



# Department of Defense INSTRUCTION

NUMBER 4540.05

June 23, 2011

*Incorporating Change 2, Effective February 12, 2015*

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USD(AT&L)

SUBJECT: DoD Transportation of U.S. Nuclear Weapons

References: See Enclosure 1

1. PURPOSE. This Instruction:

a. Reissues DoD Directive (DoDD) 4540.5 (Reference (a)) as a DoD Instruction in accordance with the authority in DoDD 5134.01 (Reference (b)) to establish policy, update responsibilities, and prescribe procedures for DoD transportation of U.S. nuclear weapons, including logistic transportation, operational transport, and emergency logistic movement as defined in the Glossary.

b. Incorporates and cancels DoD 4540.5-M (Reference (c)).

c. Authorizes the establishment of the Nuclear Transportation Working Group (NTWG).

2. APPLICABILITY. This Instruction:

a. Applies to OSD, the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (hereafter referred to collectively as the "DoD Components").

b. Applies to all U.S. nuclear weapon movements except those conducted within limited areas by DoD personnel in the course of routine storage and maintenance of nuclear weapons.

c. Does not apply to the transport of nuclear weapon limited-life components (LLCs), special nuclear material (SNM), or nuclear weapons-related materiel.

d. Does not direct or change Nuclear Weapons Technical Inspections (NWTI) guidance or procedures.

3. DEFINITIONS. See Glossary.

4. POLICY. It is DoD policy that:

a. Nuclear weapons require special consideration because of their political and military importance and the potential consequences of an accident, incident, or unauthorized act.

b. The U.S. Government shall maintain custody of nuclear weapons at all times during transport. This requirement shall not be waived.

c. A commander may deviate from the transportation policy and procedures in this Instruction when the loss of custody of a nuclear weapon is imminent, during an emergency as defined in DoD ~~3150.2-M~~ *Manual 3150.02* (Reference (d)), or when the nuclear weapon may be exposed to an abnormal environment.

d. Command disable procedures shall be used, when available, if loss of a nuclear weapon is imminent. This policy provides a commander the flexibility to react to an unanticipated event or environment with the nuclear weapon's safety and security being of paramount consideration in accordance with DoDD O-5210.41 (Reference (e)).

e. DoD transportation of U.S. nuclear weapons shall:

(1) Be kept to the minimum consistent with military requirements and should be planned to minimize the number of stops or landings of the transport carrier.

(2) Be conducted through the transport modes and movement routes that balance safety, security, and military requirements.

(3) Be conducted using personnel certified and trained in accordance with this Instruction.

(4) Comply with the DoD nuclear weapon system safety policy and ~~safety~~ *surety* standards in DoDD 3150.02 (Reference (f)), the DoD nuclear weapon security policy and criteria in Reference (e) and Volumes 1 through 3 of DoD S-5210.41-M (Reference (g)), and the DoD nuclear weapon use control procedures in DoDD S-3150.07 (Reference (h)).

f. The decision to transport nuclear weapons shall be a specific judgment based on the planning factors in this Instruction by the first general or flag officer responsible for day-to-day operations of the unit. This authority may be delegated to the responsible U.S. Air Force Wing Commander in accordance with Air Force Instructions, and the U.S. Navy Service Logistic Agent may delegate to the Commander, Submarine Force, and Commander Submarine Force, U.S. Pacific Fleet, for ship-to-shore, shore-to-ship, and ship-to-ship movement.

g. The movement by air of nuclear weapons that contain high explosives, other than insensitive high explosives (IHE), shall be approved prior to transport by the Secretary of the Military Department or the Commander of the Combatant Command concerned. This authority may be delegated to commanders of major commands. Copies of letters of delegation shall be provided to the Assistant Secretary of Defense for Nuclear, ~~and~~ Chemical, and Biological Defense Programs (ASD(NCB)).

h. Transportation provisions shall apply to operational transport, and emergency logistic movements to the maximum extent possible.

5. RESPONSIBILITIES. See Enclosure 2.

6. PROCEDURES. See Enclosure 3.

7. RELEASABILITY. ~~UNLIMITED~~ *Cleared for public release*. This Instruction ~~is approved for public release and~~ is available on the Internet from the DoD Issuances Website at <http://www.dtic.mil/whs/directives>.

8. EFFECTIVE DATE. This instruction: ~~is effective June 23, 2011.~~

~~a. Is effective June 23, 2011.~~

~~b. Must be reissued, cancelled, or certified current within 5 years of its publication in accordance with DoD Instruction 5025.01 (Reference (i)). If not, it will expire effective June 23, 2021 and be removed from the DoD Issuances Website.~~



Ashton B. Carter  
Under Secretary of Defense for Acquisition,  
Technology, and Logistics

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ENCLOSURE 1

REFERENCES

- (a) DoD Directive 4540.5, "Logistic Transportation of Nuclear Weapons," February 4, 1998 (hereby cancelled)
- (b) DoD Directive 5134.01, "Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L))," December 9, 2005, as amended
- (c) DoD 4540.5-M, "DoD Nuclear Weapons Transportation Manual," February 1, 1998 (hereby cancelled)
- (d) DoD ~~3150.2-M~~ *Manual 3150.02*, "DoD Nuclear Weapon System Safety Program Manual," ~~December 23, 1996~~ *January 31, 2014, as amended*
- (e) DoD Directive ~~Q~~-5210.41, "Security Policy for Protecting Nuclear Weapons," ~~November 1, 2004~~ *January 22, 2015*
- (f) DoD Directive 3150.02, "DoD Nuclear Weapons ~~System~~ Surety Program," April 24, 2013
- (g) DoD S-5210.41-M, "Nuclear Weapon Security Manual (U)," July 13, 2009
- (h) DoD ~~Directive Instruction~~ S-3150.07, "Controlling the Use of Nuclear Weapons (U)," December 21, 2010
- ~~(i) DoD Instruction 5025.01, "DoD Directives Program," September 26, 2012~~
- (~~j~~) DoD Directive 5134.08, "Assistant Secretary of Defense for Nuclear, ~~and~~ Chemical, and Biological Defense Programs (ATSD(NCB))," January 14, 2009, as amended
- (~~k~~) "Memorandum of Agreement Between the Department of Defense and the Department of Energy for Safe Haven Contingencies," 2002<sup>1</sup>
- (~~h~~) Chairman of the Joint Chiefs of Staff Instruction 3263.05A, "Nuclear Weapons Technical Inspections," ~~June 4, 2010~~ *August 9, 2013*
- (~~m~~) U.S. Air Force Guide, "Special Weapons Overflight Guide (U)," August 1, 2006<sup>2</sup>
- (~~n~~) DoD Instruction 5210.42, "Nuclear Weapons Personnel Reliability Program (PRP)," July 16, 2012
- (~~o~~) Joint Nuclear Weapons Publication System Technical Publication 45-51B, "Transportation of Nuclear Weapons Materiel (Supplement) – Loading and Unloading Flatbed Truck or Tractor Trailer, Safeguards Transporter (SGT), Limited-Life Component (LLC) Truck, Military Air Shipment, and Palletized Cargo," ~~March 13, 2009~~ *July 23, 2014*
- (~~p~~) DoD Directive 3150.08, "DoD Response to Nuclear and Radiological Incidents," January 20, 2010
- (~~q~~) DoD ~~3150.8-M~~ *Manual 3150.08*, "Nuclear Weapon Accident Response Procedures (NARP)," ~~February 22, 2005~~ *August 22, 2013*
- (~~r~~) Joint Nuclear Weapons Publication System Technical Publication 45-51, "Transportation of Nuclear Weapons Materiel – General Shipping and Limited Life Component (LLC) Data," March 22, 2006
- (~~s~~) Joint Nuclear Weapons Publication System Technical Publication 45-51A, "Transportation of Nuclear Weapons Materiel (*Supplement*) – Shipping and Identification Data for Stockpile Major Assemblies (U)," ~~March 24, 2000~~ *December 10, 2010*

<sup>1</sup> Available from the Office of the Deputy Assistant to the Secretary of Defense for Nuclear Matters (~~ODATSD~~~~ODASD~~(NM)), 3050 Defense Pentagon 3B884, Washington, D.C. 20301.

<sup>2</sup> Available from HQ USAF/A5XP, 1480 Air Force Pentagon 5C321, Washington, D.C. 20330.

- (~~ts~~) Joint Nuclear Weapons Publication System Technical Publication 100-4, “Custody, Accountability, and Control of Nuclear Weapons and Nuclear Materiel,” ~~December 1, 1993~~  
*August 31, 2011*
- (~~wt~~) Joint Nuclear Weapons Publication System Technical Publication 20-7, “Nuclear Safety Criteria (U),” ~~January 2, 2008~~ *October 29, 2012*
- (~~vu~~) Joint Nuclear Weapons Publication System Technical Publication 20-11A, “General Firefighting Guidance *and Line Number Hazardous Category Cross Reference List*,” ~~April 24, 2009~~ *August 17, 2011*
- (~~wv~~) Chairman of the Joint Chiefs of Staff Instruction 3260.01B, “Joint Policy Governing Positive Control Materiel and Devices,” June 30, 2011<sup>3</sup>

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<sup>3</sup> Available from CJCS J-36 NOD-PAB, 3000 Joint Staff Pentagon, Washington, DC 20318-3000.

ENCLOSURE 2

RESPONSIBILITIES

1. ASD(NCB). The ASD(NCB), under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)), shall:

a. Develop policy and oversee technical matters associated with the DoD transportation of U.S. nuclear weapons pursuant to DoDD 5134.08 (Reference (j)).

b. Establish the NTWG and ensure the NTWG:

(1) Provides a forum to resolve issues pertaining to safe, secure, and efficient logistic transportation of nuclear weapons, and identifies areas that affect safety, security, operations, and other significant matters.

(2) Consists of representatives from the Joint Staff; the Defense Threat Reduction Agency (DTRA); the Military Departments; U.S. Strategic Command (USSTRATCOM), U.S. Transportation Command (USTRANSCOM), and U.S. European Command (USEUCOM); ~~the~~ *The* Department of Energy (DOE); and other U.S. Government departments and agencies ~~as required~~ *may be invited to send representatives as appropriate*.

(3) Meets at least semi-annually.

c. Provide guidance, in coordination with the Secretaries of the Military Departments and the Chairman of the Joint Chiefs of Staff, on prioritization of DoD transportation of U.S. nuclear weapons.

d. Serve as the OSD principal point of contact for DoD transportation of U.S. nuclear weapons with the DoD Components, DOE, the Department of State, the Nuclear Weapons Council, and other U.S. Government departments and agencies, and in this capacity shall:

(1) Direct the DoD Components with nuclear responsibilities, as required, to conduct assessments of logistic transportation and operational transport of nuclear weapons operations to ensure safety and security precautions are maintained to ensure DoD transportation of U.S. nuclear weapons has minimal impact on public health, safety, and the environment.

(2) Ensure DoD transportation of U.S. nuclear weapons safety is addressed in Reference (f); nuclear weapons security is addressed in References (e) and (g); and use control is addressed in Reference (h).

2. DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR NUCLEAR MATTERS (DASD(NM)). The DASD(NM), under the authority, direction, and control of the USD(AT&L), through the ASD(NCB), shall:

a. Assist the ASD(NCB) in executing assigned responsibilities and functions related to DoD transportation of U.S. nuclear weapons pursuant to Reference (ji).

b. Provide the NTWG Chair; provide guidance to the NTWG on specific topics and operations; and coordinate DOE participation in the NTWG.

3. DIRECTOR, DTRA. The Director, DTRA, under the authority, direction, and control of the USD(AT&L), through the ASD(NCB), shall:

a. Provide technical support, advice, and assistance to the DoD Components on DoD transportation of U.S. nuclear weapons, when requested, to ensure safety and security precautions are maintained to ensure transportation of nuclear weapons has minimal impact on public health, safety, and the environment.

b. Provide the Vice Chairman and Executive Secretary of the NTWG.

c. Serve as the coordinator for DoD transportation of U.S. nuclear weapons among the DoD Components, and between DoD and DOE, and in this capacity shall:

(1) Prepare and coordinate materiel transfer orders for DoD transportation of U.S. nuclear weapons between Combatant Commands as requested by the Military Departments or the Combatant Commands.

(2) Coordinate custody transfers between DoD and DOE.

d. Facilitate SAFE HAVEN events as described in DoD and DOE Memorandum of Agreement (Reference (kj)).

e. Conduct safety and security assessments related to DoD transportation of U.S. nuclear weapons, when requested, and develop methodologies as necessary for assessing the safety and security of transportation operations.

~~f. Ensure that NWTI conducted by DTRA address the safety and security of logistical transportation and operational transport of U.S. nuclear weapons pursuant to Chairman of the Joint Chiefs of Staff Instruction 3263.05 (Reference (l)).~~

4. HEADS OF THE DoD COMPONENTS WITH NUCLEAR RESPONSIBILITIES. The Heads of the DoD Components with nuclear responsibilities shall:

a. Coordinate directly with the Chairman of the Joint Chiefs of Staff on DoD transportation of U.S. nuclear weapons matters.

b. Ensure their respective Components:



(1) Conduct assessments of logistic transportation and operational transport of nuclear weapons operations as required by the ASD(NCB) to ensure safety and security precautions are maintained and DoD transportation of U.S. nuclear weapons has minimal impact on public health, safety, and the environment.

(2) Comply with the procedures in Enclosure 3.

5. SECRETARIES OF THE MILITARY DEPARTMENTS. The Secretaries of the Military Departments, in addition to the responsibilities in section 4 of this enclosure, shall:

- a. Plan and conduct SAFE HAVEN operations in accordance with Reference (~~k~~j).
- b. Provide primary and alternate members to the NTWG.
- c. Maintain safety and security precautions that ensure DoD transportation of U.S. nuclear weapons has minimal impact on public health, safety, and the environment.
- d. Serve as the sole authority for deactivation of control equipment and ~~devises~~ *devices* during transportation of nuclear weapons under their cognizance.
- e. Ensure that NWTIs address the safety and security of logistical transportation and operational transport of U.S. nuclear weapons pursuant to Chairman of the Joint Chiefs of Staff Instruction 3263.05A (Reference (k)).*

6. SECRETARIES OF THE NAVY AND THE AIR FORCE. The Secretaries of the Navy and the Air Force, in addition to the responsibilities in sections 4 and 5 of this enclosure, shall:

- a. Implement DoD logistic transportation policies and develop procedures for the logistic transportation and operational transport of nuclear weapons.
- b. Conduct assessments related to logistic transportation and operational transport, as necessary.
- c. Approve all DoD transportation of U.S. nuclear weapons in their custody conducted by air that contain high explosives other than IHE. If delegating this approval authority to a commander of a major command pursuant to paragraph 4.g. above the signature, provide a copy of the letter of delegation to the ASD(NCB).
- d. Ensure that personnel, procedures, equipment, facilities, and organizations responsible for logistic transportation and operational transport of nuclear weapons are certified as prescribed by Enclosure 3 and Reference (~~f~~d).

e. Ensure that NWTIs conducted by the Navy and the Air Force address the safety and security of logistical transportation and operational transport of U.S. nuclear weapons pursuant to Reference (~~k~~).

7. SECRETARY OF THE AIR FORCE. The Secretary of the Air Force, in addition to the responsibilities in sections 4, 5, and 6 of this enclosure, shall:

a. Maintain a Prime Nuclear Airlift Force capability to conduct DoD transportation of U.S. nuclear weapons operations.

b. Maintain Special Weapons Overflight Guide (Reference (~~m~~)) and make it available to the DoD Components. Reference (~~m~~) is applicable to all elements of DoD.

8. CHAIRMAN OF THE JOINT CHIEFS OF STAFF (CJCS). The CJCS, in addition to the responsibilities in section 4 of this enclosure, shall:

a. Provide operational guidance to the Military Departments and Combatant Commands to implement DoD transportation of U.S. nuclear weapons policy.

b. Coordinate directly with the other Heads of the DoD Components with nuclear responsibilities on DoD transportation of U.S. nuclear weapons matters.

c. Develop procedures for maintaining accountability and develop the reporting procedures to be used by the Military Departments and Combatant Commands during logistic transportation and operational transport.

d. Maintain safety and security precautions that ensure DoD transportation of U.S. nuclear weapons has minimal impact on public health, safety, and the environment.

e. Provide a primary and alternate member to the NTWG.

9. COMMANDERS OF THE COMBATANT COMMANDS WITH NUCLEAR RESPONSIBILITIES. The Commanders of the Combatant Commands with nuclear responsibilities, through the CJCS and in addition to the responsibilities in section 4 of this enclosure, shall:

a. Implement DoD nuclear weapon transportation policies and develop internal procedures as required for their areas of responsibility.

b. Ensure personnel, procedures, equipment, facilities, and organizations involved in DoD transportation of U.S. nuclear weapons are certified as prescribed by Enclosure 3 of this Instruction and Reference (~~d~~).

c. Maintain safety and security precautions that ensure DoD transportation of U.S. nuclear weapons has minimal impact on public health, safety, and the environment.

d. Serve as the sole authority for deactivation of control equipment and devices during transportation of nuclear weapons under their cognizance.

10. COMMANDERS OF USSTRATCOM, USTRANSCOM, AND USEUCOM. The Commanders of USSTRATCOM, USTRANSCOM, and USEUCOM, in addition to the responsibilities in sections 4 and 9 of this enclosure, shall each provide a primary and alternate member to the NTWG.

ENCLOSURE 3

PROCEDURES FOR TRANSPORTATION OF U.S. NUCLEAR WEAPONS

1. GENERAL

a. Nuclear weapon movements shall be conducted through transport modes and routes that balance safety, security, and military requirements.

(1) A primary consideration in choosing transport modes and movement routes shall be to ensure that safety and security are maintained and that neither is unacceptably degraded at the expense of the other. For any given transport operation, the safest transport mode may not be the most secure, and vice versa. However, the minimum safety and security standards outlined in References (e), (f), and (g) and sections 4 and 5 of this enclosure must be maintained at all times.

(2) Significant planning factors include the number and type of weapons, the transport mode, the plutonium dispersal mechanism, threats, the length of movement, bilateral agreements with Allies, the additional factors detailed in paragraph 2.b. of this enclosure, and, for ground transportation, the additional factors in paragraph 2.d. of this enclosure. The balance of safety and security concerns must be reevaluated when the factors affecting the safety or security of the operation change significantly.

(3) Each transport mode has unique advantages. Certain transport modes are not usable for particular transport operations. Minimum essential navigation and communication equipment, as specified by the applicable Military Department, must be available and operable aboard the transport carrier or the transport operation shall be terminated.

(4) Within allowable safety limits, DoD transportation of U.S. nuclear weapons may be combined with other transport operations. When space is available, compatible opportune cargo may be carried. Airlifting opportune cargo during transportation of nuclear weapons operations is not permitted if doing so might necessitate additional landings, delaying or rerouting the mission, or require additional in-flight refueling of the aircraft due to the extra weight. Airlifting passengers, except those directly associated with the nuclear weapon transportation operation, is not authorized.

b. The Military Department concerned shall certify and periodically recertify procedures, equipment, and facilities involved in DoD transportation of U.S. nuclear weapons. The procedures for certification shall be documented in Military Department regulations and in Military Department and Joint Nuclear Weapons Publication System (JNWPS) Technical Publications (TPs), when applicable.

(1) The Military Departments shall provide properly certified handling and support equipment, as determined by the Military Department, at departures and destinations. Certification must be complete before use in a nuclear weapons movement.

(2) Nuclear weapons must be loaded and unloaded through military terminal facilities that have been nuclear-certified by the Military Departments.

(3) When previously certified procedures, equipment, or facilities are modified significantly, recertification in accordance with Reference (d) shall be required before transportation of nuclear weapons may resume. The Military Departments shall notify the Office of the ASD(NCB) of the decertification of a class of transport carriers no later than 30 days after decertification.

c. The Military Departments shall train and certify personnel and organizations involved in DoD transportation of U.S. nuclear weapons for the activities they perform.

(1) Certification of personnel shall be accomplished in accordance with paragraph 2.c. of this enclosure, DoD Instruction 5210.42 (Reference (~~am~~)), and JNWPS TP 45-51B (Reference (~~en~~)). The number of personnel involved in DoD transportation of U.S. nuclear weapons shall be kept to the minimum necessary for effective operations. Those personnel accompanying transportation of nuclear weapons shall be capable of temporarily assuming the duties of other personnel, should they become incapacitated.

(2) Certification of organizations shall be based on successful completion of inspections conducted under the NWTI system.

d. For an accident or significant incident during the DoD transportation of U.S. nuclear weapons, emergency response procedures shall be executed in accordance with DoDD 3150.08 (Reference (~~po~~)) and DoD ~~3150.8-M~~ *Manual 3150.08* (Reference (~~qp~~)).

## 2. TRANSPORTATION ACTIVITIES

### a. DoD Nuclear Transportation Activities

#### (1) All Activities

(a) The JNWPS provides guidance and certified procedures for conducting activities with nuclear weapons. Reference (~~en~~) and JNWPS TPs 45-51 and 45-51A (References (~~fq~~) and (~~sr~~)) provide technical guidance and detailed information on procedures and activities for the transportation of nuclear weapons. JNWPS TP 100-4 (Reference (~~ts~~)) provides procedures for custody, accountability, and control. The relevant JNWPS and Military Department TPs provide procedures for specific weapons.

(b) When conducting nuclear transportation activities, a system of communications shall be maintained, with multi-frequency capability, among the responsible commander (through a communications control center), the courier, and security personnel. Specific communications requirements are dependent on the transport carrier in use and shall be determined in accordance with applicable Military Department regulations. If an emergency

requires an immediate landing and the aircraft commander must choose between communication security and flight safety, safety shall take precedence.

(2) Logistic Transportation. The Military Departments and Combatant Commands shall conduct logistic transportation operations of nuclear weapons in DoD custody in accordance with this Instruction; References (e), (f), (~~en~~), (~~fq~~), (~~sr~~), and (~~ts~~); Volume 3 of Reference (g); and their internal Department and Command instructions. Logistic transportation shall be accompanied by a courier appointed or designated by the applicable DoD Component. The designated courier shall be responsible for custody and control of the weapons during the transport operation pursuant to References (~~fq~~) and (~~ts~~).

(3) Operational Transport. The Military Departments shall conduct operational transport operations in accordance with their internal Department instructions. Operational transport shall be guided primarily by the operational plans of the responsible Military Department or Combatant Command and relevant TPs, and shall be responsive to the assigned mission and the urgency of the operational situation.

(4) Emergency Logistic Movement. Pursuant to Reference (~~fq~~), the Secretary of the Navy, the Secretary of the Air Force, and the Combatant Commanders have authority to order emergency movement of nuclear weapons. Exercise of emergency movement authority is restricted to situations wherein the safety, security, or control of nuclear assets is endangered, or when emergency logistic transportation is dictated by a pending regional or world crisis or natural disaster (e.g., earthquake).

b. Transportation Planning Factors

(1) Planning for DoD transportation of U.S. nuclear weapons operations requires consideration of numerous factors. In addition to the general factors in subparagraph 1.a.(2) of this enclosure, they include the military requirement necessitating a movement (e.g., operations, routine maintenance, political agreement, treaty obligation, retirement) and the applicable nuclear weapons transport policies and requirements. The applicable policies and requirements may include:

(a) Military Department-level issuances that implement DoD transportation, safety, and security policies.

(b) References (e) through (h), Reference (~~kj~~), or other publications (including Reference (~~fq~~)), when applicable.

(2) Factors involved in planning for a specific nuclear weapon movement may include:

(a) Safety, known and potential safety risks, available positive safety measures, and the safety factors in section 3 of this enclosure.

(b) Security, security threats (including those identified in current intelligence estimates of the general and local threats to the point of origin, routes, en-route stops, and

destination of the transport operation), available positive security measures and resources, and the security factors in section 4 of this enclosure.

- (c) Potential tradeoffs between safety and security for each transport segment.
- (d) High explosives associated with the weapon, including IHE. (See paragraph 4.g. above the signature for policy associated with movement of nuclear weapons that contain high explosives other than IHE.)
- (e) Plutonium content of the weapon being transported. Minimum spacing, numerical limits, and plutonium limits must be observed during the transport of nuclear weapons. (See JNWPS TP 20-7 (Reference (~~u~~)) for additional details.)
- (f) Abnormal environments that may be encountered during the logistic transportation operation and available countermeasures to mitigate those environments.
- (g) Accident response measures, the source and availability of emergency assistance, and the roles and missions of the DoD Components and other U.S. Government departments and agencies in responding to an accident involving a nuclear weapon. (See References (~~o~~) and (~~p~~) for additional details. See JNWPS TP 20-11A (Reference (~~u~~)) for technical procedures for fire-fighting operations.)
- (h) The compatibility of the nuclear weapon with dangerous materials or other non-nuclear cargo. (See Reference (~~q~~) for additional details.)
- (i) The level and nature of training of personnel involved in transport-related activities. (See Reference (~~q~~) for additional details.)
- (j) The communications capabilities associated with various transport modes.
- (k) The characteristics of the available logistic transportation operation carriers.
- (l) The availability and location of alternate or emergency airfields and SAFE HAVEN installations.
- (m) The availability of certified materiel handling and support equipment at origin and destination locations.
- (n) Resource availability, including the availability of transport carriers, personnel, containers, funding, and DOE support (if required).
- (o) Schedule and timing of transportation of nuclear weapons operations.
- (p) Cost.

(3) The Military Department gaining custody shall be responsible for funding transportation of nuclear weapons between DoD Military Department locations. The Military Department performing the operation shall be responsible for incidental costs of the transport operation. (See Reference (¶q) for additional details about funding transportation of nuclear weapons operations.)

c. Transportation Training. Personnel involved in the transportation of nuclear weapons must be trained and certified to perform assigned tasks in accordance with DoD and Military Department issuances.

(1) Certification of personnel shall be accomplished through formal training, on-the-job training, evaluations of individual technical proficiency to meet relevant Military Department standards, and participation in the Personnel Reliability Program (PRP) in accordance with Reference (¶m). Training should include the subject areas applicable to individual personnel duties. A partial list of applicable subject areas is provided in Reference (¶n).

(2) Personnel shall complete training, and shall receive designation and certification of proficiency, before assignment to duties in logistic transportation operations. Personnel may accompany transportation of nuclear weapons operations for training purposes, but will not perform transportation duties before their proficiency certification.

d. Joint DoD-DOE Transportation Activities. DTRA, the Military Departments, and the DOE National Nuclear Security Administration (NNSA) Service Center, Albuquerque, New Mexico, routinely coordinate to effect the transfer of nuclear weapon custody between DoD and DOE, and to schedule the use of DOE safeguards transporters (SGTs) for the surface movement of nuclear weapons in the continental United States (CONUS).

(1) DOE conducts the majority of ground transportation of nuclear weapons in CONUS for DoD. The Office of Secure Transportation (OST), DOE Albuquerque Field Office, is responsible for movements to and from military first destinations (MFDs) and from operational bases to storage and/or dismantlement locations on retirement. DOE may conduct movements from MFDs to operational bases or between operational bases for DoD on a reimbursable basis.

(a) OST maintains specially designed SGT and escort vehicles to conduct joint transportation of nuclear weapons.

(b) Reference (¶q) addresses coordination between DoD and DOE for the planning and conduct of joint transportation of nuclear weapons. Planning for ground logistic transportation should include convoy procedures; adequate handling and support equipment at departure and destination points; and coordination with U.S. Government intelligence agencies and Federal, State, tribal, and local law-enforcement agencies, as applicable.

(2) Direct communication between DoD and DOE personnel engaged in transportation of nuclear weapons is authorized in an impending or en-route movement, and when necessary to facilitate such movements.



(3) DOE retains custody of nuclear weapons during SGT transport operations until such custody is formally transferred to an authorized DoD recipient. The applicable DoD certifying official shall identify the DoD-authorized recipient, in writing, to the DOE courier before the transport operation begins.

(4) When a DOE transportation convoy is on a DoD installation, DoD shall provide support in accordance with Reference (¶q). The security of DOE convoy vehicles and their contents is a dual-agency responsibility while on DoD installations except as specified in Reference (¶q).

e. SAFE HAVEN for DOE Transport Convoys

(1) All DoD installations shall be available to provide SAFE HAVEN support to authorized DOE couriers transporting DOE cargo, i.e., nuclear weapons, nuclear weapon components, SNMs, or other classified materials. The mission, the operational situation, and the capabilities of the DoD installation will determine the extent of the support provided. Terms of SAFE HAVEN support are described in Reference (¶j).

(2) When a decision is made to seek a SAFE HAVEN, DOE shall *be required to* provide all pertinent information related to the request to the installation involved, either directly or through the DTRA Operations Center.

(3) In a SAFE HAVEN event, pursuant to Reference (¶j), DoD shall:

(a) Provide a temporary holding area for DOE transport carriers and their cargo.

(b) Assume temporary responsibility for the security of the transport carriers and cargo if DOE couriers become incapacitated.

(c) Provide security, fire-fighting, medical, communications, and logistic support, and any other emergency assistance available. In the event of an accident, DOE shall retain the lead coordinating agency responsibilities.

(4) DOE shall *be required to* remove the shipment from the DoD SAFE HAVEN as soon as possible.

3. TRANSPORTATION SAFETY

a. DoD Nuclear Weapon System ~~Safety Surety~~ Standards (NWSS). *NWSS DoD nuclear weapon system surety standards* specified in Reference (f) shall serve as the foundation for all *NWSS nuclear surety* matters to ensure that positive measures are in place to:

(1) Prevent nuclear weapons involved in accidents or incidents, or jettisoned weapons, from producing a nuclear yield.

(2) Prevent deliberate pre-arming, arming, launching, or releasing of nuclear weapons, except upon execution of emergency war orders or when directed by competent authority.

(3) Prevent inadvertent pre-arming, arming, launching, or releasing of nuclear weapons in all normal and credible abnormal environments.

(4) Ensure adequate security of nuclear weapons, ~~pursuant to~~ *as governed by* Reference (e).

b. Safety Studies (SS) and Operational Safety Reviews (OSR). Safety is evaluated throughout the life cycle of a nuclear weapon from concept development through retirement and return to DOE for final disposition. The Military Departments shall perform SS and OSRs in accordance with Reference (d). Detailed procedures for safe logistic transportation and additional information on safety-related considerations in the planning and execution of transportation of nuclear weapons can be found in applicable JNWPS TPs.

c. Transportation Safety Assessments

(1) The DoD Components shall conduct safety assessments of nuclear weapon transport operations other than those described in section 3.b. of this enclosure, as applicable. In some circumstances, safety assessments may be conducted with security assessments to evaluate tradeoffs between safety and security considerations.

(2) Nuclear weapon transportation safety assessments require detailed consideration of a number of factors. Suggested considerations when conducting transportation safety assessments are:

(a) Data. No major nuclear-related accidents have occurred with any carrier currently in use for nuclear weapon movements. Transportation safety assessments may include data from the nonnuclear operations of those transport carriers to estimate accident probability. Screening the data for applicability using statistical and other analytical methods may reduce the uncertainty in those estimates.

(b) Transportation System and Transport Operation Features. These include the number and types of weapons being transported, number of trips required, physical features of transport carriers, safety procedures, and communications. Additionally, the specific safety features of the transportation system should be considered.

(c) Causes of Accidents. Each Military Department should identify potential hazards relevant to their unique operating environment.

(d) Transportation Requirements. Logistic transport of nuclear weapons from origin to destination may require movements over intermediate route segments, and may involve more than one type of transport carrier as well as multiple trips. Each route segment of a nuclear weapon transport operation shall be evaluated, as well as the length and number of segments.

(e) Accident Event Sequences. A generic event sequence for a nuclear weapon transport accident will consist of the initiating event; the occurrence of a specific accident environment (e.g., fire, impact, crush, puncture, electrical, or combinations of those); the involvement of a weapon or weapons in the accident environment; the severity of the environment; and the response of the transport carrier and weapons to the environment. Each event in the sequence should be evaluated for its potential impact on weapon safety.

(f) Response of Weapons to Specific Accident Environments. This may be dependent on the characteristics of the weapon, on the severity of the environment, or on both. Further, the response of nuclear weapons may be different at different severity levels of the same environment.

(g) Probability of Combined Environments. Transportation safety assessments shall consider the potential for combined accident environments, such as simultaneous crush and fire, or for a sequence of environments, such as impact followed by fire.

(h) Potential Accident Consequences. Transportation safety assessments shall consider both the radiological consequences of a plutonium dispersing accident and nonradiological consequences, as indicated in Reference (u). Those assessments should take into account population density, topography, wind direction, and other meteorological conditions, as applicable at arrival and departure points; weapon high-explosive-charge-to-plutonium-mass ratio; presence of high explosives other than IHE; and administrative, operational, cost, regulatory, and other impacts on DoD resulting from Government and/or public reaction to an accident.

(i) Mitigating Measures. Applicable positive safety measures and accident-mitigating measures should be taken into account, including special nuclear weapon procedures and precautions (e.g., special maintenance practices, crew selection, preparation of the transport carrier, and operating restrictions); weapon design features; and safety features organic to the transport carriers (e.g., associated fire-fighting capabilities).

#### 4. TRANSPORTATION SECURITY

##### a. DoD Nuclear Weapon Security Procedures

(1) Pursuant to Reference (e), the objective of the DoD Nuclear Weapon Security Program is to deny unauthorized access to nuclear weapons; to prevent damage, sabotage, or loss of custody of nuclear weapons; and, to the maximum extent possible, to prevent radiological contamination caused by unauthorized acts.

(2) Volumes 1, 2, and 3 of Reference (g) specify transportation of nuclear weapons operation security requirements, including procedures for nuclear weapon protection; custody and control; access; personnel; assessments, evaluations, and inspections; weapon storage areas and facilities; and structure and building security.

(3) Volume 3 of Reference (g) specifies transportation of nuclear weapons movement security requirements, including transportation protection system components; policy and planning considerations; command and control; information control; malfunctions; and hazardous conditions, accidents, incidents, and personnel.

(4) Personnel selected to perform transportation of nuclear weapons must demonstrate individual reliability in terms of allegiance, trustworthiness, conduct, and behavior in accordance with the PRP as specified in Reference (~~h~~m).

b. Transportation Security Assessments

(1) Volume 1 of Reference (g) assigns responsibilities for conducting threat and risk and/or vulnerability assessments under the DoD Nuclear Weapons Security Program.

(2) The DoD Components may conduct transportation security assessments in addition to the security assessments described in paragraph 4.a. of this enclosure, as applicable. In some circumstances, those assessments may be conducted in conjunction with safety assessments to evaluate tradeoffs between safety and security considerations. Transportation of nuclear weapons security assessments shall consider various factors, many of which are similar to safety assessment considerations in planning a specific logistic transportation operation. Factors may include adversary group objectives, adversary group tasks, adversary group capabilities, transportation system and transport operation features, presence or absence of an insider, consequences of successful attack or incident, transportation requirements, weapon configuration, and mitigating measures.

5. USE CONTROL DURING TRANSPORTATION OF NUCLEAR WEAPONS

a. Control Procedures for DoD Transportation of Nuclear Weapons

(1) The DoD Components involved in logistical transportation shall follow the DoD nuclear weapon use control procedures and requirements in References (h) and (~~h~~q) and CJCS Instruction 3260.01B (Reference (~~h~~v)).

(2) Protection for all nuclear weapon systems shall incorporate policies, procedures, and equipment in a layered approach of physical security, information security, personnel actions, procedures, and weapon-design features.

(3) Positive measures shall be taken to maintain control of all U.S. nuclear weapons during all phases of their life cycle. Use control measures shall include, but shall not be limited to, measures for control of storage facilities, equipment and devices, communication systems, personnel, and procedures. The implementation of such measures shall prevent unauthorized access to nuclear weapons and prevent unauthorized use of nuclear weapons.

(4) While in transit, individual weapons equipped with coded control devices, or multiple weapons loaded on launchers applicably equipped for coded control, shall be locked at all times except for authorized maintenance, testing, and operations.

(5) Jettisoning of nuclear weapons during transport shall be done in accordance with References (h), (~~m~~), and system safety rules.

b. Weapon Transport Control Requirements

(1) Use control equipment and devices should not be deactivated during transportation of nuclear weapons unless specifically authorized by the Secretary of the Navy, the Secretary of the Air Force, or the Combatant Commander exercising operational control, as appropriate. Remote controllers are not required for CONUS operations. Elsewhere, remote controllers shall be connected to associated weapons during transportation of nuclear weapons only when threat assessments indicate such action may be prudent.

(2) Command disable procedures shall be conducted in accordance with Reference (h).

(3) Shipping organizations shall ensure that nuclear weapons or associated command disable system (CDS) controllers have a classified shipping or operational CDS code for transport.

(4) Knowledge of CDS codes shall be restricted to the minimum number of personnel required to produce the codes or code the weapons or controllers. No other personnel shall be provided access to the codes before receipt of an order to disable.

(5) References (~~q~~), (~~s~~), and individual weapon TPs contain detailed information on CDS. Command disable code preparation and security shall be conducted in accordance with Reference (~~v~~).

GLOSSARY

PART I. ABBREVIATIONS AND ACRONYMS

ASD(NCB)	Assistant Secretary of Defense for Nuclear, <del>and</del> Chemical, and Biological Defense Programs
CDS	command disable system
CONUS	continental United States
DASD(NM)	Deputy Assistant Secretary of Defense for Nuclear Matters
DoDD	DoD Directive
DOE	Department of Energy
DTRA	Defense Threat Reduction Agency
IHE	insensitive high explosive
JNWPS	Joint Nuclear Weapons Publication System
LLC	limited-life component
MFD	military first destination
NNSA	National Nuclear Security Administration
NTWG	Nuclear Transportation Working Group
<del>NWSS</del>	<del>Nuclear Weapon System Safety Standards</del>
NWTI	Nuclear Weapon Technical Inspection
OSR	operational safety reviews
OST	Office of Secure Transportation
PRP	Personnel Reliability Program
SGT	safeguards transporter
SNM	special nuclear material
SS	safety studies

TP	technical publication
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USEUCOM	U.S. European Command
USSTRATCOM	U.S. Strategic Command
USTRANSCOM	U.S. Transportation Command

## PART II. DEFINITIONS

These terms and their definitions are for the purposes of this Instruction.

abnormal environment. An environment as defined in a weapons stockpile-to-target sequence and military characteristics in which the weapon is not expected to retain full operational reliability.

CDS code. A code placed in a weapon or controller that allows the command disablement of the weapon to be initiated.

certification. When used in the context of weapon and carrier systems, the authorization to use the designated system within the specified limits.

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

delivery vehicle. The portion of a weapon system that delivers a nuclear weapon to its target, usually a missile or aircraft.

emergency logistic movement. The movement of a nuclear weapon in response to an unanticipated event such as a disaster (natural or man-made) or civil unrest. Emergency logistic movement includes, but is not limited to:

Movement of nuclear weapons between weapon storage facilities for military contingency or logistic supply during periods of political or military tension.

Emergency evacuation of nuclear weapons under conditions such that noncompliance with portions of the nuclear and flight safety regulations is the only alternative to destruction or loss of a weapon.

Movement of nuclear weapons when conditions suggest the possibility of an accident related to natural causes (e.g., a tsunami, earthquake, or volcanic activity).

IHE. High explosives that require a shock of more than usual strength to cause detonation. This relative insensitivity contributes to weapon safety.

LLC. A nuclear weapon component that deteriorates in some respect over time and must be replaced periodically during weapon stockpile life. Principal classes of LLCs are reservoirs, neutron generators, and parachutes.

logistic transportation. The safe and secure movement of nuclear weapons in DoD custody from secure storage at one location to another secure storage location. Logistic transportation of U.S. nuclear weapons includes:

Movements to and from MFDs, operational bases, or storage facilities.

Movements between operational bases and storage locations.

MFD. Designated CONUS military locations that receive and accept into the DoD stockpile, direct shipments of nuclear ordnance materiel from the DOE contractor plants.

military requirement. An established need justifying the transport of a nuclear weapon to accomplish approved logistic actions such as deployment, maintenance, quality assurance and reliability testing, or retirement.

normal environment. The expected logistic and operational environments, as defined in a weapons stockpile-to-target sequence and military characteristics, which the weapon is required to survive without degradation in operational reliability.

nuclear weapon. A nuclear explosive configured for DoD use.

nuclear weapon movement. The phase of a transport operation in which a nuclear weapon is physically conveyed from one location to another location.

nuclear weapon system. A nuclear weapon and the means to deliver it to its target, with associated support equipment, facilities, procedures, personnel, and any vehicles peculiar to the system used for nuclear weapon transport.

nuclear weapons-related materiel. Classified or unclassified assemblies and subassemblies (containing no fissionable or fusionable material) identified by the Military Departments that comprise or could comprise a standardized war reserve nuclear weapon (including equivalent training devices) as it would exist once separated and/or removed from its intended delivery vehicle.

operational transport. The safe and secure movement of nuclear weapons and nuclear weapon systems conducted by the responsible DoD organization. Typically, operational transport is from secure storage to an operational delivery platform. Operational transport includes:

Aircraft generation (movements between storage location and operational aircraft).

Missile generation (movements between storage at operational bases and launch facilities).



Ballistic missile submarine load-out (movements between storage location and operational ballistic missile submarine or from ballistic missile submarine-to-ballistic missile submarine).

Movements between operational bases and forward-deployed sites.

positive measures. Design features, safety rules, procedures, or other controls, including physical security and coded systems, used collectively or individually, to reduce the likelihood, severity, or consequences of an accident, unauthorized act, or deliberate threat involving a nuclear weapon or nuclear weapon system.

SAFE HAVEN. Temporary storage provided to DOE classified shipment transporters at DoD facilities in order to assure safety and security of nuclear material and/or nonnuclear classified material during civil disturbances, natural disasters, and/or other conditions that could affect the safety or security of the DOE shipment. The particulars of the storage are established in Reference (k).

safety. The positive measures used to protect public health and the environment from accidental or inadvertent actions involving nuclear weapons that may result in detonation (high explosive or nuclear) or in dispersal or release of hazardous or radioactive materials.

SNM. Plutonium and uranium enriched in the 238 or 235 isotope, respectively, and any other material that the DOE determines to be SNM. Does not include source material.

transport carrier. A specific, certified means of conveying a nuclear weapon from one location to another location.

transport mode. The type of conveyance (e.g., air, water, or ground) used to move a nuclear weapon from one location to another location.

use control. The control of unauthorized use or detonation of a nuclear weapon. Includes passive and active protection, and disablement systems.