

**BY ORDER OF THE
SECRETARY OF THE AIR FORCE**

AIR FORCE INSTRUCTION 91-116

9 AUGUST 2022



Safety

**SAFETY RULES FOR LONG TERM
STORAGE AND MAINTENANCE
OPERATIONS FOR NUCLEAR
WEAPONS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements Air Force Policy Directive (AFPD) 91-1, *Nuclear Weapons and Systems Surety*, and is consistent with AFPD 13-5, *Air Force Nuclear Mission*. This instruction applies to Department of the Air Force (DAF) civilian employees and uniformed members of the Regular Air Force, Air Force Reserve, Air National Guard and nuclear certified equipment, facilities involved with nuclear weapons, nuclear weapon systems, and radioactive materials-related program. This publication does not apply to the United States Space Force. Ensure all records generated as a result of processes prescribed in the publication adhere to Air Force Instruction (AFI) 33-322, *Records Management and Information Governance Program*, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System. Refer recommended changes and questions about this publication to the office of primary responsibility (OPR) using DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional chain of command. This publication may not be supplemented or further implemented/extended. The authorities to waive wing/unit level requirements in this publication are identified with a Tier (“T-0, T-1, T-2, T-3”) number following the compliance statement. See Department of the Air Force Manual (DAFMAN) 90-161, *Publications Process and Procedures*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor’s commander for non-tiered compliance items. Compliance with the attachment references in this publication is mandatory.

SUMMARY OF CHANGES

This document has been substantially revised and needs to be completely reviewed. Major changes include weapon system safety rules (WSSR) for storage and maintenance operations with war reserve B61-12 weapons in long-term storage facilities.

Section A—Authority and Responsibilities

1. Additional Limitations.

1.1. The Air Force may impose more restrictive guidance or policy than contained in safety rules, but may not unilaterally change the safety rules.

2. Roles and Responsibilities.

2.1. The Air Force Chief of Safety:

2.1.1. Ensures safety rules provide maximum safety consistent with operational requirements.

2.1.2. Ensures Major Commands follow the safety rules.

2.1.3. Is responsible for interpretation and clarification of general and specific guidance in **Section B** and **Section C** of this publication.

2.2. Major Commands:

2.2.1. Ensure their units follow the safety rules.

2.2.2. Ensure all supplemental guidance and procedures agree with the approved safety rules.

2.2.3. Inspect for compliance.

2.2.4. Ensure manuals, checklists, and technical orders do not conflict with the safety rules.

Section B—General Safety Rules.

3. General Guidance.

3.1. Per Department of Defense Manual (DoDM) 3150.02, *DoD Nuclear Weapon System Safety Program Manual*, general safety rules apply to all nuclear weapons and nuclear weapon systems. General safety rules primarily apply safety policy and shall be included as part of the military department's safety rules package.

3.2. Units will not intentionally expose nuclear weapons to abnormal environments except in an emergency. **(T-0)**

3.3. Units will not use nuclear weapons for training or for troubleshooting (e.g., to confirm the existence of a fault, aid in fault isolation, or verify that a fault has been corrected except as explicitly allowed by a specific safety rule). **(T-0)**

3.4. Nuclear weapons may be used for exercises except when explicitly prohibited by specific safety rules listed in **Section C** of this publication.

3.5. Guidance for Personnel Reliability Assurance Program certification of personnel who have physical access to nuclear weapons is provided in Department of Defense Instruction (DoDI) 5210.42, *DoD Nuclear Weapon Personnel Reliability Assurance*.

3.6. To conduct nuclear weapon system operations, commanders will only employ certified procedures, personnel, equipment, facilities, and organizations, authorized by the appropriate level of authority. **(T-0)**

3.7. Commanders will restrict the total number of personnel performing nuclear weapon system operations to the minimum consistent with the operations performed. **(T-0)**

3.8. At least two authorized persons must be present during any operation involving a nuclear weapon, except when authorized by a specific safety rule; e.g., alert fly. **(T-0)** They must be able to detect incorrect or unauthorized procedures in the task being performed. **(T-0)** They also must have knowledge of and understand applicable safety and security requirements. **(T-0)**

3.9. Guidance for physical security is provided in Department of Defense Directive (DoDD) 5210.41, *Security Policy for Protecting Nuclear Weapons*.

3.10. Guidance to authorize nuclear weapons transportation is provided in DoDI 4540.05, *DoD Transportation of U.S. Nuclear Weapons*. Additionally, custody and accountability transfers during logistic movements will be by courier receipt system to ensure positive control. **(T-0)**

3.11. Units will perform use control operations in accordance with plans and procedures prescribed by the applicable Combatant Command and technical procedures. **(T-0)**

3.12. Units will verify that a nuclear warhead is not present in a test assembly using non-nuclear assurance procedures at the last practical opportunity agreed upon by the Department of Defense (DoD) and/or Department of Energy (DOE) before the conduct of an operational test. **(T-0)**

3.13. Deviations from safety rules are permitted in an emergency, except as follows:

3.13.1. United States custody must be maintained until receipt of a valid nuclear control order that permits transferring United States nuclear weapons to non-United States delivery forces. **(T-0)**

3.13.2. Nuclear weapons will not be expended unless a valid, properly authenticated nuclear control order conveying release or expenditure authority is received. **(T-0)**

3.13.3. Other permissible deviations from safety rules:

3.13.3.1. Jettisoning of nuclear weapons, for applicable systems, is permitted in the event of an emergency, and is to be accomplished according to plans and procedures prescribed for the area of operations. **(T-0)**

3.14. Changes in safety rules must follow procedures in AFI 91-102, *Nuclear Weapon System Safety Studies, Operational Safety Reviews, and Safety Rules*. **(T-0)**

Section C—Specific Safety Rules

4. Specific Guidance.

4.1. These safety rules, weapon system features, operational controls, and technical procedures ensure that the long-term storage meets the Nuclear Weapon System Surety Standards in DoDD 3150.02, *DoD Nuclear Weapons Surety Program*, and AFI 91-101, *Air Force Nuclear Weapons Surety Program*.

4.2. Safety rules shall always apply, even during war. **(T-0)**

4.3. A commander may deviate from a specific safety rule in an emergency and report the deviation as soon as practical.

4.4. Units must investigate and report deficiencies and weapon system safety rule (WSSR) violations. **(T-0)** A violation of referenced instructions does not constitute a weapon system safety rule violation unless specifically identified in this document.

4.5. Any changes that potentially impact nuclear weapon system surety must meet requirements identified in AFI 91-102.

5. Troubleshooting and Use of Equipment, Procedures, Checklists, and Modifications. The following items apply to anyone working with or controlling nuclear weapons:

5.1. Units will not use nuclear weapons to troubleshoot equipment faults. **(T-0)**

5.2. Units will use only equipment (e.g., hardware, software, etc.), procedures, and checklists that do not deviate in form or substance with United States Air Force-approved publications for any operation directly associated with nuclear weapons. **(T-0)**

5.3. Approved publications and modifications must conform to the safety rules in this instruction and the Nuclear Weapon System Surety Standards listed in DoDD 3150.02. **(T-0)**

6. Security Criteria . Security guidance may be found in the following issuances:

6.1. Security policy for protecting nuclear weapons is in DoDD 5210.41, *Security Policy for Protecting Nuclear Weapons*.

6.2. Security policy, objectives, and concepts, and prescribed minimum security criteria for protecting nuclear weapons on alert, in storage, in maintenance facilities, in-transit, and in regeneration situations are in the following issuances: DoDM S-5210.41, (U) *Nuclear Weapon Security Manual: The DoD Nuclear Weapon Security Program* ; DoD S-5210.41-M_Air Force Manual (AFMAN) 31-108V1-S, (U) *The Air Force Nuclear Weapon Security Manual*, DoD S-5210.41-M_AFMAN 31-108V2-S, (U) *General Nuclear Weapon Security Procedures*, DoD S-5210.41-M_AFMAN 31-108V3-S, (U) *Nuclear Weapon Security Manual: Nuclear Weapon Specific Requirements*.

6.3. Guidance and procedures on operations security are in AFI 10-701, *Operations Security (OPSEC)*.

7. Tamper Control Program. Major Commands, Field Operating Agencies, and Direct Reporting Units will comply with AFI 91-101. **(T-0)**

8. Personnel Reliability Assurance Program. All personnel having access to nuclear weapons will comply with DoDM 5210.42_AFMAN 13-501, *Nuclear Weapons Personnel Reliability Program (PRP)*, and AFI 31-117, *Arming and Use of Force by Air Force Personnel*. **(T-0)**

9. Nuclear Identification. Units shall establish administrative controls and procedures to provide positive means of distinguishing:

9.1. Between nuclear munitions and non-nuclear devices (i.e., joint test assemblies, bomb dummy units, and training shapes) intended to resemble nuclear weapons. **(T-0)**

9.2. Between nuclear warhead shipping and storage containers from non-nuclear warhead containers. **(T-0)**

10. Approved Weapon Configuration.

10.1. Units will verify nuclear weapons are safe using applicable technical orders. **(T-0)**

10.2. Units will keep nuclear weapons and warheads in fully assembled configurations except during maintenance or as otherwise directed by appropriate agencies or when allowed by technical guidance or disposition instructions. **(T-0)**

11. Storage, Maintenance, Testing, and Ground Transportation. As appropriate for the activity:

11.1. Units will perform all storage, maintenance, testing, and ground transportation according to applicable technical orders. **(T-0)**

11.2. Units will store nuclear weapons in United States Air Force-approved, locked, and secured facilities. **(T-0)**

11.3. Units will comply with Defense Explosives Safety Regulation (DESR) 6055.09_AFMAN 91-201, *Explosives Safety Standards*, side flash protection for nuclear weapons guidance. **(T-0)**

12. Permissive Action Link and Command Disable Procedures.

12.1. Permissive action link codes and equipment will only be used as directed by appropriate authority. **(T-0)**

12.2. Command disable codes and equipment will only be used as directed by appropriate authority. **(T-0)**

13. Exercises. Nuclear weapons may be used for exercises when their use is specifically authorized by Commander, Air Force Global Strike Command or designated authority.

14. Logistics Movement of Nuclear Weapons by Cargo Aircraft. Units will comply with AFI 91-115, *Safety Rules for Nuclear Airlift Operations*. **(T-0)**

15. Nuclear Weapons and Conventional Weapons Storage. Units will not store nuclear weapons and conventional munitions (e.g., bombs, missiles, rockets) together in the same long-term storage facility. **(T-0)**

16. Storage for other Agencies or Services. Only those weapons assigned to the United States Air Force, as the Cognizant Military Service, are authorized for storage within the long-term storage facility. With the exception of emergency operations, Air Force Safety Center Weapon Safety Division (AFSEC/SEW) must conduct a safety review prior to introducing other weapons

or weapon related components. **(T-0)** If storage is for another military service or United States government agency, a memorandum of understanding/memorandum of agreement will be developed in accordance with DoDI 4000.19, *Support Agreements*, and hazards must be identified in Joint Nuclear Weapons Publication System (JNWPS) Technical Publication (TP) 20-11, *General Firefighting Guidance*. **(T-0)**

JEANNIE M. LEAVITT
Major General, USAF
Chief of Safety

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

- AFI 10-701, *Operations Security (OPSEC)*, 24 July 2019
- AFI 31-117, *Arming and Use of Force by Air Force Personnel*, 6 August 2020
- AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020
- AFI 91-101, *Air Force Nuclear Weapons Surety Program*, 26 March 2020
- AFI 91-102, *Nuclear Weapon System Safety Studies, Operational Safety Reviews and Safety Rules*, 22 May 2019
- AFI 91-115, *Safety Rules for Nuclear Airlift Operations*, 28 July 2021
- DAFPD 13-5, *Air Force Nuclear Mission*, 17 July 2018
- DAFPD 91-1, *Nuclear Weapons and Systems Surety*, 24 October 2019
- DAFI 90-160, *Publications and Forms Management*, 14 April 2022
- DAFMAN 90-161, *Publications Processes and Procedures*, 15 April 2022
- DESR 6055.09_AFMAN 91-201, *Explosives Safety Standards*, 28 May 2020
- DoDD 3150.02, *DoD Nuclear Weapons Surety Program*, 24 April 2013
- DoDD 5210.41, *Security Policy for Protecting Nuclear Weapons*, 22 January 2015
- DoDI 4000.19, *Support Agreements*, 16 December 2020
- DoDI 4540.05, *DoD Transportation of U.S. Nuclear Weapons*, 23 June 2011
- DoDI 5210.42, *DoD Nuclear Weapons Personnel Reliability Assurance*, 27 April 2016
- DoDM 3150.02, *DoD Nuclear Weapon System Safety Program Manual*, 31 January 2014
- (U) DoDM S-5210.41, *Nuclear Weapon Security Manual: The DoD Nuclear Weapon Security Program*, 4 May 2022
- DoDM 5210.42_AFMAN 13-501, *Nuclear Weapons Personnel Reliability Program (PRP)*, 19 September 2018
- (U) DoD S-5210.41-M_AFMAN 31-108V1-S, *The Air Force Nuclear Weapon Security Manual*, 2 May 2019
- (U) DoD S-5210.41-M_AFMAN 31-108V2-S, *General Nuclear Weapon Security Procedures*, 20 May 2019
- (U) DoD S-5210.41-M_AFMAN 31-108V3-S, *Nuclear Weapon Security Manual: Nuclear Weapon Specific Requirements*, 20 May 2019
- TP 20-11, *General Firefighting Guidance*, 6 February 2002

Adopted Forms

- DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFSEC—Air Force Safety Center

AFSEC/SEWN—Air Force Safety Center, Nuclear Weapons Safety Division

AFSEC/SEI—Air Force Safety Center, Safety Issues Division

DAFI—Department of the Air Force Instruction

DESR—Defense Explosives Safety Regulation

DoD—Department of Defense

DoDD—Department of Defense Directive

DoDI—Department of Defense Instruction

DoDM—Department of Defense Manual

DOE—Department of Energy

JNWPS—Joint Nuclear Weapons Publication System

TP—Technical Publication

OPR—Office of Primary Responsibility

WSSR—Weapon System Safety Rules

Terms

Access—Close physical proximity to a nuclear weapon in such a manner as to allow the opportunity to tamper with or damage a nuclear weapon.

Abnormal Environment—Environments as defined in a weapon's stockpile-to-target sequence and military characteristics in which a nuclear weapon or a nuclear weapon system is not expected to retain full operational reliability.

Command Disable—A feature which allows manual activation of the nonviolent disablement of critical weapon components. The command disable system may be internal or external to the weapon.

Custody—Responsibility for the control of, transfer and movement of, and access to nuclear weapons and components. Custody may include accountability.

Emergency—An unexpected occurrence or set of circumstances in which personnel or equipment unavailability, due to accident, natural event, hostile act, or combat, may demand immediate actions that may require extraordinary measures to protect, handle, service, secure, transport, jettison, or to employ nuclear weapons.

Jettison—The intentional separation of an unarmed weapon from its delivery system or transport carrier in response to an emergency.

Maintenance—Work and oversight necessary to ensure a system is in proper working order and will operate, act, or protect in accordance with its intended purpose.

Nuclear Weapon—A complete assembly (i.e., implosion type, gun type, or thermonuclear type), in its intended ultimate configuration which, upon completion of the prescribed arming, fusing, and firing sequence, is capable of producing the intended nuclear reaction and release of energy.

Nuclear Weapon System—A nuclear weapon and a means of delivering it to the target, with associated support equipment, facilities, procedures, personnel, and any vehicles peculiar to the system used for weapon transport.

Security—Protect against loss of custody, theft, or diversion of a nuclear weapon system; protection against unauthorized access; or protection against unauthorized actions, vandalism, sabotage, and malevolent damage.

Side Flash—The phenomenon where lightning current will arc through a non-conductive medium in order to attach to other objects. An electrical arc caused by differences of potential that occur between conductive metal bodies or between such metal bodies and a component of the lightning protection system or earth electrode system.

Stockpile-to-Target Sequence—The order of events involved in removing a nuclear weapon from storage and assembling, testing, transporting, and delivering it on the target. Alternatively, a document that defines the logistic and employment concepts and related physical environments involved in the delivery of a nuclear weapon from the stockpile to the target. It may also define the logistic flow involved in moving nuclear weapons to and from the stockpile for quality assurance testing, modification and retrofit, and the recycling of limited life components.

Use Control—The positive measures that allow the authorized use and prevent or delay unauthorized use of nuclear weapons, and is accomplished through a combination of weapon system design features, operational procedures, internal security, and system safety rules.