sigma 18 NWD. Sigma 18 is defined as a category that includes information that would allow or significantly facilitate a proliferant nation or entity to fabricate a credible nuclear weapon or nuclear explosive based on a proven, certified, or endorsed U.S. nuclear weapon or device. This information would enable the establishment or improvement of nuclear capability without nuclear testing or with minimal research and development. Information previously included complete design of a\ gun-assembled weapon; complete design of a primary or single-stage implosion-assembled weapon; complete design of an interstage or secondary; weapon design codes with one-dimensional hydrodynamics and radiation transport with fission and/or thermonuclear burn; and weapon design codes with two-dimensional and three-dimensional capabilities.
- (5) Previously Disestablished Sigma NWD Categories. The previous version of this Order, published July 21, 2011, disestablished the following Sigma NWD categories:
 - (a) Sigma 1. NWD category that previously contained information relating to the theory of operation (hydrodynamic and nuclear) or complete design of thermonuclear weapons or their unique components.

- (b) Sigma 2. NWD category that previously contained information relating to the theory of operation or complete design of fission weapons or their unique components. It included the high-explosive system with its detonators and firing unit, pit system, and nuclear initiation system as it pertained to weapon design theory.
- (c) Sigma 3. NWD category that previously contained manufacturing and utilization information not comprehensively revealing the theory of operation or design of the physics package. It included complete design and operation of nonnuclear components but only information as prescribed below for nuclear components and utilization information necessary to support the stockpile-to-target sequence. Information previously included general external weapon configuration, including size, weight, and shape; environmental behavior, fuzing, ballistics, yields, and effects; nuclear components or subassemblies, which do not reveal theory of operation or significant design features; production and manufacturing techniques relating to nuclear components or subassembly; as well as anticipated and actual strike operations.
- (d) Sigma 4. NWD category that previously contained information inherent in pre-shot and post-shot activities necessary in the testing of atomic weapons or devices. Specifically excluded were the theory of operation and the design of such items. Information previously included logistics, administration, and other agency participation; special construction and equipment; effects and safety; and purpose of tests, general nature of nuclear explosive tested, including expected or actual yields, and conclusions derived from tests not to include design features.
- (e) Sigma 5. NWD category that previously contained production rate and/or stockpile quantities of nuclear weapons and their components.
- (f) Sigma 9. NWD category that previously included general studies not directly related to the design or performance of specific weapons or weapon systems (studies related to reliability, fusing, damage, aerodynamics, etc.).
- (g) Sigma 10. NWD category that previously included information relating to the chemistry, metallurgy, and processing of materials peculiar to the field of atomic weapons or nuclear explosive devices.
- (h) Sigma 11. NWD category that previously included information concerning initial confinement fusion that reveals or is indicative of weapon data.

- (i) Sigma 12. NWD category that previously contained complete theory of operation, complete design, or partial design information revealing either sensitive design features or how the energy conversion takes place for the nuclear energy converter, energy director, or other nuclear-directed energy weapon systems or components outside the envelope of the nuclear source but within the envelope of the nuclear-directed energy weapon.
- (j) Sigma 13. NWD category that previously included manufacturing and utilization information and output characteristics for nuclear energy converters, directors or other nuclear-directed energy weapon systems or components outside the envelope of the nuclear source, not comprehensively revealing the theory of operation, sensitive design features of the nuclear-directed energy weapon, or how the energy conversation takes place. Information previously included general, external weapon configuration and weapon environmental behavior characteristics, yields, and effect; components or subassembly design that does not reveal theory of operation or sensitive design features of nuclear-directed energy weapon; and production and manufacturing techniques for components or subassemblies of nuclear-directed energy weapons.

5. RESPONSIBILITIES.

- a. Administrator, National Nuclear Security Administrator.
 - (1) Administer all policies and procedures concerning the protection and control of NWD in accordance with sections 123, 141, and 144 of the AEA.
 - (2) Administer the exchange of NWD with other nations as permitted under agreements for cooperation pursuant to sections 123, 141, and 144 of the AEA.
 - (3) Ensure strict adherence to all policies and procedures concerning the exchange of NWD with other nations.
- b. Nuclear Weapon Data Manager. The NWD Manager is the federal subject matter expert for NWD and is appointed by the appropriate authority to manage NWD across the federal government.
 - (1) Serve as the main point of contact for the NWD policy and controls.
 - (2) Develop policies including, but not limited to Codes of Federal Regulation (CFRs), DOE policies, this Order, NNSA policies, and memos to effectively and efficiently manage NWD.
 - (3) Ensure that the NWD is being managed effectively and efficiently across the federal government.

- (4) Direct and interact with the proper authorities and officials to implement NWD management and protections.
- c. Director, Office of Nuclear Threat Science.
 - (1) Implement all aspects of improvised nuclear device information control including the administration of the Sigma 20 NWD category, as defined in DOE Order 457.1, current version.
 - (2) Serve as the final adjudication authority to determine whether NWD crosses the threshold of being Sigma 20.
 - (3) Coordinate with the NWD Manager to ensure compliance with baseline NWD management and protection requirements.
- d. Use Control Program Coordinator.
 - (1) Implement the administration of the Sigma 14 and Sigma 15 NWD categories as defined in DOE O 452.7, current version.
 - (2) Coordinate with the NWD Manager to ensure compliance with baseline NWD management and protection requirements.
- e. Classified Matter Protection and Security. The responsible NNSA official with authority over defense nuclear security must:
 - (1) Oversee policies regarding security and protection of all RD and FRD information and matter across NNSA.
 - (2) Ensure control of classified matter across the enterprise is in accordance with this Order and other established policies.
 - (3) Manage the Classified and Controlled Information Program for NNSA, ensuring classified information is properly protected and appropriate classification guidance is available, distributed, and coordinated across NNSA.
 - (4) Manage the Incidents of Security Concern Program within NNSA, ensuring organizations properly report and investigate incidents involving all RD and FRD.
 - (5) Manage the Classified Matter Protection and Control Program for NNSA Headquarters.
 - (6) Develop and conduct programs to train NNSA Headquarters employees on their NWD responsibilities.

- f. Safeguards and Security Information Management System (SSIMS) Management. The Responsible Official maintaining the SSIMS must maintain designations of facilities and agencies authorized to receive, store, and conduct NWD work that is not CNWDI or in an NWD Sigma category.
- g. Classification Management. The Responsible Official for the government-wide classification program must manage the program to classify and declassify nuclear weapon-related technologies.
- h. Office of Scientific and Technical Information. The Responsible Official at OSTI must:
 - (1) Collect and maintain a repository for scientific and technical NWD information originated by DOE/NNSA offices and their contractors, and by DoW offices and their contractors where the information is pertinent to DOE/NNSA national defense missions, consistent with DOE O 241.1, *Scientific and Technical Information Management*, current version, and Defense Technical Information Center (DTIC) exchange agreements.
 - (2) Provide abstracting and indexing services for scientific and technical NWD reports.
 - (3) Maintain computerized NWD databases available to authorized users through approved and accredited remote telecommunications links.
 - (4) Implement the DOE/DoW technical information exchange agreement under the Joint Coordinating Committee.
 - (5) Coordinate requests for NWD from DTIC for authorized DOE personnel.
 - (6) With approval from the Responsible Official for stockpile management or authorized designee, grant access to NWD and transmit NWD documents from OSTI custody to Departmental offices and their contractors, and to organizations outside DOE, in accordance with this Order.
 - (7) Assist NNSA Headquarters, Site Offices, and national laboratories in implementing policies and procedures for management of DOE-sponsored scientific and technical information containing NWD.
- i. Headquarters Office Oversight. Responsible officials for Headquarters offices must:
 - (1) Confirm that Headquarters personnel granted access to NWD, including Sigma 14 and Sigma 20 have: (a) appropriate clearance; and (b) a valid need to know for each NWD category to which they have been granted access.
 - (2) Ensure that DOE/NNSA employees and contractors under their jurisdiction follow the requirements of this Order.

- (3) Ensure NWD in their custody is transmitted to other DOE or NNSA entities only after verifying the recipient has: (a) appropriate security clearance; (b) valid need to know; (c) access authorization for the appropriate NWD category; and (d) appropriate site clearance, storage capability, and authorization recorded in SSIMS.
 - (4) Ensure Sigma NWD to be transmitted to DoW or Other Government Agencies (OGAs) is reviewed for classification content and prescribed markings, and that recipients are authorized by contacting the DOE/NNSA NWD Program Coordinator.
 - (5) Ensure the disposition of NWD upon completion of work requiring access or termination of a contract.
- j. Site/Field Element Oversight. Responsible officials for site and field elements must:
 - (1) Ensure NWD is disseminated only to personnel with: (a) appropriate clearance; (b) Sigma access authorization, as applicable; and (c) a valid need to know.
 - (2) Ensure that personnel with authorized access to NWD, including support contractors, receive sufficient training, awareness, and knowledge of NWD protection procedures.
 - (3) Ensure DOE personnel, including support contractors, follow the requirements of this Order.
 - (4) Coordinate with OSTI to provide appropriate life-cycle management of scientific and technical NWD produced under their jurisdiction in accordance with DOE O 241.1, current version.
 - (5) Ensure the disposition of NWD upon completion of work requiring access or termination of a contract.
 - (6) Approve and transmit to the OSTI Manager any requests for weapon data reports from DTIC.
- k. Cognizant Security Authority (Contractor Sites). The Cognizant Security Authority at contractor sites must:
 - (1) Confirm that site employees and contractors granted access to NWD have (a) appropriate security clearance and (b) a valid need to know for the NWD and each NWD category to which they have been granted access.
 - (2) Ensure that employees and contractors follow the requirements of this Order.

- (3) Ensure NWD planned for transmittal is reviewed for classification content and prescribed markings. Prior to transmittal, verify the recipient has (a) appropriate security clearance; (b) valid need to know; (c) access authorization for the appropriate NWD category; (d) appropriate facility clearance, storage capability, and authorization recorded in SSIMS; and (e) confirmed clearance of DoW or OGA recipients through the NNSA NWD Program Coordinator.
 - (4) Ensure the disposition of NWD documents upon completion of work requiring access or termination of a contract.
 - (5) Coordinate with OSTI to provide appropriate life-cycle management of scientific and technical NWD produced under their jurisdiction.
1. Contracting Officer. For all applicable contracts and upon notification that a site or facility management contract is affected by this Order, the contracting officer(s) shall incorporate the requirements into the affected contract(s) via the “Laws, Regulations, and DOE Directives” clause of the contract, or through negotiation and modification, as appropriate.

6. REFERENCES.

- a. 10 CFR § 712, *Human Reliability Program*, defines the security and safety reliability program for individuals in positions affording access to certain materials, nuclear explosive devices, facilities, and programs.
- b. 10 CFR § 824, *Procedural Rules for the Assessment of Civil Penalties for Classified Information Security Violations*, establishes procedural rules for assessment of civil penalties for classified information security violations under Section 234B of the AEA.
- c. 42 U.S.C. § 2011 et seq., *Atomic Energy Act of 1954*, as amended (P.L. 83-703) is the primary statutory authority for control and dissemination of RD and FRD.
- d. National Security Presidential Directive 28, “Signals Intelligence Activities,” dated June 20, 2003.
- e. Executive Order 12344, “Naval Nuclear Propulsion Program,” codified at 50 U.S.C. §§ 2406 and 2511 assigns responsibilities and authorities for the Naval Nuclear Propulsion Program.
- f. Executive Order 13526, “Classified National Security Information,” dated December 29, 2009, prescribes a uniform system for classifying, safeguarding, and declassifying national security information.
- g. DOE O 142.1, *Classified Visits Involving Foreign Nationals*, current version, protects classified information during foreign national visits to DOE/NNSA sites.

- h. DOE O 241.1, *Scientific and Technical Information Management*, current version, establishes requirements and responsibilities for managing DOE scientific and technical information.
- i. DOE O 251.1, *Departmental Directives Program*, current version, governs the DOE directives system, including equivalency and exemption processing.
- j. DOE O 452.1, *Nuclear Explosive and Weapon Surety Program*, current version, establishes DOE objectives, standards, criteria, authorities, and responsibilities for the Nuclear Explosive and Weapon Surety Program.
- k. DOE O 452.4, *Security and Use Control of Nuclear Explosives and Nuclear Weapons*, current version, establishes requirements for nuclear explosive security and use control.
- l. DOE O 452.7, *Protection of Use Control Vulnerabilities and Designs*, current version, establishes control requirements for Sigma 14 and Sigma 15 NWD.
- m. DOE O 457.1, *Nuclear Counterterrorism*, current version, establishes DOE responsibilities for protecting and disseminating sensitive improvised nuclear device information and governs Sigma 20.
- n. DOE O 470.3B, *Graded Security Protection Policy*, current version (classified).
- o. DOE O 471.6, *Information Security*, current version, establishes baseline security requirements for protection and control of classified matter; serves as the baseline for this Order.
- p. DOE O 472.2, *Personnel Security*, current version, establishes objectives and requirements for the DOE Personnel Security Program.
- q. DOE O 475.2, *Identifying Classified Information*, current version, establishes the program to identify information classified under the AEA or Executive Orders.
- r. DoD Instruction 5210.02, "Access to and Dissemination of Restricted Data and Formerly Restricted Data," current version.

7. DEFINITIONS.

- a. Critical Nuclear Weapon Design Information. As defined in 32 CFR § 117, National Industrial Security Program Operating Manual (NISPO), and DoD Instruction 5210.02, a DoW subcategory of weapon data designating Top Secret//Restricted Data and Secret//Restricted Data revealing the theory of operation or design of the components of a thermonuclear or fission bomb, warhead, demolition munitions, or test device. Specifically excluded is information concerning arming, fusing, and firing systems; limited-life components; and total contained quantities of fissionable, fusionable, and high explosives by type. Among these excluded items are the components that DoW personnel set, maintain, operate, test, or replace.

- b. Defense Technical Information Center. The central DoW-sponsored facility for secondary distribution of technical reports generated by research, development, test, and evaluation efforts.
- c. Documents. Written or printed information, charts, maps, paintings, drawings, engravings, sketches, photographic prints, exposed or developed film, working notes and papers, reproductions by any means or process (including electronic format), and sound and video recordings by magnetic, optical, or any other electronic means.
- d. Formerly Restricted Data. Classified information jointly determined by DOE or its predecessor agencies and DoW to be (1) related primarily to the military utilization of atomic weapons and (2) protected as National Security Information. FRD is subject to restrictions on transmission to other countries and regional defense organizations that apply to RD (42 U.S.C. § 2162, Classification and declassification of Restricted Data).
- e. Material. Any substance regardless of its physical or chemical form, including raw, in-process, or manufactured commodity, equipment, component, accessory, part, assembly, or product of any kind.
- f. Matter. Any combination of documents or material, regardless of physical form (including electronic and digital) or characteristics.
- g. Need to Know. A determination that a prospective recipient requires access to specific classified information in order to perform or assist in a lawful and authorized government function.
- h. Nuclear Security Enterprise. The NNSA organizations that manage NWD and/or design, manufacture, or test nuclear weapons or nuclear weapon components, including: NNSA Headquarters and Site Offices; Lawrence Livermore National Laboratory; Los Alamos National Laboratory; Sandia National Laboratories; Pantex Plant; Kansas City National Security Campus; Y-12 National Security Complex; NNSA operations at the Savannah River Site; and Nevada National Security Site.
- i. Nuclear Weapon. As defined in Section 11(d) of the AEA, any device utilizing atomic energy, exclusive of the means for transporting or propelling the device (where such means is a separable and divisible part of the device), the principal purpose of which is for use as, or for development of, a weapon, weapon prototype, or a weapon test device.
- j. Nuclear Weapon Data. The label for RD or FRD concerning the design, manufacture, or utilization (including theory, development, storage, characteristics, performance, and effects) of nuclear explosives, nuclear weapons or nuclear weapon components, including information incorporated in or related to nuclear explosive devices.

- k. Restricted Data. All data concerning the design, manufacture, or utilization of atomic weapons; production of special nuclear material; or use of special nuclear material in the production of energy, but excluding data declassified or removed from the RD category pursuant to 42 U.S.C. § 2162.
 - l. Sigma 14. A specific category of NWD concerning the vulnerability of U.S. nuclear weapons to denial of authorized use, or deliberate unauthorized use that could lead to a deliberate unauthorized nuclear detonation.
 - m. Sigma 15. A specific category of NWD concerning the design and function of U.S. nuclear weapon use control systems (both passive and active), features, and components. Security verification or weapon design features not specifically part of a use control system may also be included. NOTE: Not all use control design information is Sigma 15.
 - n. Sigma 20. A specific category of NWD pertaining to “crude, simple, or innovative” improvised nuclear device designs, concepts, and related manufacturing or processing pathways. NOTE: Not all improvised nuclear devices are Sigma 20.
 - o. Use Control. The application of systems, devices, or procedures that allow timely authorized use of a nuclear explosive while precluding or delaying unauthorized nuclear detonation.
8. CONTACT. For questions concerning this Order contact the Nuclear Weapon Data Manager.

BY ORDER OF THE SECRETARY OF ENERGY:



JAMES P. DANLY
Deputy Secretary