CDC 2W251A

Nuclear Weapons Journeyman

Volume 1. Nuclear Weapons Management and Responsibilities

Air Force Career Development Academy

Air University

Air Education and Training Command

2W251A 01 1905, Edit Code 06

AFSC 2W251

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AS A NUCLEAR weapons journeyman, you are responsible for assembling, testing, maintaining, and modifying nuclear weapons and related test and handling equipment. The knowledge and skills needed in this specialized field are listed in the 2W2X1 Career Field Education and Training Plan (CFETP). We provide the information you need for upgrade in each required Specialty Training Standard (STS) item of the CFETP in this career development course (CDC). This CDC consists of an A package (covering general information and standard maintenance procedures) and a B package (covering handling and weapon-specific procedures). After successfully completing the four volumes and end-of-course exam for Course A, you will receive Course B to complete. Your supervisor will teach you the skills required to apply this information on the job.

Unit 1 of this volume covers the interaction between various government organizations and sub-level agencies involved within the nuclear community. Unit 2 familiarizes you with the security program and its relationship to the nuclear program. Finally, Unit 3 discusses the importance of nuclear surety to include the various programs to ensure surety around nuclear weapons.

Volume 2 covers safety, forms, technical orders (TO), and nuclear theory. It provides you with the necessary background information to perform your duties as a nuclear weapons technician. This volume also presents safety areas that apply most frequently to the 2W251 Air Force specialty code (AFSC) and points out how hazards can be eliminated or lessened.

Volume 3 covers general procedures that encompass tasks and tools used in support of weapon operations and test and handling equipment. It covers general and special cleaning procedures, surface preservation, and repair. This volume is about standard procedures that you will use daily during maintenance operations.

Volume 4 covers general and special test and handling equipment (T&H) procedures.

A glossary included for your use.

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NOTE:

In this volume, the subject matter is divided into self-contained units. A unit menu begins each unit, identifying the lesson headings and numbers. After reading the unit menu page and unit introduction, study the section, answer the self-test questions, and compare your answers with those given at the end of the unit. Then complete the unit review exercises.

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Unit 1. Nuclear Weapons Career Field and Management

AT 0815 ON THE MORNING OF 6 AUGUST 1945, the sky over Hiroshima, Japan, erupted into a blinding flash of light. A B–29 flying at 31,000 feet had just released the most devastating weapon ever used in war—the "Little Boy," a gun-type atomic weapon. Nagasaki, Japan, fell victim to a similar fate 3 days later when the "Fat Man" was detonated; 2 days after the Nagasaki bombing, the Japanese unconditionally surrendered ending the war in the Pacific.

These events changed the course of the world and revolutionized war. America became a superpower, but with this power came enormous responsibility. We had to make sure it never became necessary to repeat these events. In doing so, nuclear technology had to be fully developed to deter aggression from any other nuclear superpower. This created a whole new type of war—a "cold" war—that led to the creation of a massive United States (US) stockpile of nuclear weapons. The response to this Cold War gave rise to a completely new industry and related political structure. Over the years, we have drawn down our stockpile considerably. We now maintain far fewer weapons. However, the immense support structure and maintenance-related operations created over the years largely remain intact. This unit covers today's nuclear weapons community and how it functions. It covers the total spectrum—from the top, right down to you.

1–1. Nuclear Weapons Organizations

In this section, you will learn about the relationship between the Department of Defense (DOD) and the Department of Energy (DOE). The first lesson discusses how DOD and DOE participate jointly in an effort to ensure the safety, security, reliability, and control of nuclear weapons, ultimately enforcing "nuclear surety." In addition, we'll cover the two departments and their respective sub-agencies responsibilities for nuclear management. Continuing with the nuclear management concept, the next lesson discusses the different levels of maintenance organizations and some of your squadron's basic functions that help carry out your unit's mission. The last lesson in this section concludes our coverage of nuclear management with a discussion about the inspection and evaluation side of being a nuclear weapons technician.

001. Department of Energy

In 1977, President Jimmy Carter signed the Department of Energy Organization Act, which centralized our nation's energy policies into one presidential cabinet-level department. This act gave the DOE responsibility of design, production, assembly, disassembly, surety technology, dismantling, and control of nuclear weapons and materiel. In essence, the DOE "owns" the nuclear weapons, which are placed in the custody of the DOD for employment if necessary. To assist with this responsibility, the DOE created the National Nuclear Security Administration (NNSA) to handle nuclear matters.

The National Nuclear Security Administration

The NNSA ensures the nation sustains a safe, secure, and effective nuclear deterrent through the application of science, technology, engineering, and manufacturing. To deal with the changing face of nuclear deterrence and more-widely dispersed nuclear knowledge, NNSA also ensures the US maintains excellence in nuclear science and technology that is second to none. Within the nuclear security enterprise, its central mission includes maintaining the active stockpile, life extension programs (LEP), and weapons dismantlement. This is referred to as the Stockpile Stewardship and Management Program. Several agencies have departments controlled by the NNSA. Each agency has a wide range of responsibilities and different missions. We will briefly describe these responsibilities and missions as they pertain to the sustainment and management of our nuclear enterprise in the following table and figure 1–1 below.

National Nuclear Security Administration Agencies	
Agency	**Description**
National Laboratories	
Los Alamos National Laboratory (LANL)	LANL, located in Los Alamos, New Mexico, is responsible for the safety, security, and effectiveness of the nuclear explosive package in nuclear weapons by using essentially all the physical sciences. This is part of their stockpile stewardship program. LANL developed and tested the world's first fission bomb (Hiroshima bomb) and the first thermonuclear device. It is the design agency for the W76/W88 submarine-launched ballistic missile warheads, the W78 intercontinental ballistic missile (ICBM) warhead, and the B61 gravity bomb. These four systems constitute 80 percent of the nation's on-alert nuclear deterrent.
Lawrence-Livermore National Laboratory (LLNL)	LLNL, located in Livermore, California, is like LANL—both are responsible for the safety, security, and effectiveness of the nuclear explosive package in nuclear weapons. Additionally, the LLNL supports surveillance, assessment, and refurbishing of the nuclear weapons stockpile. It is the design agency for the B83 gravity bomb and the W87 warhead.
Sandia National Laboratories (SNL)	The primary mission of SNL, located in Albuquerque, New Mexico, is ensuring the US nuclear arsenal is safe, secure, and reliable, and can fully support our nation's deterrence policy. Sandia is the engineering arm of the US nuclear weapons enterprise. It weaponizes the nuclear explosive package to create an effective and sustainable nuclear deterrent. Sandia's foundation is science-based engineering, in which fundamental science, computer models, and unique experimental facilities come together so researchers can understand, predict, and verify weapon systems performance. SNL also provides research, development, testing, and production of specialized nonnuclear components.

National Nuclear Security Administration Agencies	
Agency	**Description**
Other Agencies	
Nevada National Security Site (NNSS)	Located deep in the Nevada desert, the NNSS was the site of numerous nuclear tests from 1951 to 1992. On 23 September 1992, the NNSS conducted Operation Julin—its last underground nuclear test. Since then, the site conducts electrical-hazard operations, conventional explosive experiments, and nuclear simulations. While nuclear testing is *no*t currently conducted, the NNSS continues to maintain the capability for resuming testing should the president of the United States (POTUS) deem it necessary to actively resume nuclear testing.
Pantex plant	The Pantex plant is located outside the city of Amarillo in the panhandle of Texas, hence the name *Pan–Tex*. It is responsible for evaluating, retrofitting, repairing, and refurbishing weapons in support of LEPs and weapon safety and reliability certification. The plant's functions include developing, testing, and fabricating high-explosive components for use with nuclear weapons. Additionally, Pantex is also responsible for dismantling and demilitarizing retired, surplus, and unserviceable weapons. In 2011, this site dismantled the last of the B–53 bombs, which was one of the longest-lived nuclear weapons fielded by the US.
Y-12 National Security Complex (Y-12)	The Y-12, located in Oak Ridge, Tennessee, is considered the main storage facility for enriched uranium. Every weapon in the US nuclear stockpile has components manufactured, maintained, or ultimately dismantled by Y-12, the nation's Uranium Center of Excellence. This facility also focuses on the producing, reworking, and dismantling of weapon components and secondaries.
Savannah River Site	This 310-square-mile site, located 10 miles from Jackson, South Carolina, is DOE's principal source of tritium processing. The facilities include nuclear production reactors, chemical separation areas, a uranium fuel-processing area, the Savannah River Laboratory, and support operations. Today its weapons production work is limited to tritium recovery from removed components, separating helium^3 from the recovered tritium, and loading new reservoirs with fresh tritium. The tritium extraction facility at the Savannah River Site is the only source of new tritium for the US nuclear weapons stockpile.
National Security Campus	Operated by Honeywell, the principal mission of this facility is to produce and buy nonnuclear electrical, electronic, mechanical, plastic, and non-fissionable metal components for the weapon programs. Production activities include fabricating complex and reliable parts that meet the strict standards for nuclear weapons components and assemblies.

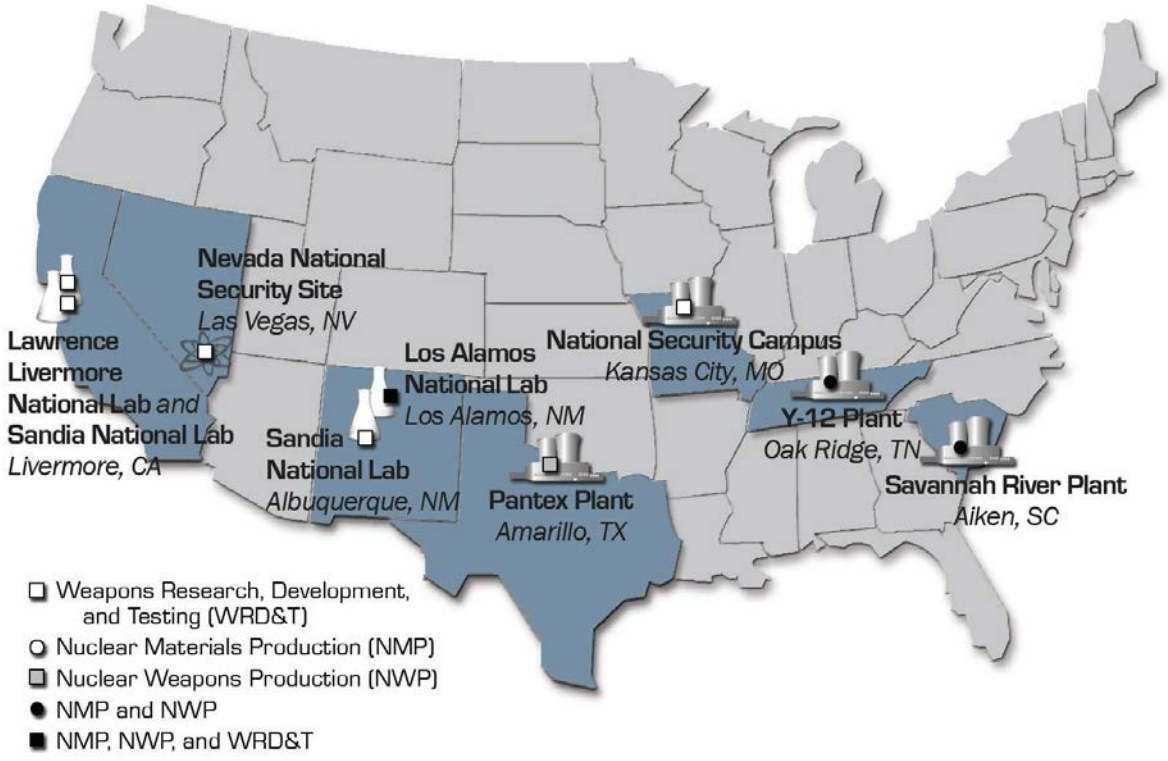

Figure 1–1. DOE locations map.

Office of Secure Transportation

In addition to managing eight DOE agencies, NNSA is also responsible for safeguarding and transporting nuclear weapons, components, and other sensitive materials between continental United States (CONUS) destinations. The Office of Secure Transportation (OST), headquartered in Albuquerque, New Mexico, is charged with this function.

OST is primarily responsible for the safe and secure transportation of special nuclear materiel within CONUS locations. Shipments are transported in highly modified secure trailers called safeguards transporters (SGT) and are escorted by armed federal agents. The Transportation and Emergency Control Center (TECC) is a nationwide communications system, which monitors the status and location and maintains real-time communications 24 hours a day, 365 days a year, with every convoy.

002. Department of Defense

After final production and certification from DOE, nuclear weapons are transferred to DOD as the new custodians. The first stop within DOD is called the military first destination (MFD). MFDs are designated CONUS military locations, which receive and accept weapons and components into the DOD stockpile. Once the weapons or components are accepted by an authorized DOD site, the DOD assumes responsibility for their safety, security, and reliability. This responsibility also includes accident prevention and emergency response. The various DOD organizations responsible for these activities are identified and their nuclear enterprise functions are briefly described in the following table.

Department of Defense Nuclear Enterprise Organizations	
Organization	**Description**
Secretary of Defense (SECDEF)	The SECDEF is the main defense policy adviser to the POTUS. The SECDEF is responsible for formulating all defense policies, including nuclear policy.

Department of Defense Nuclear Enterprise Organizations	
Organization	**Description**
Under Secretary of Defense for Acquisition, Technology, and Logistics (USD[AT&L])	The USD(AT&L) has oversight responsibility for: • Military installations and their environment. • Operational energy plans and programs. • Major weapon systems. • Missile defense programs. • Space and intelligence programs. • Nuclear, chemical, and biological defense programs, including Nunn-Lugar programs and the nuclear forces. This office approves the weapon system safety rules (WSSR).
Joint Chiefs of Staff (JCS)	The JCS represents the highest level of military input to the SECDEF and the POTUS. They advise the SECDEF and the POTUS on all military matters including nuclear weapons acquisitions and stockpile management. They develop military requirements; prepare strategic and joint war plans; and prepare short-, mid-, and long-range projections for nuclear warhead research and development programs. Additionally, the JCS also participates in nuclear weapons safety, security, use control, life extension, and stockpile management programs.
Defense Threat Reduction Agency (DTRA)	The mission of the DTRA is to safeguard the US and its allies from weapons of mass destruction by providing capabilities to reduce, eliminate, and counter the threat and mitigate its effects. It operates under the authority of the Assistant to the Secretary of Defense for nuclear, chemical, and biological defense programs. DTRA also manages the Defense Integration and Management of Nuclear Data Services (DIAMONDS)—a computer automated tracking and management information system DOD uses as the system of record for nuclear weapons stockpile, components, and related nuclear materiels. On behalf of the Chairman of the Joint Chiefs of Staff (CJCS), DTRA conducts defense nuclear surety inspection oversight (DNSIO) of nuclear weapons technical inspections (NWTI) on units with nuclear capabilities. DTRA also evaluates, tracks, and assigns DTRA unsatisfactory report (UR) numbers to discrepancies on weapons and DOE equipment.

003. United States Air Force

The United States Air Force (USAF) organizational structure contains various command levels ranging from the Headquarters, United States Air Force (HQ USAF) to base-level agencies with each level having distinct responsibilities. When each level performs its assigned duties, other agencies receive the support necessary to fulfill their specific missions.

Headquarters, United States Air Force

The responsibilities of HQ USAF include establishing basic concepts, policies, and systems implementing DOD control and reporting status on all nuclear weapons within the Air Force (AF). Departments within HQ USAF set maintenance and use control policy for nuclear weapons suballocated to the AF. They establish concepts and policies for:

- Missile and nuclear weapons inventory management, distribution, maintenance, and storage.
- Coordinating the war reserve (WR) munitions (MUNS) distribution plan.
- Budgeting and operations for nuclear weapons relative to Air Force instructions (AFI).

In addition, HQ USAF budgets for all nuclear-related items used to support the AF's mission.

Air Force Safety Center

The Air Force Safety Center (AFSEC) has many roles in ensuring safe operations regarding nuclear weapons. It establishes and executes mishap prevention programs and oversees all AF MUNS mishap reporting. This center also monitors the development of nuclear certified equipment and facilities whether it is a modification or a completely new facility or piece of equipment. This office oversees the Weapons Safety Investigations and Reports and issues 20 different safety AFIs including WSSRs. It provides explosive safety standards development and site reviews, weapons safety consultation and system inspection, oversight, education, explosive hazard classification, and Hazards of Electromagnetic Radiation to Ordnance (HERO) policy. Finally, it is also at the forefront of the AF nuclear weapons surety program.

Air Force Inspection Agency

The Air Force Inspection Agency (AFIA) oversees the nuclear surety inspections (NSI) on AF units. Additionally, AFIA conducts trend analysis, assesses corrective actions to findings, and provides finding status and metrics to personnel in the nuclear community.

Major commands

Each major command (MAJCOM) oversees its respective nuclear weapons employment, maintenance, and storage activities. MAJCOMs also represent each of their wings, groups, and squadrons in coordinating technical support and providing guidance on maintenance issues beyond unit capabilities. In addition, MAJCOMs identify unit taskings in the maintenance capability letters (MCL), ensure that units develop and use standardized training for all certifiable tasks, and review the Nuclear Weapons Training Program (NWTP) Course curriculum and tests to ensure consistency between units. There are four MAJCOMs that most technicians may encounter throughout their career: Air Education and Training Command (AETC), United States Air Forces in Europe (USAFE), Air Force Global Strike Command (AFGSC), and the Air Force Materiel Command (AFMC). These are briefly described in the following table.

AF Nuclear Affiliated Major Commands	
Command	**Description**
AETC	AETC is where every career begins. This command conducts initial, upgrade, and specialized weapons training to support field requirements. Airmen are taught basic maintenance skills and job knowledge in accordance with (IAW) the proficiency codes in the Career Field Education and Training Plan (CFETP). Upon graduation, Airmen are enrolled into the career development courses (CDC), which is used to upgrade technicians to achieve their journeyman and craftsman skill levels.
USAFE	USAFE manages MUNS stock within its command and develops plans to receive and support augmenting forces, should the need arise. USAFE also executes maintenance management decisions, guidance, and policies for dual-capable aircraft supporting the North Atlantic Treaty Organization (NATO) operations in coordination with the United States European Command (USEUCOM).
AFGSC	AFGSC develops management decisions, guidance, and procedures that allow our nuclear forces to achieve the highest level of surety, readiness, and productivity. It is charged with the CONUS nuclear deterrence missions. These missions include the bomber (B–2 and B–52), ICBMs, cruise missile, gravity nuclear weapon systems, and depot-level maintenance. AFGSC nuclear control point (NCP) is responsible for nuclear and logistics support for reentry systems (RS), gravity weapons, warheads, cruise missiles, and the Weapons Storage and Security System (WS3). It also serves as the primary point of contact on all matters pertaining to nuclear materiel management, weapons development, weapons maintenance, and stockpile stewardship.

AF Nuclear Affiliated Major Commands	
Command	**Description**
	Finally, it is the AF liaison to outside agencies for resolving weapons maintenance issues.
AFMC	AFMC is the lead command for system acquisition, sustainment, and integration. To handle this responsibility, AFMC employs the Air Force Nuclear Weapons Center (AFNWC) to carry out this tasking. The center has three execution directorates, one for ICBM systems, a second for air-delivered systems, and a third focused on nuclear technology and interagency engagement.

Numbered air force

A numbered air force (NAF) is a level of command directly under a MAJCOM. NAFs are tactical echelons that provide operational leadership and supervision. Many NAFs are responsible for MAJCOM operations in a specific geographic region or theater of operations. The two NAFs under AFGSC, described in the following table, are the ones you may encounter in your career.

Command	Description
Twentieth Air Force (20 AF)	20 AF manages the day-to-day ICBM alert force. It assists units with technical expertise to resolve weapon system issues and equipment shortages. Lastly, the 20 AF is a team member for the planning/execution/monitoring of ICBM-generation exercises and operations.
Eighth Air Force (8 AF)	8 AF commands and ensures readiness of assigned forces in preparation of an air war. In addition, the 8 AF provides nuclear weapons technical expertise and is a team member of the planning/execution/monitoring of nuclear bomber-generation exercises and operations.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

001. Department of Energy

1. For what is the NNSA primarily responsible?

2. What DOE agencies carry out NNSA's mission to manage the weapons stockpile?

3. What DOE agency was the site of numerous nuclear tests?

4. What is the Pantex plant responsible for?

5. What facility at the Savannah River Site is the *only* source of new tritium?

6. What DOE agency is responsible for the safe and secure transport of special nuclear materiel?

002. Department of Defense

1. After final production and certification from DOE, what is the first stop within the DOD called?

2. Who is the main defense policy adviser to the POTUS?

3. What does the JCS advise the SECDEF and POTUS on?

4. What is the mission of the DTRA?

5. What is DIAMONDS?

003. United States Air Force

1. The departments within HQ USAF establish concepts and policies for what three areas?

2. What AF agency monitors the development of nuclear certified equipment and facilities whether it is a modification or a completely new facility or piece of equipment?

3. What does the AFIA oversee?

4. Why do the MAJCOMs review the NWTP course curriculum and tests?

5. What command conducts initial, upgrade, and specialized weapons training to support field requirements?

6. What command executes policies for dual-capable aircraft in support of the NATO operations?

7. The AFGSC NCP is the primary point of contact for what?

8. What level of command is directly under a MAJCOM?

9. What NAF manages the day-to-day ICBM alert force?

10. What does the 8 AF command and ensure?

1–2. Duties of the 2W2X1 and Organizational Functions

In this section, we begin by discussing your duties as a 2W2X1. The remainder of the lesson focuses on the specific duties and the requirements to attain each skill-level as you progress through the career ladder.

004. 2W2X1 duties

The Air Force Enlisted Classification Directory (AFECD) is a guide that establishes the occupational structure of the entire enlisted force. It contains a complete duty description and responsibility of each specialty, but our focus is on the nuclear weapons career field. The following is an excerpt from the AFECD, which highlights a technician's responsibilities at the apprentice and journeyman level simultaneously.

- Inspects, assembles, disassembles, maintains, and modifies nuclear weapons, bombs, missiles, reentry vehicles (RV) and systems, launchers, pylons, penetration aids, and associated test and handling equipment. Troubleshoots and maintains test sets. Performs inspections and submits deficiency reports (DR) on faulty components. Writes reviews and recommends improvements to technical data and equipment.
- Stores, handles, and transports nuclear warheads, bombs, missiles, RVs and systems, penetration aids, and associated equipment. Inspects, maintains, and operates vehicles and MUNS material-handling equipment used to transport and handle nuclear weapons and components.
- Complies with nuclear, missile, explosive, and general safety measures; weapons systems safety rules; and technical orders (TO). Observes, complies with, and enforces two-person concept (TPC) and no-lone zone requirements. Performs emergency disablement or evacuation of nuclear weapons and components. Inspects, maintains, and develops rotation schedules for high-security locks and keys. Assists in performing operational checks on alarm systems. Stores, inspects, maintains, and uses small arms and ammunition. Performs escort duties. Performs limited conventional MUNS functions associated with NATO custodial detachments.
- Plans, organizes, directs, inspects, and evaluates nuclear weapon activities, and performs nuclear weapon functions. Plans, schedules, inspects, and evaluates nuclear weapon maintenance actions, including related components (to include nuclear weapons-related material) and specialized test and handling equipment. Performs maintenance reporting, weapons inventory, accountability, and verification procedures using the DIAMONDS computer system. Establishes production control, performance standards, and maintenance priorities. Coordinates maintenance actions with other maintenance and MUNS organizations. Ensures conformance to prescribed standards of quality, safety, and security. Conducts periodic inspections to provide assistance in solving maintenance and supply problems. Performs production and visual inspections.

With an understanding of the 2W2X1 duties and responsibilities, each skill level of the nuclear weapons career field must be mastered before proceeding to the next level. Every technician starts as an apprentice, or 2W231, and eventually advances to the 2W271 craftsman skill level. The following table shows the requirements of each skill level.

Skill Level	Requirements
Apprentice (2W231)	Technicians are awarded this skill level upon completion of the Nuclear Weapons Technical Training School at Sheppard AFB, Texas. Additionally, the career field manager has established a *minimum* passing score of 80 percent on all progress checks and exams in order to receive this skill level. Apprentices are authorized to wear the basic maintenance badge upon graduation from technical school.
Journeyman (2W251)	Technicians are immediately enrolled in the 2W251 CDC upon initial arrival to their first duty station. Apprentices are awarded the journeyman skill level once all 2W251 CDCs are complete and he or she is certified as a weapons maintenance team member for a minimum of 12 months on a weapons maintenance, mate/demate, or handling task; this experience may be cumulative providing the minimum time requirement is met. Transport certification will not suffice to meet this requirement. Additionally, all 5-level core tasks in the CFETP must be signed off in the training business area (TBA). Finally, supervisors must annotate the team member experience in the TBA journal entry as documented proof.
Craftsman (2W271)	Technicians are eligible for upgrade training to craftsman upon notification of being a newly selected staff sergeant (SSgt). Training starts on the first day of the first month of the SSgt promotion cycle in which they were selected. A technician certified as a weapons maintenance team chief (TC) for a minimum of 12 months on a weapons maintenance, mate/demate, or handling task; this experience may be cumulative providing the minimum time requirement is met. Transport certification will not suffice to meet this requirement.

Training business area

The TBA is a net-centric, Web-based application providing AF warfighters with global, real-time visibility into technical qualifications, certifications, and training status worldwide. TBA supports base-, wing-, and workcenter-level training management activities by automating training management business processes and procedures. This system is used to create a specific training plan unique to workcenter requirements called a master training plan (MTP). The MTP ensures 100 percent task coverage including skill-level upgrade requirements for technicians to transition from apprentice to journeyman and from journeyman to craftsman.

005. Maintenance organization

The AF holds wing commanders (WG/CC) responsible and accountable for mission results. The objective wing structure (one base, one wing, one boss) is designed to put responsibility, authority, and capability together. Although not a complete listing, in the following paragraphs we discuss some of the maintenance organization's basic functions to provide familiarization.

Wing commander

The WG/CC ensures that all individuals and organizations physically controlling, possessing, storing, and maintaining nuclear weapons account for these assets while in their custody. Other responsibilities of the WG/CC include:

- Appointing and certifying the munitions accountable systems officer (MASO). Also, appointing a minimum number of personnel to sign accountable documents on behalf of the MASO.
- Appointing the key and lock custodian to manage the high-security key and lock program.
- Designating units whose commanders may appoint individuals authorized to receive custody of nuclear weapons.
- Authorizing all nuclear weapons movement outside a restricted area.

Maintenance group commander

The maintenance group commander (MXG/CC) is the liaison between the WG/CC and the individual squadrons assigned to the maintenance group. Additionally, the MXG/CC does the following:

- Ensures the MAJCOM is notified of any significant maintenance related issues including units not meeting MCL requirements.
- Designates individuals who are authorized to order base and military spares and DOE-designed special equipment end items.
- Ensures an individual's handling, loading, or performing maintenance on nuclear weapons does *not exceed* 12 hours of continuous duty (may be waived up to a maximum of 16 hours) followed by a period which provides at least 8 hours of uninterrupted rest.
- Approves all requests to extend limited-life component (LLC) expiration dates to exceed established timelines for maintenance and to delay nuclear weapons repair actions and forwards the request to the MAJCOM.

Squadron commander

The MXG/CC holds the squadron commander (SQ/CC) accountable for all maintenance production within the unit. In addition, the SQ/CC does the following:

- Recommends qualifying personnel to fill the MASO position to the MXG/CC.
- Establishes the explosive safety, missile safety, and nuclear surety programs.
- Ensures all individuals receive training for missile and explosive academics, explosive and missile safety, nuclear surety, intrinsic radiation, and nuclear weapons-related materiel.
- Ensures emergency action procedures are published to cover severe weather conditions, explosive incidents and accidents, increased security conditions, and contingency support.

Operations officer/maintenance superintendent

The operations officer (OO)/maintenance superintendent (MX/SUPT) is responsible for the overall management of weapons activities and provides broad guidance. Responsibilities focus on the safe, secure, and efficient use of resources while maintaining the highest degree of weapons and MUNS capability, and reliability IAW all governing standards. The ultimate goal is maintaining a combat readiness capability commensurate with mission taskings. In addition, the OO/MX SUPT:

- Provides the overall daily and long-term production management of nuclear weapons.
- Chairs the weekly scheduling/production meeting and approves MUNS schedules.
- Appoints a qualified bay chief or above to evaluate rejectable or questionable defects to determine if operations can continue based on facts and circumstances.

Next, we'll discuss the different supervisory positions associated with each flight or section.

Flight commander/flight chief

The flight commander/flight chief is responsible to the OO/MX SUPT for the leadership, supervision, and training of all assigned personnel. In addition, the flight commander/flight chief:

- Appoints, in writing, instructors to sustain the NWTP.

- Rotates personnel to provide breadth of experience and job opportunities within the flight.
- Review quality assurance (QA) reports to identify trends, determine appropriate corrective actions, and prevent failures.
- Reviews the location inventory list (LIL) and LLC expiration forecast for assigned weapons. Submits requests to extend expiration dates and to perform LLC exchanges more than 6 months in advance of due date.

Section/element commander/noncommissioned officer in charge

The section/element commander/noncommissioned officer in charge (NCOIC) is responsible for the daily supervision of all maintenance personnel performing nuclear weapons maintenance as well as training of assigned personnel. In addition, the section/element commander/NCOIC:

- Ensures maintenance teams validate contents of each storage structure, bay, cell, or WS3 with MUNS control for all assets that were removed or secured prior to closing.
- Verifies accuracy of scheduled and unscheduled maintenance actions and applicable serial numbers on all work orders prior to initiation of the job.
- Provides direction to maintenance personnel, enforces standards, and decertifies substandard performers. Also ensures decertification actions are documented on the AF Form 623A, On-the-Job Training Record - Continuation Sheet.
- Ensure nuclear accountability and reporting section (NARS) is notified when movements change the DIAMONDS storage location and planning report, and notify MUNS control when TYPE Trainer movements change storage location in Combat Ammunition System (CAS).
- Ensure applicable maintenance-related nuclear reports are submitted IAW AFI 21–203, *Nuclear Accountability*, upon completion of the maintenance (e.g., work orders, inspection record card [IRC], custody transfer documents, maintenance activity reports [MAR], weapon information reports [WIR], URs, etc.).
- Ensure availability of current publications to meet workcenter needs and has a process to inform technicians on publication changes.
- Ensure repairs or modifications are not made to weapons or equipment unless authorized by UR/DR or Joint Nuclear Weapons Publication System (JNWPS) technical procedures.
- Ensure personnel maintain shelf-life items (e.g., lubricants, paint, etc.).
- Ensure maintenance activities listed in Air Force Manual (AFMAN) 21–200, *Munitions and Missile Maintenance Management*, are scheduled in the quarterly rolling forecast and weekly schedule.
- Ensure all personnel are certified prior to performing nuclear weapons maintenance, mate/demate, and handling tasks.
- Ensure team briefings are given before the start of any weapons operation.
- Perform proficiency checks as required.
- Ensure bay chiefs (BC) are able to meet all requirements.
- Ensure RS/RV nuclear weapons configuration records are uploaded into the Air Force Nuclear Weapons Center/ICBM Directorate (AFNWC/NIBF) SharePoint.
- Ensure a BC or above certifies nuclear weapons configuration records by signing and visually verifying the serial numbers and configuration of the RS, pylon, and launcher that reflect the association of warheads and component serial numbers.

Bay chief

The BC reports directly to the section/element commander/NCOIC and is responsible for safety, security, and reliability of nuclear weapons/systems maintenance operations. BCs are normally

graduated TCs in the rank of technical sergeant (TSgt) and are vectored by the enlisted development team (EDT) to fill those positions. They are also required to be fully job qualification standard (JQS) qualified on tasks they supervise. The BC may supervise multiple maintenance teams/operations simultaneously and do not have to be physically present at all times. The BC will comply with the following:

- Verify accuracy of scheduled and unscheduled maintenance actions and applicable serial numbers on all work orders prior to initiation of the work.
- Participate in developing and executing the quarterly rolling forecast and weekly schedule.
- Manage the maintenance production effort by assigning personnel to meet maintenance schedules.
- Ensure maintenance areas are prepared for the day's or shift's tasks prior to introducing nuclear weapons or commencing with maintenance activities.
- Ensure personnel are certified and current on proficiency checks prior to assigning tasks.
- Recommend to the section/element NCOIC substandard performers for decertification and remedial training.
- Conduct proficiency evaluations and monitor the safety of nuclear weapons/systems operations.
- Ensure TC submits all documents/reports upon completion of maintenance tasks (e.g., work orders, nuclear weapons configuration reports, IRCs, etc.).
- Provide technical guidance during fault isolations and troubleshooting procedures.
- Perform in-process inspections as required.
- Coordinate with MUNS control for aerospace ground equipment (AGE), vehicles, civil engineering support, etc., required to support nuclear weapons/systems maintenance.
- Ensure serviceable replacement components, Group X kits, or time compliance technical order (TCTO) kits are on hand, inventoried, and inspected to ensure serviceable assets are available for the maintenance task.
- Identify sole vouching authorities (SVA) for all exclusion areas under their purview.

Team chief

TCs are directly responsible for producing safe, secure, and reliable nuclear weapons maintenance activities. This is where the "rubber meets the road" in assuring nuclear surety within the community. In addition, TCs:

- Must be qualified and certified as a TC on tasks identified in the MCL.
- Stop tasks upon encountering an abnormal condition outside the scope of tech data or identifying a defect requiring rejection of a weapon or associated component. Up channel the condition to appropriate level of leadership for resolution before continuing the task.
- Verify source documents prior to performing maintenance tasks. For weapons receipt, verify weapon serial number with the DD Form 1348–1A, Issue Release/Receipt Document. For maintenance tasks, verify weapon serial number matches the source document and work order prior to starting the operation.
- Verify line numbers prior to starting operations with MUNS control and provide updates as changes occur including weapon status changes. Also notify MUNS control prior to starting (and upon completion of) explosive operations.
- Forward original certified nuclear weapon configuration records to the MASO.
- Enforce verbal demand response for all weapons tasks and ensure team members complete actions only as directed including enforcing TPC in no-lone zone areas.

For additional information on job positions within the squadron, refer to AFI 21–101, *Aircraft and Equipment Maintenance Management;* AFMAN 21–200; and AFI 21–204, *Nuclear Weapons Maintenance*.

Next, we'll discuss the different flights and sections and their respective roles.

Special weapons flight

The special weapons flight performs on-equipment and off-equipment maintenance on assigned nuclear weapons, missile, RS, RV, and associated equipment. The flight consists of weapons maintenance, NARS, missile maintenance, RV/RS maintenance, weapons support, and training. This is not a complete list; refer to AFMAN 21–200, AFI 21–203, and AFI 21–204 for additional information. The majority of units are set up in this hierarchy and described in the following table.

Special Weapons Flight Responsibilities	
Responsibility	**Description**
Weapons maintenance	Some of the weapons maintenance responsibilities include: • General maintenance (GM) tasks that include receipt and verification inspections; preparation for strike, storage, and shipment; bomb nose and/or tail removal/installation, and transferring to/from maintenance stands. Limited GM is limited to external maintenance only. • LLC exchange including removal/installation of all LLCs (except those associated with parachute exchanges), leak tests, and all disassembly *not* included in GM. • Parachute exchange to remove and install parachute. • RV assembly/disassembly and perform final assembly tests. • Weapons mate/demate of RV, payload, pylon, launchers, aft shroud, and RS. • Weapons handling to transfer weapons to/from forklift, jammer, vehicle, trailer, and remove/install tie-down devices. Also includes transporting weapons using tow vehicle or forklift.
NARS	NARS is the focal point for the accounting, administration, and management of nuclear accounts within the MASO's area of responsibility. The weapon reports from this office go through the DIAMONDS computer system and ultimately update the JCS. Some of the responsibilities include: • Maintaining accountable and auditable documents. • Performing document and stock control functions. • Excess item reporting and disposition of serviceable base and military spares; unserviceable reparable and consumable items; excess LLCs, Group X and retrofit kits, and expired items. • Process, post, and file receipt documents and shipping documents.
Weapons support	Weapons support does what the name implies, supports the squadron to accomplish its mission. Although each location may vary depending on its mission, some of the duties include: • Managing bench stock, consumable/expendables, shelf-life, and hazardous waste programs. • Monitoring the test, management, and diagnostic equipment including pickup and delivery. • Maintaining, storing, and repairing test, handling, and support equipment and hand tools.

Systems flight

The systems flight provides broad command and control, direction, and support for all MUNS activities including training, resources, MUNS information systems, and facilities. The flight consists of MUNS control, plans and scheduling (P&S), and training.

Munitions control

MUNS control, considered the nerve center of the squadron, is the focal point for planning, coordinating, directing, and controlling MUNS activities. MUNS control coordinates with outside agencies to ensure effective flow of information, scheduling, and use of available resources to accomplish the mission. Some MUNS control duties include:

- Develop, maintain, and use emergency action checklists. Ensure checklists involving explosive and nuclear operations are coordinated through wing safety and QA.
- Notify security forces, fire department, and other support agencies of any changes affecting the security, explosive classifications, fire symbols, or line numbers.
- Maintain maps showing entire storage area, explosive routes, evacuation routes, and sited explosive locations. Receive and validate maps though wing safety.
- Verify work orders against the approved schedule and Integrated Maintenance Data System (IMDS). Maintain status of explosive operations by job control number, location, description of operation, crew size, and start/stop/hold times.
- Use the nuclear munitions command and control (NMC2) system.

NMC2

The AFGSC is the lead command responsible for the NMC2. In addition, MUNS control uses the NMC2 to:

- Document all notifications to/from security forces and fire department.
- Track status of personnel, equipment, vehicles, facilities, work orders, retrofit orders, RSs, and DRs.
- Upload H1616 and H1700 container serial numbers, expiration dates, and content condition.

Plans and scheduling

P&S is the single point of contact for developing, coordinating, publishing, and distributing maintenance schedules. As its name implies, this section plans and schedules the maintenance of nuclear MUNS, missile maintenance, support equipment, handling equipment, and facility inspections. Additionally, P&S tracks work order completion and manages delayed discrepancy listing (DDL), awaiting maintenance, awaiting parts, and the TCTO programs.

IMDS

The IMDS is an on-line, base-level data system used to manage aerospace vehicles, maintenance equipment, and personnel resources. Within our career field, it is designed as a single source database for managing inspection intervals, maintenance and inspection history, condition/status, and work performed on all weapons system equipment and support equipment. For nuclear weapons, systems, and components, IMDS is used to direct maintenance and handling by documenting serial numbers in the Work Center Event narrative or discrepancy. The use of the support general work unit codes (WUC), as required, is authorized for weapon-specific handling and maintenance. IMDS is an unclassified system used to:

- Document initial and recurring weapons academic training.
- Track inspection and maintenance of weapons trainers *not* on custody accounts.
- Track deficiencies/historical documentation for TYPE 3E load shape/trainers since an IRC is *not* required.

- Manage inspection intervals, maintenance and history, condition/status, and work performed on nuclear weapons system equipment and nuclear support equipment.
- Create work orders derived from source documents (i.e., setup messages, etc.). Do *not* input TO 11N–20–11, *General Firefighting Guidance*, line numbers into IMDS. Ensure any jobs requiring the TPC are annotated "TWO-PERSON CONCEPT APPLIES."

The section commander/NCOIC ensures that training is provided to section members on IMDS overview, interpretation of output product, IMDS screens, and reject narratives. Training will also cover how to request background products and job data documentation.

Self-Test Questions

004. 2W2X1 duties

1. What guide establishes the occupational structure of the entire enlisted force?

2. What does a technician inspect, assemble, disassemble, maintain, and modify?

3. With what does a technician comply?

4. What skill level are technicians awarded upon completion of the Nuclear Weapons Technical Training school?

5. What system is Web-based and used to create a MTP?

005. Maintenance organization

1. Who authorizes all nuclear weapons movements outside a restricted area?

2. Who designates individuals authorized to order base and military spares and DOE-designed special equipment end items?

3. What is the *maximum* number of hour(s) the MXG/CC can waive for those individuals performing maintenance on nuclear weapons?

4. Who is responsible to the MXG/CC for all maintenance within the unit?

5. What training must the SQ/CC ensure all individuals receive?

6. Who must the OO/MX/SUPT appoint to evaluate rejectable or questionable defects?

7. Who appoints, in writing, two instructors to the NWTP?

8. Why does the flight commander/flight chief review QA reports?

9. Who provides direction to maintenance personnel, enforces standards, and decertifies substandard performers?

10. What does the special weapons flight perform?

11. What type of maintenance is restricted to external maintenance only?

12. What section is the focal point for accounting, administration, and management of nuclear accounts?

13. What are some of the duties performed by weapons support?

14. The system flight consists of what sections?

15. What is the focal point of MUNS control?

16. With whom must MUNS control coordinate emergency action checklists involving explosive and nuclear operations?

17. What system does MUNS control use to track status of personnel, equipment, vehicles, facility, work orders, retrofit orders, and DRs?

18. What section tracks work order completion, manages DDL, awaiting maintenance, awaiting parts, and the TCTO programs?

19. What must users be aware of when creating work orders in the IMDS?

20. Who is responsible for ensuring section members receive training on IMDS?

1–3. Inspections and Evaluations

In this lesson, we look closer at the different inspections and evaluations that are associated with nuclear weapons. We'll first look at the different inspections. Then we'll explore the different ratings before moving on to evaluations and exercises.

006. Higher headquarters inspections

NWTIs are performance- and compliance-based inspections used to evaluate a unit's ability to manage nuclear resources within their control. The Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3263.05C, *Nuclear Weapons Technical Inspections,* is the governing instruction for conducting NWTIs. For instance, if AFI 90–201, *The Air Force Inspection System,* conflicts with the guidance in the CJCSI 3263.05C, the CJCSI takes precedence. Let's discuss the different NWTIs, ratings, and intervals.

Nuclear weapons technical inspections

There are two types of NWTIs:

- Initial nuclear surety inspection (INSI).
- NSI.

The following table provides more detail starting with the INSI and ending with explaining DTRA's oversight.

Nuclear Weapons Technical Inspections	
Type	**Description**
INSI	The INSI is designed to certify a unit as nuclear capable as well as certifying new equipment and/or systems. The only rating given after this inspection is READY or NOT READY. Training weapons are used during an INSI before WR weapons are introduced to the unit or implementation of a new system (i.e., facility, security, etc.). The MAJCOM, in coordination with AFSEC, determines if a unit requires an INSI. If so, the MAJCOM inspector general (IG) performs this inspection. There are no established frequency intervals for performing INSIs. INSIs are performed prior to a unit: • Assuming nuclear duties for units *not* previously nuclear-certified. • Receiving a new weapon system, delivery system, or performing a new nuclear task. • Resuming nuclear duties for which the unit was decertified to accomplish.
NSI	The MAJCOM IG performs the NSI. An NSI assesses a unit's ability to accomplish its assigned nuclear weapons mission and produce reliable nuclear weapons in a safe and secure environment in compliance with applicable directives. Additionally, an NSI inspects a unit's capability to safely and reliably receive, store, secure, assemble, transport, maintain, load, mate, lock/unlock, test, render safe, and employ nuclear weapons.

Nuclear Weapons Technical Inspections	
Type	**Description**
	Inspection teams evaluate key processes, procedures and/or requirements called major graded areas (MGA). An unsatisfactory rating in one of the following areas does *not* automatically result in an overall unsatisfactory rating. Specific MGAs are: • Management and administration. • Technical operations. • Tools, test, tiedown, and handling equipment (TTTHE). • Conditions of the active/inactive stockpile and retired weapons. • Storage and maintenance facility. • Security. • Safety. • Supply support. • Personnel Reliability and Assurance Program (PRAP). • Logistics movement. • Special interest items. MAJCOMs will ensure that each of their nuclear-capable units receive a NWTI *not to exceed* 24 months. The frequency is based on the date of the unit out brief.
DNSIO	The DNSIO is completed by DTRA in conjunction with a regularly scheduled NSI. This oversight is to ensure an appropriate level of uniform application of Nuclear Surety Compliance Inspection standards as prescribed herein across a diverse group of missions and units. The DNSIO team provides the JCS with an independent assessment of each NWTI team's execution of CJCSI requirements during a NWTI through direct observation of inspection preparation, execution and inspector qualifications, and certifications. DTRA ensures a DNSIO is conducted every 48 months.

Ratings

At the conclusion of most NWTIs, a unit will receive an overall rating based on the nature, severity, and number of deficiencies noted during the inspection. The ratings and their descriptions are explained in the following table.

NWTI Ratings	
Rating	**Description**
Satisfactory	Satisfactory rating is given when a unit clearly demonstrates its ability to accomplish its nuclear mission and produce reliable nuclear weapons in a safe environment.
Unsatisfactory	Unsatisfactory rating is given when a unit cannot accomplish its nuclear mission. Normally, this rating is a result of exposing nuclear weapons to an unsafe environment, unsecure environment, or producing an unreliable nuclear weapon.
Satisfactory (Support Unsatisfactory)	Satisfactory (Support Unsatisfactory) rating is given when a unit *can* perform its nuclear mission *but* a deficiency exists that is beyond the unit's capability to avoid, influence, or correct. The responsible headquarters, unit, or activity is cited as the "support" for the unsatisfactory rating.
Unsatisfactory (Support Unsatisfactory)	Unsatisfactory (Support Unsatisfactory) rating is given when a unit cannot accomplish its nuclear mission *and* a deficiency exists that is beyond the unit's capability to avoid, influence, or correct.

NWTI Ratings	
Rating	**Description**
	The responsible headquarters, unit, or activity is cited as the “support” for the unsatisfactory rating.

In addition to the overall rating, each of the MGAs or sub areas are individually rated using adjectival ratings. The ratings are described in the table below.

MGA or Sub Area Adjectival Ratings	
Rating	**Description**
Outstanding	Operations or procedures were conducted strictly as prescribed in directives and with a superior degree of professionalism.
Excellent	Operations or procedures were accomplished with only relatively minor deviations.
Acceptable	Satisfactory accomplishment of requirements, but with deviations that should be addressed by the command.
Marginal	Significant deviations from directives and requires thorough and timely command attention.
Unacceptable	Not meeting the minimum standards. Major or critical deviations from directives which requires immediate higher headquarters command attention.

007. Evaluation and exercises

In addition to NSIs, there are a number of evaluations and exercises designed to validate compliance with safety, reliability, and security requirements, or to validate the wing’s ability to generate nuclear forces.

Quality assurance responsibilities

QA provides the MXG/CC, SQ/CC, and supervisors with an unbiased assessment of weapons programs and resources. QA ensures standard compliance, identifies benchmark programs, and validates deficiencies throughout the group. QA also identifies issues that are beyond the unit’s control that require higher headquarters’ resolution.

The mission of QA is to assess MUNS capability and effectiveness by evaluating programs, personnel proficiency, and procedures, and inspecting facilities, equipment, vehicles, and TOs to ensure a unit’s compliance with DOD, AF, MAJCOM, and local instructions. Additionally, QA assesses the management and administration, stockpile and facilities, key and lock management, TTTHE, technical operations, MUNS control, missile maintenance operations center, training, and supply support (NARS).

Certification requirements

The 2W271 QA personnel are nuclear weapons certifying officials (CO) by virtue of their position. If necessary, the MX/SUPT may appoint, in writing, additional technically qualified personnel outside the 2W2X1 career field to assist in certifications.

Certification, as used here, is a term that applies to nuclear weapons maintenance, mate/demate and handling operations. The certification program is a requirement over and above the qualification and certification procedures contained in AFI 36–2651, *Air Force Training Program*, and AFI 36–2650, *Maintenance Training*, and takes precedence over all other publications in the area of nuclear weapons certification and evaluation.

The objectives of the certification program are threefold, to ensure:

- All certifications are conducted using nuclear weapons trainers.

- Technicians performing nuclear weapons tasks understand and use proper tech data, maintenance procedures, and techniques.
- Only certified technicians are permitted to perform nuclear weapon tasks (maintenance, mate/demate, and handling) on WR weapons.

All trainers use the CFETP, lesson plans, and applicable TOs to JQS qualify you on certifiable tasks first. You are JQS qualified *before* task certification and are only certified on those items that you are qualified for. You will certify to perform or direct nuclear weapons maintenance or handling tasks as a TC or a team member. Weapons maintenance, mate/demate, handling, and final assembly checkout task certifications are performed IAW the following requirements:

- Each certification will vary in demonstration to prevent standardization since this practice allows technicians to only "train for the certification."
- Abbreviated operations for the purposes of recertifying personnel are *not authorized*. Additionally, multiple TC certifications must be performed as separate, complete start-to-finish operations.
- Expect a sufficient number of written injects of defects and scenarios to provide an accurate assessment of the training received and team's proficiency. The total number of injects will be coordinated through MX/SUPT and are stated in the Maintenance Standardization and Evaluation Program (MSEP).
- Certifications that were *not successful* will be treated as training operations and documented as a non-rated evaluation.
- Certified members who are on a crew undergoing a certification will receive a pass or fail rating, while the other team members are "non-rated." Additionally, if a certified member commits a series of errors, or did not detect an error committed by others that they were in a position to have detected, they themselves may be decertified. This can also apply to a team member being upgraded to a TC.
- If decertified on either transfer or transport, subsequent recertification will occur on the specific operation the individual was performing when decertified.
- The AF Form 2435, Load Training and Certification Document, is used to validate current certification and proficiency status of tasks.
- Proficiency checks will be accomplished semiannually for each certified task. A JQS qualified QA, BC, critical task supervisor, section/element supervisor, or flight chief will conduct these proficiency checks. Additionally, higher headquarters evaluation or inspections may suffice, depending on the outcome of the operation.
- GM is required *prior to* certification on any other weapons maintenance task (e.g., limited-life component exchange [LLCE]). GM is *not required* for any weapons-handling task.

Maintenance Standardization and Evaluation Program

The MSEP is designed to provide logistics managers and wing leadership with a method to evaluate compliance with AF, MAJCOM, and local directives and policies. It provides an objective sampling of both the quality of equipment and the proficiency of personnel in an organization. QA develops the MSEP along with unit maintenance managers and reviews it quarterly. This allows the MXG/CC and the unit to focus the program on problem areas where improvements are needed. The different types of MSEP evaluations and inspections are:

- Personnel evaluation (PE).
- Quality verification inspections (QVI).
- Special inspections (SI).
- Management inspections (MI).

- Activity inspections (AI) (MAJCOM established).

Outside of the regular inspections above, the items below are observed events or conditions with safety implications or technical violations not related to an ongoing inspection or evaluation and that are considered unsafe, in violation of established procedures, or in the case of equipment, unfit to operate.

- Detected safety violations (DSV).
- Tech data violations (TDV).
- Unsatisfactory condition reports (UCR).

The grade of "Unsatisfactory" will be given to those who commit these violations.

Each MSEP evaluation and inspection is rated as a "pass or fail" and awarded a grade of "satisfactory or unsatisfactory." In addition, all findings, problems areas, and recommended improvements are included for distribution monthly to MXG/CC and all inspected organizations.

Nuclear surety staff assistance visit

The Secretary of the Air Force established the Nuclear Surety Staff Assistance Visit (NSSAV) Program to assist nuclear tasked units, on a non-attribution basis, in maintaining effective nuclear surety program. The NSSAV is an opportunity to receive assistance from experienced headquarters' personnel who write nuclear surety policy and guidance. It is not an inspection, nor is it intended to prepare units to pass NSIs. The NSSAV does not give a rating, score, grade, or assessment statement about units. However, if the NSSAV team identifies critical systemic deficiencies, it can recommend that the wing conduct a root cause analysis of each critical analysis and provide results to the NSSAV. In addition, the NSSAV provides an opportunity for resolution and clarification of issues between the unit and headquarters' functional managers. The objective of an NSSAV is threefold:

- Determine if higher headquarters' guidance is adequate and clear.
- Provide feedback to the WG/CC on whether the unit is properly applying sound procedures to implement nuclear surety guidance.
- Provide situational awareness on command nuclear surety to senior leadership in the form of a NSSAV executive summary and annual cross feed report.

For more information, refer to AFI 91–121, *Nuclear Surety Staff Assistance Visit (NSSAV) Program*.

Global guardian and NATO tactical evaluations

These exercises and evaluations validate whether a MAJCOM NAF, wing, and MUNS and/or munitions support squadron (MUNSS) has the ability to transition from a peacetime status to a wartime, ready-to-launch status. These exercises and evaluations are very taxing to all involved due to the high operational tempo. They validate the unit's mission capabilities in real time while introducing additional simulated attacks or hindrances. Operational control of the weapons-loaded aircraft and aircrews are transitioned from the MAJCOM to the commander of the United States Strategic Command (USSTRATCOM) and the United States Commander In Chief, European Command (USCINCEUR) using the combatant NAF. Under these exercises and evaluations, a wing or MUNS/MUNSS must be able to transition to wartime status within pre-established combatant commander time constraints. Typically, operations are taking place around the clock and continue well after the evaluation and/or exercise is over. This is due to the return to regular peacetime operations by recertifying systems, returning everything to secure storage, and placing systems back under the operational control of the MAJCOM.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

006. Higher headquarters inspections

1. What are the two types of NWTIs?

2. What are the only ratings given after an INSI?

3. When are INSIs performed?

4. What does the MAJCOM IG assess during a unit's NSI?

5. Who conducts the DNSIO?

6. What are the four overall ratings given at the conclusion of most NWTIs?

7. What is an adjectival rating?

007. Evaluations and exercises

1. What is the mission of QA?

2. Who are the COs by virtue of their positions?

3. What are the objectives of the certification program?

4. Why does a certification vary in demonstration?

5. How are unsuccessful certifications treated?

6. What form is used to validate certifications and proficiency status of tasks?

7. When are proficiency checks accomplished?

8. What is the MSEP designed to do?

9. What are the objectives of the NSSAV?

1–4. Maintenance Management

The AF has billions of dollars of assets within its control ranging from the basic office supplies to the critical equipment used with nuclear weapons. An elaborate and complex system was developed to help managers accomplish their programs and to properly manage these items. The concept of materiel management covers a broad spectrum of requirements that includes methods of procuring and controlling materials as well as recording and reporting the status of materiel. In this section, we cover some of the various maintenance management and data collection tools. In addition, you will learn some general materiel requirements that are applicable in the AF and some that pertain strictly to nuclear weapons maintenance. We begin our discussion with bench stock.

008. Bench stock

The subjects of this lesson are very important parts of the materiel management concept. Bench stock usually consists of high-use items maintained within a maintenance area. Shelf-life management applies to bench stock items as well as other items in the supply chain that have a limited time to be used prior to a set expiration date.

Bench stock

According to AFMAN 23–122, *Materiel Management Procedures*, bench stock items have a specific expendability, recoverability, and reparability code (ERRC) of XB3, which generally relates to low cost, expendable, non-hazardous, high-use items. Examples of these items are bolts, nuts, washers, clamps, and many others. The bench stock items are stored within the maintenance work area and are regularly kept to a specific, predetermined stock level. The bench stock process was designed as an efficient and effective method for enhancing maintenance productivity. The main advantages of a bench stock account are:

- Items are stored locally and readily available for use at the work area.
- Paperwork and delivery times are minimized.
- No frequent single-issue item orders since they are ordered in bulk.
- User has possession and control of items.

Establishing a bench stock

Setting up a bench stock is a joint effort between the munitions squadron (MUNS) and the supply activity, which is normally the logistics readiness squadron (LRS). The MUNS commander submits a letter to the LRS commander requesting the establishment of a bench stock and specifies a maximum dollar threshold. This threshold becomes the ceiling or cap unit price for an item on the bench stock account. The maximum dollar threshold may vary from squadron to squadron and is at the discretion of the MUNS commander. When establishing a bench stock the MUNS commander should consider several factors including:

- Proximity to the LRS warehouse where the stock is maintained.
- Cost of the items and the quantity desired.

- Frequency of the demand for the items.
- Potential mission impact if the items are not readily available.

The supply system alerts LRS when a MUNS bench stock account exceeds its established threshold. When this occurs, LRS notifies the MUNS bench stock monitors and asks if they want to override the threshold. A justification letter from the MUNS commander approves exceeding the established maximum dollar threshold for any item. LRS maintains the letters on file attached to the original bench stock request letter.

Unit responsibilities

After a bench stock account has been established in the MUNS, the bench stock monitors oversee the program and are the liaison between the unit and LRS. Anytime a bench stock item needs to be replenished, the monitors call LRS and annotate the AF Form 465, Bench Stock Inventory (NOT LRA), with the date of the call and the person contacted. Once complete, this form is filed in date sequence until the unit receives the Daily Document Register (D04) to validate that the requests for bench stock replenishments were processed. Some of the other unit responsibilities include:

- Using shadow boards to prepare, store, and display bench stock contents.
- Provide adequate storage facilities and safeguard for all bench stock items.
- Perform a routine or weekly walk-through to identify and flag bench stock bin locations with a red indicator when quantities are equal to or below 50 percent of the authorization amount.

Bench stock review process

Units must periodically review their bench stock to ensure that they have the right mix of items to support their mission. The two review processes used to accomplish this—monthly bench stock review (M04) and the semiannual bench stock review (S04)—are described in the following table.

Bench Stock Review Process	
Type	**Description**
Monthly M04 review	Each month, the LRS provides the M04 report that contains bench stock recommended additions, changes, and deletions. The bench stock monitor reviews each LRS recommended change and accepts or rejects the proposed changes. If an item shows *no* use in 270 days (or more), the M04 shows the item as projected for deletion unless the bench stock monitor justifies maintaining it.
Semiannual S04 review	Every 6 months, the LRS provides the unit with the S04 listing of recommended additions, changes, and deletions. Although identical to the monthly review, this review between LRS and the unit is more formal. This can be in conjunction with the annual validation.

009. Shelf-life management

According to Department of Defense Manual (DODM) 4140.27, Volume 1, *DOD Shelf-Life Management Program: Program Administration*, shelf life is the total period of time beginning with the manufactured date, cured date, assembled date, or packed date and terminated by the date which an item must be used (expiration date) or subjected to inspection or test, restored, or disposed of.

A shelf-life item has certain characteristics that deteriorate or become unstable over time; therefore, a date must be assigned to ensure the item is used prior to its expiration. Shelf life is not be confused with service life, which is a measurement of anticipated total in-use time.

Categories

Each item that meets the shelf-life criteria is assigned a national stock number (NSN) and a specific shelf-life code (SLC). First, the NSN is a 13-digit number assigned to each item of supply, arranged in groups of 4, 2, 3, and 4 digits separated by hyphens (e.g., 5140-00-446-6856). The first group of 4 digits (e.g., 5140) is the federal supply classification (FSC) number and the last 3 groups of digits (e.g., 00-446-6856) comprise of the national item identification number (NIIN), which identifies the specific item in the FSC.

In addition to the NSN, shelf-life items contain the SLC, which identifies the length of the shelf-life period and takes precedence over the manufacture's expiration date. All NSNs that are not designated as shelf life are considered non-deteriorative and are identified as SLC 0 (zero). Otherwise, shelf-life items are categorized as either Type I or Type II as defined in the following table.

Shelf-life Item Categories	
Category	**Description**
Type I	Type I shelf-life items will not be tested, inspected, or extended in storage. Technical evaluation has determined that these items have a definite expiration date.
Type II	Type II shelf-life items can be extended after completion of an inspection, test, and/or restorative action. After these tests, the shelf-life item can only be extended for *one-half* of the original assigned shelf life. For example, if an item is assigned a SLC 6 (24 months), then the item can be extended to 12 months, instead of the full 24 months. The DD Forms 2477-1, Shelf-Life Extension Notice (11" x 8"); 2477-2, Shelf-Life Extension Notice (5" x 3"); 2477-3, and Shelf-Life Extension Notice (3" x 1"), are updated to reflect these new dates and must be attached to the outside of the container.

Shelf-life information for nuclear weapons expendables can be found in TO 11N–35–51A, *General Instructions Applicable to Nuclear Weapons (Supplement)*, section 2, which takes precedence when information conflicts with other guidance. An excerpt of section 2 is shown in the table below.

Shelf-life Information	
Item	**Information**
Adhesive, (Epoxy resin, C-4) (kit) (HM) (F) (hazardous materiel, flammable) Part number (P/N): 829756-00W 00021 (Continued)	c. Adhesive Preparation and Application. Thoroughly mix the two components using the ration given in Section 3.2. d. Apply the adhesive to the test panels within 30 minutes after mixing. The bond line thickness shall be 0.003 to 0.007 inches. e. Place the test specimens in an air-circulating oven preheated and maintained at 200 ± 5 degrees Fahrenheit (ºF) for 1.0 ± 0.25 hours. f. Report the average value of the five test specimens as the lap shear strength. Extension Period. The shelf life may be extended in 6-month intervals as long as it meets specification requirements.
Adhesive, Silicone (RTV 732) (HM) (hazardous materiel) P/N: 878266-00W 00031	Shelf life of adhesive is indefinite until opened, then 6 months. If the shelf life has expired, the adhesive may be tested by making a test bead and permitting it to harden for 24 hours. If the test bead cures to a tough rubbery consistency, it may be used. The shelf life may be increased by storing the sealant in a refrigerator or freezer. If frozen, it must be thawed 24 to 48 hours prior to use.
Adhesive, Silicone (RTV 162) (HM)	Shelf life of expired adhesive may be extended (if not rejected by the following tests) for three months from date of test.

Shelf-life Information	
Item	**Information**
P/N: 880389-00 00034	a. Apply approximately 1/8-inch bead to flat surface. Note time. b. Twenty to 25 minutes after time noted, gently press bead with finger. Reject adhesive if bead transfers to finger (surface may be tacky). c. Apply approximately 1/16-inch bead to nonadherent surface such as polyethylene film. Allow to cure 24 to 25 hours. d. Cut through material to determine that adhesive is cured all the way through (rubbery solid). If adhesive is not cured, reject it.
Coating Compound, Polyurethane (Black) (HM) (F) P/N: 872243-00W 00121	Shelf life is 12 months from date of manufacture, but may be extended in 12-month increments as long as the hardener is not cloudy and white precipitate is not present in the bottom of the hardener container. If the hardener must be rejected, accompanying resin-pigment also.
Coating Compound, Polyurethane (Clear) (HM) (F) P/N: 877551-00W 00122	Regardless of shelf life, compound may continue to be used as long as the hardener is not cloudy and white precipitate is not present in the bottom of the hardener container. If the hardener must be rejected, reject the accompanying resin-pigment also.
Coating Compound, Polyurethane (White) (HM) (F) P/N: 872242-00W 00123	Shelf life is 12 months from date of manufacture, but may be extended in 12-month increments as long as the hardener is not cloudy and white precipitate is not present in the bottom of the hardener container. If the hardener must be rejected, accompanying resin-pigment also.
Extension test cannot be performed at field level; a lab should perform the test.	

Storage and issues

Shelf-life items should be consolidated in one central room or warehouse to the maximum extent possible. Consolidation facilitates efficiency during inspection or surveillance action by reducing the amount of travel time between locations.

Issuing shelf-life items should be directed against the oldest stock (those with the least shelf life remaining) first. Shelf-life monitors initiate controls to minimize expiration of material in storage by issuing Type I item stocks that have the earliest expiration date first or for Type II items issuing the earliest date manufactured, date packed, date cured, or date assembled stock first. Under normal circumstances, this policy is called the first-in/first-out (FIFO) issue control techniques.

010. Test, measurement, and diagnostic equipment

The precision measurement equipment laboratory (PMEL) is responsible for calibrating and repairing most test, measurement, and diagnostic equipment (TMDE) items. TMDE such as calibrated test equipment, handling equipment, and torque wrenches are critical to the proper operation and maintenance of mission systems. Out-of-tolerance TMDE can cause mission systems to be misaligned or erroneously declared unserviceable. Man-hours and parts may be expended unnecessarily to restore already serviceable equipment. Everyone who uses TMDE must understand his or her responsibilities and the procedures for the use and care of TMDE. Proper use, handling, storage, transportation, and calibration are essential to make sure that TMDE accurately performs its function.

TMDE user responsibilities

The TMDE user, or the performing work center, appoints a TMDE coordinator who is responsible for managing the TMDE program.

In addition to appointing a TMDE coordinator, the TMDE user has the following responsibilities:

- Return all TMDE to PMEL upon receipt from supply, when scheduled for calibration, or for unscheduled maintenance. Commanders and supervisors are responsible for ensuring TMDE is *not* used unless it has been calibrated or that it is removed from service once the due date has expired.
- Consider alternatives of limited calibrations, calibration before use (CBU), or no periodic calibration (NPC) status where possible.
- Provide proper care, handling, cleanliness, and transportation of TMDE.
- Ensure you read and understand the notes contained in the SPECIAL block of the certification labels.
- Maintain TOs or manufacturer's instructions for owned equipment. Provide technical data with the TMDE when requested by the PMEL prior to calibration.
- Identify special weapons-unique requirements and applicable guidance, which could impact calibration, calibration interval, documentation, etc., to PMEL.
- Ensure users do *not* remove or break an AFTO Form 255, Certification Void If Seal Is Broken, seal placed on TMDE. Any TMDE with a broken AFTO Form 255 must be removed from service and submitted for recalibration.

Your base servicing PMEL establishes local tracking procedures for assigned TMDE; however, the TMDE monitor is responsible for monitoring the status. The following is a typical process for managing and tracking TMDE items.

Let's start with a new master identification (ID) listing (fig. 1–2). This ID listing identifies all assigned TMDE items. Physically inventory equipment to make sure that each part number, serial number, and date due calibration on the TMDE certification label matches against the master ID listing. The certification labels include the following:

- Air Force Technical Order (AFTO) Form 99, Limited/Special TMDE Certification.
- AFTO Form 108, TMDE Certification (3 ½ x 1 $^{4}/_{6}$).
- AFTO Form 394, TMDE Certification (2 x $^{7}/_{10}$) (Issued by ROLL, 500 labels per roll).
- AFTO Form 398, Limited TMDE Certification (2 x $^{3}/_{4}$) (issued by ROLL, 500 labels per roll).

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Includes TFCU

Master ID Report For: FNUKS

MAJCOM: 0J Unit: 363 TRS Org/Off-Sym: 363 TRS / TTMN

Primary Monitor: SSGT JOHN D. DOE Duty Phone: 676-1739 Alternate Monitor: SSGT BILLY A. MADISON Duty Phone: 676-1739

Sort: OWC, Label Number

Label Nbr / Part Number / Serial Nbr / Nomenclature / Manuf / Priority / Int Exception / Cal Int / Date Due Cal / Date Last Cal / In-Srvc AWP / MOB / WRM / REIM / TFCU / DPLY / MICP / SPRM	Certification Lab / Warranty / Date / TDY / TDY Return / SRD / On Site / Location / Cal Area / Source / WUC / Cal Resp	Remarks
A658717 AN/PSM-37 4967 Multimeter 20418 9 Y NPC 22-MAY-96 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 1 K100 WGNVR PMEL	
C952373 AN/PSM-37 4956 Multimeter 20418 9 Y NPC 30-APR-96 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 1 K100 WGNVR PMEL	
C975898 1502LD SERIES 898 Torque Wrench, Dial 08194 9 N 18 29-JUN-17 29-DEC-15 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 D1- 6 T K100 WAJSS PMEL	+/-4% CW ONLY
E090966 11B203PJ 966 Depth Gage, Dial 03249 9 Y NPC 04-SEP-12 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 D1- 13 6 K100 WEMQW PMEL	
E090968 AN/PSM-37 788 Multimeter 89280 9 Y NPC 23-MAY-96 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 D7- 1 1 K100 WGGYR PMEL	
E090984 643 SERIES 00143 Depth Gage, Dial 57163 9 Y NPC 04-SEP-15 04-SEP-12 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 D1-1 6 K100 WAGFC PMEL	
E090985 2BA12-05 985 Dial Indicator 06253 9 N 30 02-MAR-19 02-SEP-16 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 D1- 2 6 K100 WGMWN PMEL	
E145013 T557-1 1100 K/J Digital Thermometer 89536 9 Y NPC 26-FEB-02 N N N N N N N N	SHEPPARD AFB N N HTE RM 163 5 K100 ZBJTS PMEL	
E145248 T481 214105-00 Leak Test Kit 92606 9 Y NCR N N N N N N N N	SHEPPARD AFB N N HTE RM 162 6 K100 WGUZM PMEL	
E145253 871319 253 Pressure Gauge, Gpc 87991 9 Y NPC 28-APR-97 N N N N N N N N	SHEPPARD AFB N N HTE RM 164 6 K100 HHD03 PMEL	
E145263 966 SERIES 2690 Optical Micrometer 00497 9 Y NPC 01-NOV-04 N N N N N N N N	SHEPPARD AFB N N HTE RM 181 6 K100 WFBSC PMEL	

FOR OFFICIAL USE ONLY

Figure 1–2. Master ID listing.

If TO 33K–1–100–2, *TMDE Calibration Notes, Calibration Interval, Technical Order and Work Unit Code Reference Guide*, is available, or you have access to WebAFCAV (Web Air Force calibration viewer), look up the part number and verify the calibration interval. Correct any errors appearing on the master ID listing on the listing. The DATE DUE on the AFTO Form 99, 108, 394, or 398 certification label is the *actual due date*. Under no circumstances do you change any information on the calibration labels. These labels take precedence over the master ID listing. If there are any changes (such as ID number or work center), coordinate them with the PMEL scheduler. If you make any changes on the calibration label (AFTO Form 108), it voids the calibration. Once you verify and correct all the data on the master ID listing, return one copy to the PMEL scheduler. Retain a copy with corrections until you receive the next master ID listing.

Calibration interval

The AF calibration interval listed in TO 33K–1–100–2 and WebAFCAV is the period of time over which the equipment performs its function with a statistically derived end-of-period reliability of 85 percent or better. These intervals are established, and modified as necessary, from data collected through the maintenance data collection (MDC) system on the entire population of TMDE items across the AF. Do not use TMDE that has exceeded the prescribed calibration interval. When calibration intervals in TO 33K–1–100–2 conflict with other TOs, or have not been identified, the following precedence applies:

1. Weapons system or equipment calibration and measurement summary (CMS) TOs.
2. TO 33K–1–100–2/WebAFCAV.
3. Equipment maintenance TO.

4. Commercial publication or commercial data.

Calibration interval changes

It is not mandatory that TMDE be rescheduled or recalled for calibration and certification solely because a change to a calibration interval is published. A calibration due date assigned before a change to the calibration interval is considered valid. However, when there's a reason to question the accuracy of the instrument, the organization owning the equipment may request recalibration of its TMDE. Recalibrate items exposed to rough handling, overload, or other severe condition regardless of the calibration due date.

Special calibration intervals

The following table covers some items that have special calibration intervals that may vary from other items in the equipment inventory.

Special Calibration Interval Items	
Type	**Description**
No calibration required (NCR) items	Certain types of TMDE identified as NCR do *not* require calibration because they: • Do not provide important quantitative measurement information. • Are accessories to other TMDE. • Function only as an interface device. For example, some pressure regulators are NCR items.
Calibrate before use (CBU)	TMDE normally not used at least once during its calibration interval need not be periodically calibrated and may be designated as CBU. New TMDE requires an initial calibration to make sure it meets requirements *before* it is designated CBU. Previously calibrated TMDE does *not* require new calibration before being designated CBU unless you request it. The AFTO Form 99 or 398 is completed and marked with "/CBU" following the DATE DUE date.
NPC required items	Based on its application, an individual unit of TMDE may not require periodic calibration. Even though it belongs to a part number group that normally requires calibration per TO 33K–1–100–2, it may be designated as NPC required. These items require initial calibration to make sure they meet requirements. In addition, the AFTO Form 99 or 398 is completed and NPC is entered in the DUE DATE block.
Initial calibration only (ICO)	Due to inherent design features, TMDE designated ICO in TO 33K–1–100–2 does *not* require periodic calibration. An example of ICO items is liquid-in-glass thermometers. ICO items are to be calibrated when first put into service and annotated ICO in the DUE DATE block of AFTO Form 108 or 394.

AFTO Forms 108 and 394

Both AFTO Form 108 and AFTO Form 394 are TMDE certification labels (fig. 1–3) that are used when all specifications of the calibration requirements are met without any restrictions. PMEL personnel fills out this label and affixes it to the TMDE. Only PMEL persons authorized to perform calibration and certification can replace labels. Users must read and be familiar with the information contained in the SPECIAL block. AFTO Form 394 is used as a substitute for AFTO Form 108 when space does not permit using AFTO Form 394.

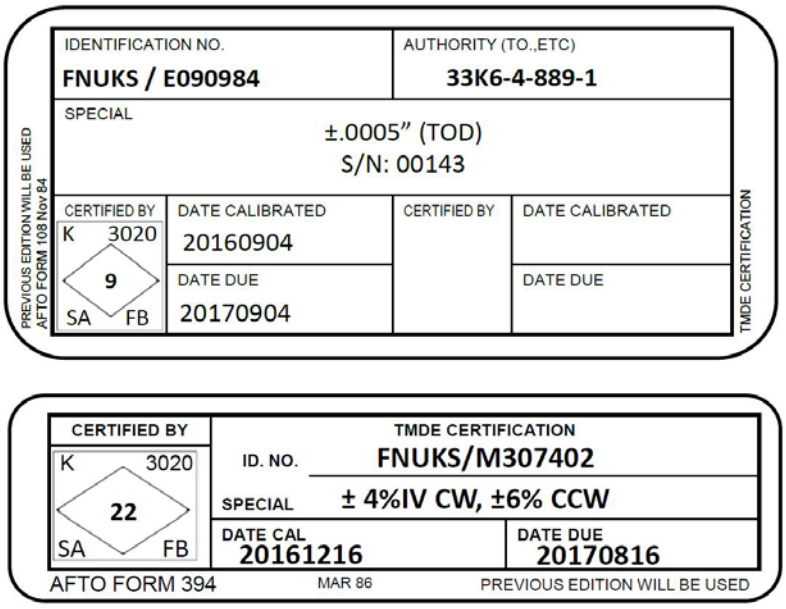


Figure 1–3. Sample, AFTO Forms 108 and 394.

AFTO Forms 99 and 398

AFTO Form 99, Limited/Special TMDE Certification, and AFTO Form 398, Limited TMDE Certification, (both shown in fig. 1–4) are used when TMDE items are certified with limited or special calibration. Also, certain 33K TOs may direct use of this label because they do not verify all, or portions of, main functions and ranges. For instance, a torque wrench calibrated in one direction requires this label. This label is also used with ICO, NPC, or CBU calibrations. It is the user's responsibility to read and understand the information contained in the SPECIAL block of AFTO Forms 99 and 398. The SPECIAL block may contain:

- The accuracy to which the item was calibrated.
- The basic function that was measured and the ranges or parameters certified.
- Special accuracy, ranges, or points calibrated.

The user's shop chief, designated 7-level craftsman, or civilian equivalent, must sign the AFTO Form 99 or initial the AFTO Form 398 to indicate that the user agrees with the limited or special calibration performed. In addition, the shop chief, 7-level craftsman, or civilian equivalent must be identified on the special certification roster. Use the AFTO Form 398 as a substitute for the AFTO Form 99 when space on the TMDE item is limited.

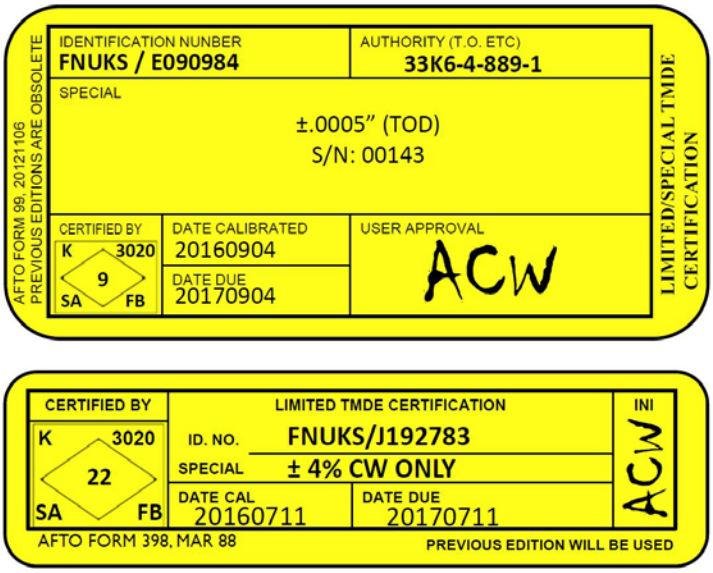


Figure 1–4. Sample, AFTO Forms 99 and 398.

011. Nuclear weapons-related materiel

The Office of the Secretary of Defense (OSD) defines nuclear weapons-related materiel (NWRM) as

> "classified or unclassified assemblies and subassemblies (containing no fissionable or fusionable materiel) identified by the military departments that comprise or could compromise a standardized war reserve nuclear weapon (including equivalent training devices) as it would exist once separated or removed from its intended delivery vehicle."

These items are precisely controlled and inventoried using multiple accountable property systems of record to ensure they are never lost or end up in the wrong hands.

Roles and responsibilities

The NWRM management system ensures that NWRM is properly controlled and accounted for throughout the entire supply chain. Although the roles and responsibilities described in the following table are not all inclusive, it does highlight those positions within the wing.

NWRM Roles and Responsibilities	
Position	**Description**
WG/CC	The WG/CC appoints the LRS commander as the nuclear weapons-related materiel accountable officer (NWRMAO). The WG/CC also appoints a verifying individual for every wing semiannual inventory and audit. Additionally, the verifying individual *cannot* be the individual who performed the last two consecutive semiannual inventories/audits.
MXG/CC	The MXG/CC ensures that all personnel responsible for materiel management, storage, handling, maintenance, distribution, and/or disposal/demilitarization of NWRM receive required training. MXG/CC also ensures that a QA program incorporates standardized evaluation of the NWRM procedures.
SQ/CC	The SQ/CC designates, in writing, a property custodian (PC) to oversee the NWRM procedures and processes at unit level. In addition, the SQ/CC designates trained and qualified personnel to order, issue, package, turn-in, store, inventory, ship, transship, and receipt for NWRM and update this appointment letter at least annually and as changes occur.

NWRM Roles and Responsibilities	
Position	**Description**
	Also, the commander appoints personnel to verify that NWRM is correctly packaged, marked, and the documentation is error-free. Additionally, these individuals are placed on the special certification roster.
NWRMAO	The NWRMAO is responsible for NWRM on supply accounts *not* managed in the CAS. The NWRMAO performs semiannual inventories and audits of assigned NWRM; corrects any discrepancies discovered within 15 calendar days; and briefs the SQ/CC, MXG/CC, and WG/CC about the root-cause of discrepancies.
MASO	The MASO is the accountable property officer for all NWRM managed in CAS.

Marking and packaging

All NWRM will be marked with the unique item identifier (UII), which is the set of data elements used on items that are globally unique, unambiguous, and robust enough to ensure data information quality throughout life, to support multifaceted business applications and users. The UII markings *do not* apply to DOE-designed NWRM assets. Once the item is properly marked, the NWRM item is ready to be packaged.

Two individuals are required to package NWRM and accomplish all related documentation. One person packages the NWRM while the second individual performs the verification of the packaging. In addition, the following guidelines apply to packaging NWRM:

- Ensure any packing waivers are submitted to the packaging center for approval.
- Ensure verifying individuals (appointed by the SQ/CC) inspect and verify the correct NWRM is packed and is correctly identified on all documentation.
- Ensure DD Form 1500-series condition tags—DD 1574, Serviceable Tag - Materiel; DD 1576, Test/Modification Tag - Materiel; DD 1577, Unserviceable (Condemned) Tag - Materiel; or DD 1577–2, Unserviceable (Reparable Tag) - Materiel—are completed for each NWRM item regardless of condition code.

Inventories

Inventories are conducted on all NWRM to ensure asset balances are accurately reflected on accounts by two individuals: the inventory officer and the verifying officer. A complete physical inventory count of NWRM is conducted twice a year, or semiannually, with one inventory performed in the spring (Mar/Apr) and the other inventory performed in the fall (Sep/Oct). During the inventory, the following guidelines apply:

- Weapons/missiles containing NWRM will not be disassembled for the purpose of conducting an inventory; instead, a records check will be performed to validate the serial number or UII.
- NWRM issued on an AF Information Management Tool (IMT) 1297, Temporary Issue Receipt, must be physically inventoried and matched to the item record. This form will not be used for asset verification.
- Any NWRM that is banded, crated, and/or sealed with no signs of tampering *will not* be opened for inventory purposes.
- Units that conduct semiannual inventory reports (SIR) will conduct the NWRM inventory simultaneously with the SIR. The results of the SIR will be used to satisfy the semiannual NWRM inventory requirements.

At the conclusion of each inventory, all documents relevant to the inventory must be maintained by the NWRMAO or MASO including the certificate of inventory, appointment letter, inventory, checklist, count cards, and worksheets.

Audits

An audit provides an independent assessment of account records to ensure accountability is properly maintained, an accurate audit trail exists, and accounting procedures are strictly followed. Audits are performed either by an outside agency or by a disinterested individual.

There are two types of audits:

- *Semiannual audits,* which are accomplished in conjunction with the NWRM inventory.
- *Special audits*, which are directed by the AF Audit Agency, higher headquarters, or the Government Accountability Office (GAO). The directing agency determines its scope.

During the audit, the audit officer reviews 10 percent of the representative sampling of all shipping, receipt, issue, and turn-in of NWRM documents. If the audit reveals serious inaccuracies, irregularities, or inadequate audit trails, then the audit officer may perform a 100 percent audit of all records.

At the conclusion of each audit, the audit officer prepares a certificate of audit, attaches a copy of the completed checklist, and distributes the original certificate of audit to the appointing authority, the accountable officer, and MAJCOM.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

008. Bench stock

1. What are the advantages of a bench stock account?

2. Who submits a letter to supply to request a maximum dollar threshold?

3. What is a threshold?

4. Who oversees the bench stock program?

5. What form is used anytime bench stock needs to be replenished?

6. What does a weekly walk-through consist of?

7. What review is considered a more formal review between LRS and the unit?

009. Shelf-life management

1. What are the first four-digits of the NSN called?

2. A non-deteriorative item is designated by what SLC?

3. What is a Type I shelf-life item?

4. After performing a second (or subsequent) inspection on a Type II shelf-life item, what is the new shelf-life period?

5. What form is used to reflect extensions of Type II items?

6. Which publication takes precedence when there is conflict in shelf-life information?

7. Why should all shelf life be located in one central location?

8. What is the FIFO policy?

010. Test, measurement, and diagnostic equipment

1. Who appoints the TMDE coordinator?

2. What happens when a TMDE item has a broken AFTO Form 255?

3. During a physical inventory, what information must match the master ID listing?

4. What is the precedence when calibration intervals conflict with other guidance?

5. If a change to a calibration interval is published, how does it affect items assigned calibration due dates *before* the change?

6. What is an example of a TMDE identified as NCR?

7. When can a TMDE item be designated as CBU?

8. What calibration is required, if any, for TMDE items that are categorized as NPC?

9. When is an AFTO Form 108 or 394 used?

10. Who signs or initials the limited (or special) calibration labels on the AFTO Form 99 or 398?

011. Nuclear weapons-related materiel

1. Who defines NWRM?

2. Who appoints a verifying individual for every wing's NWRM semiannual inventory and audit?

3. Who ensures the QA program incorporates a standardized evaluation of the NWRM procedures?

4. When does the SQ/CC update the NWRM letter identifying personnel who can order, issue, package, turn-in, and so forth?

5. What NWRM is the NWRMAO responsible for?

6. How many individuals are required to package NWRM?

7. Who conducts all NWRM inventories to ensure asset balances are accurately reflected on accounts?

8. When may an audit officer perform a 100 percent audit of all records?

Answers to Self-Test Questions

001

1. To ensure the nation sustains a safe, secure, and effective nuclear deterrent through the application of science, technology, engineering, and manufacturing.
2. LANL, LLNL, SNL, NNSS, Pantex Plant, Y-12, Savannah River Site, and National Security Campus.
3. NNSS.
4. Evaluation, retrofit, repair, and refurbishment of weapons in support of LEPs and weapon safety and reliability certification; to include development, testing, and fabrication of high-explosive components for use with nuclear weapons; also responsible for the dismantlement and demilitarization of retired, surplus, and unserviceable weapons.
5. Tritium extraction facility.
6. OST.

002

1. MFD.
2. SECDEF.
3. All military matters including nuclear weapons acquisitions and stockpile management.
4. Safeguard the US and its allies from weapons of mass destruction by providing capabilities to reduce, eliminate, and counter the threat and mitigate its effects.
5. A computer automated tracking and management information system used by DOD, which is the system of record for nuclear weapons stockpile, components, and related nuclear materiels.

003

1.
   - Missile and nuclear weapons inventory management, distribution, maintenance, and storage.
   - Coordinating the WR MUNS distribution plan.
   - Budgeting and operations for nuclear weapons relative to AFIs.
2. AFSEC.
3. NSIs on AF units.
4. To ensure consistency between units.
5. AETC.
6. USAFE.
7. Nuclear and logistics support for RSs, gravity weapons, warheads, cruise missiles, and the WS3.
8. NAF.
9. 20 AF.
10. Readiness of assigned forces in preparation of an air war.

004

1. The AFECD.
2. Nuclear weapons, bombs, missiles, RVs and systems, launchers, pylons, penetration aids, and associated test and handling equipment.
3. Nuclear, missile, explosive and general safety measures; weapons systems safety rules; and TOs.
4. Apprentice (2W231).
5. TBA.

005

1. The WG/CC.
2. The MXG/CC.
3. Up to 16 hours.
4. The SQ/CC.

5. Missile and explosive academics; explosive and missile safety; nuclear surety, intrinsic radiation, and nuclear weapons related materiel.
6. A qualified bay chief or above.
7. Flight commander/flight chief.
8. To identify trends and determine corrective and preventive action for each failure.
9. Section/element commander/NCOIC.
10. On-equipment and off-equipment maintenance on assigned nuclear weapons, missile, RSs, RVs, and associated equipment.
11. Limited GM.
12. The NARS.
13. Some of the duties include:
    - Managing bench stock, consumable/expendables, shelf-life, and hazardous waste programs.
    - Monitoring the test, management, and diagnostic equipment to include pickup and delivery.
    - Maintaining, storing, and repairing test, handling, and support equipment and hand tools.
14. MUNS control, P&S, and training.
15. Planning, coordinating, directing, and controlling MUNS activities.
16. Wing safety and QA.
17. The NMC2 system.
18. P&S.
19. Create work orders derived from source documents (i.e., setup messages, etc.); do *not* input TO 11N–20–11 line numbers, and ensure any jobs requiring the TPC are annotated "TWO-PERSON CONCEPT APPLIES."
20. The section commander/NCOIC.

006

1. INSI and NSI.
2. READY or NOT READY.
3. Prior to a unit:
    - Assuming nuclear duties for units not previously nuclear-certified.
    - Receiving a new weapon system, delivery system or performing a new nuclear task.
    - Resuming nuclear duties for which the unit has been decertified to accomplish.
4. The unit's ability to accomplish its assigned nuclear weapons mission and produce reliable nuclear weapons in a safe and secure environment in compliance with applicable directives.
5. DTRA.
6. Satisfactory, Unsatisfactory, Satisfactory (support unsatisfactory), and Unsatisfactory (support unsatisfactory).
7. Individually rated MGA or sub area.

007

1. Assess MUNS capability and effectiveness by evaluating programs, personnel proficiency and procedures, and inspecting facilities, equipment, vehicles, and TOs to ensure unit's compliance with DOD, AF, MAJCOM, and local instructions.
2. 2W271 QA personnel.
3. (1) All certifications are conducted using nuclear weapons trainers.
   (2) Only certified technicians are permitted to perform nuclear weapons tasks.
   (3) Technicians performing nuclear weapons tasks understand and use proper tech data, maintenance procedures, and techniques.
4. To prevent standardization since this practice allows technicians to only "train for the certification."

5. As training operations and documented as a non-rated evaluation.
6. AF Form 2435.
7. Semiannually for each certified task.
8. To provide logistics managers and wing leadership with a method to evaluate compliance with AF, MAJCOM, and local directives and policies.
9. (1) Determine if higher headquarters guidance is adequate and clear.
   (2) Provide feedback to the WG/CC on whether the unit is properly applying sound procedures to implement nuclear surety guidance.
   (3) Provide situational awareness on command nuclear surety to senior leadership in the form of a NSSAV executive summary and annual cross feed report.

008

1. Items are stored and readily available for use at the work area; minimizes paperwork and delivery times; no frequent single-issue orders since items are ordered in bulk; and user has possession and control of items.
2. MUNS commander.
3. A ceiling/cap on the unit price for an item on the bench stock account.
4. Bench stock monitors.
5. AF Form 465.
6. Identifying and flagging bench stock bin location with a red indicator when quantities are equal to or below 50 percent of the authorization amount.
7. The semiannual (S04) review.

009

1. FSC.
2. SLC 0 (zero).
3. Items that will not be tested, inspected, or extended in storage and a technical evaluation has determined that these items have a definite expiration date.
4. One-half of the original assigned shelf life.
5. DD Form 2477–1/–2/–3.
6. TO 11N–35–51A.
7. To facilitate efficiency during inspection or surveillance action by reducing the amount of travel time between locations.
8. A policy to ensure first issuing of those stocks that have the earliest expiration date for Type I items; or the earliest date manufactured, date packed, date cured, or date assembled for Type II items.

010

1. TMDE users or the performing work center.
2. Removed from service and submitted for recalibration.
3. Part number, serial number, and date due calibration on the TMDE certification label.
4. Weapons system or equipment CMS TOs; TO 33K–1–100–2; equipment maintenance TO; and then the commercial publication/commercial data.
5. It does not affect them. The previously assigned calibration due dates on items are still valid. If there's a reason to question the accuracy of the instrument, the organization that owns the equipment may request recalibration of its TMDE.
6. Pressure regulators.
7. TMDE normally not used at least once during its calibration interval, new TMDE after initial calibration, and previously calibrated TMDE.
8. Initial calibration to ensure TMDE meet requirements.
9. When all specifications of the calibration requirements are met without any restrictions.
10. User's shop chief, designated 7-level craftsman or civilian equivalent and be identified on a SCR.

011

1. The OSD.
2. The WG/CC.
3. The MXG/CC.
4. At least annually and as changes occur.
5. NWRM assets on supply accounts not managed in the CAS.
6. Two.
7. The inventory officer and the verifying officer.
8. If the audit reveals serious inaccuracies, irregularities, or inadequate audit trails.

Complete the unit review exercises before going to the next unit.

Unit Review Exercises

Note to Student: Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter.

1. (001) What organization did the Department of Energy (DOE) create to handle its nuclear matters?
   a. Department of Defense (DOD).
   b. National Security Agency (NSA).
   c. Defense Threat Reduction Agency (DTRA).
   d. National Nuclear Security Administration (NNSA).

2. (001) Which Department of Energy (DOE) agency was the site of numerous nuclear tests?
   a. Trinity Test Site.
   b. Sandia National Laboratories (SNL).
   c. Nevada National Security Site (NNSS).
   d. Y–12 National Security Complex.

3. (002) After the Department of Energy's (DOE) final production and certification, the *first* stop within the Department of Defense (DOD) is called the
   a. initial military destination.
   b. military initial destination.
   c. first military destination.
   d. military first destination.

4. (002) Developing military requirements; preparing strategic and joint war plans; and preparing short-, mid-, and long-range projections for nuclear warhead research and development programs is the responsibility of the
   a. Joint Chiefs of Staff (JCS).
   b. Secretary of Defense (SECDEF).
   c. Department of Energy (DOE).
   d. Department of Defense (DOD).

5. (002) Evaluating, tracking, and assigning unsatisfactory report (UR) numbers to discrepancies on weapons and Department of Energy (DOE) equipment is the responsibility of
   a. Sandia National Laboratories (SNL).
   b. the Defense Threat Reduction Agency (DTRA).
   c. the quality assurance (QA) report monitor.
   d. the Air Force Nuclear Weapons Center (AFNWC).

6. (003) Which Air Force (AF) agency budgets for *all* nuclear-related items used to support the AF's mission?
   a. San Antonio Air Logistics Center (SA–ALC).
   b. Headquarters, United States Air Force (HQ USAF).
   c. Headquarters, Inspector General (HQ IG).
   d. Major command (MAJCOM).

7. (003) The Air Force Inspection Agency (AFIA) is responsible for
   a. establishing nuclear weapons systems mishap prevention programs.
   b. overseeing nuclear surety inspections (NSI) for Air Force (AF) units.
   c. coordinating the war reserve (WR) munitions distribution plan.
   d. approving nuclear weapons system safety rules (WSSR).

8. (003) Which organization oversees its respective nuclear weapons employment, maintenance, and storage activities?
   a. Headquarters, United States Air Force (HQ USAF).
   b. Air Force Safety Center (AFSEC).
   c. Major command (MAJCOM).
   d. Numbered air force (NAF).

9. (003) Which command conducts initial, upgrade, and specialized weapons training to support field requirements?
   a. Air Education and Training Command (AETC).
   b. Air Force Global Strike Command (AFGSC).
   c. United States Air Forces in Europe (USAFE).
   d. Air Force Materiel Command (AFMC).

10. (003) Which command is charged with the continental United States (CONUS) nuclear deterrence mission?
    a. Air Force Special Operations Command AFSOC).
    b. Air Force Global Strike Command (AFGSC).
    c. Air Force Materiel Command (AFMC).
    d. Air Combat Command (ACC).

11. (004) Nuclear weapons apprentice and journeyman responsibilities *do not* include
    a. modifying nuclear weapons.
    b. performing escort duties.
    c. operating vehicles.
    d. certifying documents.

12. (004) The *minimum* passing score on *all* progress checks and exams at the technical training school is
    a. 70 percent.
    b. 75 percent.
    c. 80 percent.
    d. 85 percent.

13. (004) In order to be awarded the *journeyman* skill level, a technician must be certified as a team member for how long at what task?
    a. 6 months on a handling task.
    b. 12 months on a mate/demate task.
    c. 6 months on a weapons maintenance task.
    d. 12 months on final assembly test certification.

14. (005) The operations officer (OO)/maintenance superintendent (MX/SUPT) is responsible for
    a. appointing a qualified bay chief or above to evaluate rejectable or questionable defects.
    b. appointing instructors for the Nuclear Weapons Training Program (NWTP) Course.
    c. recommending personnel to fill quality assurance (QA) positions.
    d. publishing emergency action procedures.

15. (005) Who conducts proficiency evaluations and monitors the safety of nuclear weapons operations?
    a. Wing safety chief.
    b. Flight chief.
    c. Team chief.
    d. Bay chief.

16. (005) Munitions (MUNS) control, plans and scheduling (P&S), and training are responsibilities of which flight?
    a. Special weapons.
    b. Maintenance.
    c. Systems.
    d. Support.

17. (005) What does munitions squadron (MUNS) control use to document *all* notifications to or from security forces and the fire department?
    a. Maintenance information gathering system (MIGS).
    b. Nuclear munitions command and control (NMC2).
    c. Maintenance command and control (MC2).
    d. Any local computerized product.

18. (006) What instruction takes precedence over *all* instructions regarding nuclear weapons technical inspections?
    a. Air Force Instruction (AFI) 90–201.
    b. AFI 91–101.
    c. Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3263.05C.
    d. Department of Defense Manual (DoDM) 5210.41–M.

19. (006) The Defense Threat Reduction Agency (DTRA) conducts defense nuclear surety inspection oversight (DNSIO) *every*
    a. 18 months.
    b. 36 months.
    c. 48 months.
    d. 54 months.

20. (006) At the conclusion of *most* nuclear weapons technical inspections (NWTI), a unit that *can* perform its nuclear mission but a deficiency exists beyond the unit's capability receives a rating of
    a. satisfactory.
    b. unsatisfactory.
    c. satisfactory (support unsatisfactory).
    d. unsatisfactory (support unsatisfactory).

21. (006) A team that conducts a technical operation strictly within directives and with a superior degree of professionalism receives an adjectival rating of
    a. outstanding.
    b. benchmark.
    c. excellent.
    d. superior.

22. (007) What is an objective of the certification program?
    a. All certifications are conducted using nuclear weapons.
    b. All non-certified technicians are permitted to perform nuclear weapons tasks.
    c. Technicians performing nuclear weapons tasks must qualify on security duties.
    d. Technicians performing nuclear weapons tasks must understand and use tech data.

23. (007) When are proficiency checks accomplished for each certified task?
    a. Monthly.
    b. Quarterly.
    c. Semi-annually.
    d. Annually.

24. (008) A bench stock item will be projected for deletion after how many days of showing no use in the monthly bench stock review report?
    a. 90.
    b. 180.
    c. 270.
    d. 365.

25. (009) The first four digits of a national stock number (NSN) make up the federal
    a. stock group.
    b. supply group.
    c. stock classification.
    d. supply classification.

26. (009) What is the *new* shelf-life period after a successful retest of Type II shelf-life items?
    a. It varies as determined by base supply quality inspectors.
    b. Extended for one-half of the original shelf life.
    c. Extended for the entire original shelf life.
    d. No shelf-life extensions are permitted.

27. (009) What shelf-life guidance takes precedence over *all* other references?
    a. Air Force Instruction (AFI) 23–101.
    b. Technical Order (TO) 11N–35–51.
    c. TO 11N–35–51A.
    d. Safety data sheet.

28. (010) When calibration intervals conflict with other technical orders (TO), which interval requirement takes precedence?
    a. Equipment maintenance TO.
    b. TO 33K–1–100–2, *Calibration Requirements List*.
    c. Commercial publication or manufacturer's instructions.
    d. Weapons system or equipment calibration and measurement summary (CMS) TOs.

29. (010) Who is authorized to replace a damaged or lost test, measurement, and diagnostic equipment (TMDE) label?
    a. TMDE coordinator.
    b. Precision measurement and equipment laboratory (PMEL).
    c. Supervisor or designated representative.
    d. Individual discovering the discrepancy.

30. (010) What forms are used when test, measurement, and diagnostic equipment (TMDE) items are certified with limited or special calibration?
    a. Air Force Technical Order (AFTO) Forms 244 and 245.
    b. AFTO Forms 108 and 394.
    c. AFTO Forms 99 and 398.
    d. Any two local forms.

31. (011) Who does the wing commander (WG/CC) appoint as the nuclear weapons-related materiel accountable officer (NWRMAO)?
    a. Logistics readiness squadron (LRS) commander.
    b. Security forces squadron commander (SQ/CC).
    c. Munitions SQ/CC.
    d. Medical group commander.

32. (011) Who is responsible for nuclear weapons-related materiel (NWRM) managed in the combat ammunition system (CAS)?
    a. Munitions accountable systems officer (MASO).
    b. Munitions squadron commander (SQ/CC).
    c. NWRM accountable officer.
    d. CAS accountable officer.

33. (011) When a unit schedules and conducts a semiannual inventory report (SIR), its nuclear weapons-related materiel (NWRM) inventory is conducted
    a. a month *after* the SIR.
    b. a month *prior to* the SIR.
    c. simultaneously with the SIR.
    d. independent of the SIR inventory.

Please read the unit menu for unit 2 and continue ➔

Student Notes

Unit 2. Security

BECAUSE YOUR DUTIES involve nuclear weapons, you are in a position where security is a major concern. Few other areas in the AF require as much attention to security because the weapons, equipment, and publications you work with are essential to national defense. Should weapons or any information concerning them fall into enemy hands, the result could be serious damage to our nation. Because of the great responsibility you are entrusted with, you need to expand the security knowledge you received on the job with more in-depth information. For this reason, the main subjects of this unit are nuclear weapons security fundamentals, movements, and classified information. As you are well aware, and will discover in this unit, security aspects in the nuclear area are more stringent than some other areas.

2–1. Nuclear Weapons Security Fundamentals and Movements

Access to nuclear weapons and nuclear weapons information is strictly controlled. Control is maintained by limiting the number of people authorized to receive access and by physical barriers that permit only authorized individuals to enter areas containing classified information and materials. Let's talk about the physical security program first.

012. Nuclear weapons security fundamentals

Each member of the AF, regardless of specialty or grade, has a job to support the overall mission. In the nuclear weapons career field, we are charged with making sure that our weapons systems can be used against an enemy. To be certain a strike can be delivered, there is a need to protect our air power against any ground-based hostile act. DoDM S-5210.41, Volume 1, *(U) Nuclear Weapon Security Manual: The DoD Nuclear Weapon Security Program*, provides for such "on-the-ground" protection measures. The program is designed to provide all operations with effective and standardized physical security.

Concept

The main objective is to design a security program that deters and responds to hostile operations against protection level (PL) resources. An effective physical security program must detect hostile activity, control entry and access to sensitive areas, and, as necessary, defeat a hostile force.

Security protection level system

This system identifies critical resources that you must secure and indicates the degree of security effort that you must dedicate to those particular resources. The PLs of various resources can change during an increased state of readiness; however, nuclear weapons are always PL 1. A description of each PL is described in the following table.

Protection Level Resource Categories	
Category	**Description**
PL 1	This top PL is given to any resource of the USAF for which loss, theft, destruction, misuse, or compromise would result in *great harm* to the strategic capability of the US.

Protection Level Resource Categories	
Category	**Description**
	Some examples of PL 1 resources are as follows: • Nuclear weapons and/or critical components. • Command, control, communications, and computer (C4) systems critical to the success of active nuclear missions. • Designated critical space and launch resources. • Aircraft designated to transport the POTUS and senior executive (SENEX) mission aircraft.
PL 2	This PL is given to any USAF resource for which loss, theft, destruction, misuse, or compromise would likely cause *significant harm* to the war-fighting capability of the US. Some examples of PL 2 resources are as follows: • Non-nuclear alert forces. • Expensive, few in number, or one-of-a-kind systems. • Selected critical command, control, and communications facilities, systems, or equipment. • Vital computer facilities. • Intelligence-gathering equipment *critical* to US operational capability.
PL 3	This PL is given to any USAF resource for which loss, theft, destruction, misuse, or compromise would *damage* US war-fighting capability. Some examples of PL 3 resources are as follows: • Weapons systems capable of being on alert status. • Selected command, control, and communications facilities, systems, and equipment. • Intelligence-gathering systems *not critical* to US operational capability.
PL 4	This PL is given to any USAF resources which do not meet the definitions of PL 1, PL 2, or PL 3, but for which loss, theft, destruction, misuse, or compromise would *adversely affect* the operational capability of the AF. Some examples of PL 4 resources are as follows: • Facilities storing sensitive conventional MUNS. • Flight-line parking ramps. • Mission-essential communications facilities. • Petroleum, oils, and lubricants (POL) and liquid oxygen (LOX) storage areas.

Security areas

You probably work in an area full of PL 1 weapons and equipment. AFI 31–101, *Integrated Defense (ID)*, describes different types of security areas that are used throughout the AF. Under this program, aerospace resources are collected into defined security areas under a single system of control. The three types of security areas—national defense area, restricted (limited area), and close-in security (exclusion area)—are described in the following table.

Security Areas	
Type	**Description**
National defense area	A national defense area is defined as a military zone that contains military resources of security interest located on property *not* under DOD control. While you probably will never work in a national defense area, you may be dispersed to a civilian airport for an unplanned emergency or to an off-base crash of an aircraft that was carrying a nuclear weapon. Such unplanned emergencies could justify establishing a national defense area. When establishing a national defense area the incident commander will do the following: • Make the size of the area as small as possible and practicable for the protection of

Security Areas	
Type	**Description**
	the resource. • Mark off the boundary and use military security forces to prevent unauthorized entry.
Controlled area	A security area adjacent to or encompassing limited or exclusion areas. Within this area, uncontrolled movement does not permit access to a security interest (i.e., nuclear weapon). The controlled area is designed for the principal purpose of providing administrative control and safety, and a buffer area of security restrictions for limited or exclusion areas.
Restricted area (limited area)	A restricted area is located on a military base or site that needs special security measures to prevent unauthorized entry. Specific written permission by the commander is required to enter a restricted area. Physical barriers are used to prevent unauthorized persons from entering and gaining access to PL 1, 2, or 3 resources protected by the restricted security area. PL 1 resources are contained in security areas that physically separate them from lower priority resources. Nuclear weapons storage areas (WSA), missile launch sites, and alert aircraft areas are PL 1 restricted areas. In the same manner, PL 2 resources areas are contained in restricted areas that separate them as far as possible from PL 3 resources.
Close-in security area (exclusion area)	A close-in security area is located within a restricted area and is used to contain one or more nuclear weapon(s) or systems (PL 1). Storing nuclear weapons in an igloo is one example. Close-in security is also provided to a nuclear weapon that is tied down on a 40-foot trailer. The close-in security area perimeter serves as the innermost line or circle of security control supporting an individual resource. Security forces provide close-in support for proximity to the perimeter. For hardened structures, such as igloos, an alarm system often provides the close-in security support. When a close-in security area contains nuclear weapons or critical components, it is also designated as a “no-lone zone.”

013. Nuclear weapons movements

There are two types of movements—intra-area and outside WSA (detailed in the following table). This discussion focuses on these types of movements and the factors that affect them. These movements support your local maintenance requirements.

Nuclear Weapons Movements	
Type	**Description**
Intra-area	An intra-area movement happens inside the WSA and involves transporting a weapon in any configuration from storage to the maintenance facility or from the maintenance facility to storage.
Outside WSA	An outside WSA movement is more involved since you’re leaving the security of the WSA. This type of movement requires more coordination and planning to make sure the safety and security of the weapon is not being compromised. Generally outside WSA movements transport weapons to and from: • Hot cargo pad for a special assignment airlift mission (SAAM). • Flight line for alert aircraft uploads. • Missile site locations for mating an ICBM.

Movement procedures

Whether a weapons movement is inside or outside the WSA, the procedure is commonly called a *convoy*. During the convoy, there are several requirements and procedures that must be followed. For example, each vehicle operator must be qualified to operate the vehicle, have a valid operator's permit, and be certified to transport weapons. The TPC must be followed. For movements outside the WSA, both individuals are armed. When assigned to drive a vehicle during a weapons convoy, always be on guard and pay close attention to the convoy speed limit. Keep the vehicle's headlights and four-way flasher lights on. Be alert for instructions that come over the two-way radio and remain fully aware of your cargo or load. Bad weather conditions increase hazards, particularly when roads are icy or snow packed or when visibility is reduced.

Whether the convoy is made up of one, two, or many vehicles, there will be several security forces vehicles escorting. Each escorting vehicle must have a two-way radio and be able to contact the convoy commander at any time if there are any issues. When available, a helicopter escort with armed security forces aboard is used during off-base weapons movement. Communication between the helicopter, communications control center, and the convoy commander is maintained throughout the movement.

When moving nuclear weapons over public roads, the possibility of sabotage, accidents, and delays increase. Therefore, you must take additional precautions. Security forces will communicate to local and other applicable law enforcement to ensure the convoy has the appropriate clearances throughout the local area and proper route protection. In overseas areas, MAJCOMs must make sure that each shipment meets the limitations stated in the Status of Forces Agreement. Before the convoy departs, search the vehicles for unauthorized devices.

During a weapons movement outside of the WSA, you are to follow the convoy route—either the primary route or an alternate one. Figure 2–1 shows primary route marked with a solid blue line and the alternate with a red dashed line.

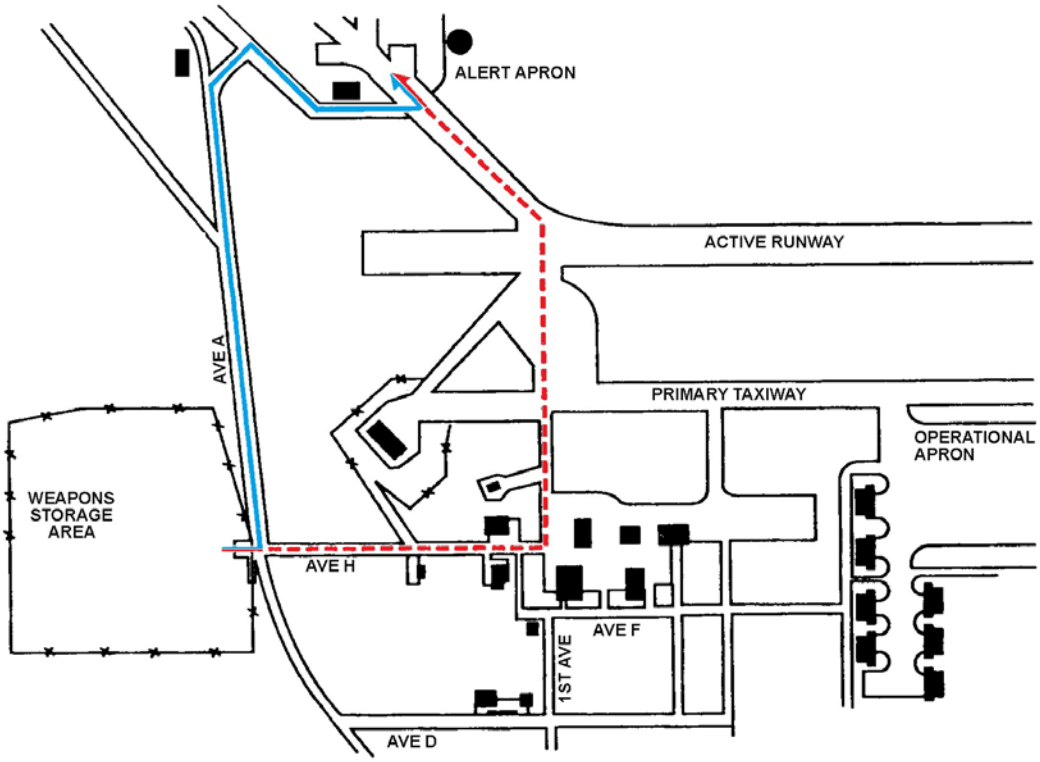


Figure 2–1. Sample convoy route.

Prior to the convoy, you will attend a mission briefing to discuss the mission sequence. This is a meeting of agencies on the base to coordinate mission requirements. Agencies that normally attend include the fire department, flight-line representative, security, weather, transportation, billeting, and messing. The entry authorization list (EAL) is also discussed and coordinated.

On the day of the movement, the MUNS convoy commander and security forces conduct a convoy briefing for personnel involved. Make sure that the appropriate people are armed, and double-check the communications equipment. Then make sure that the convoy route is swept to prevent the tires from picking up foreign objects and debris, and wait for roll notification. This happens after security personnel perform security sweeps of all areas affected and the aircraft is sanitized. (*Sanitized* means that the aircrew thoroughly checks the aircraft for unauthorized explosives and personnel.) Then the restricted area is put in place.

The following is an example of an outside WSA logistics movement for a SAAM. The downloading crew and NARS are processed into the area via the EAL through the already established restricted area entry control point (ECP). Then they meet with the aircraft commander for a face-to-face briefing and await the convoy. The weapon convoy arrives at the flight line's hot cargo pad. The NARS technicians and aircrew verify information and weapon serial number and then transfer custody to the aircrew. The download crew then removes chains from the weapon and the aircrew transfers the weapon from the trailer to the aircraft. Depending on the situation, some of the download crew may be asked to assist in transferring the weapon onto the aircraft.

Safe Haven

Safe Haven is the code word for a situation where a DOE convoy seeks sanctuary at a military base as a result of a hostile or emergency situation. A formal agreement between the DOE and DOD authorizes temporary storage of nuclear or other classified DOE shipments at DOD facilities in an emergency. Emergency circumstances include, but are not limited to, hostile situations, civil disorder, natural disaster, adverse weather conditions, or vehicle breakdown. Any of these situations may require your organization to help set up a Safe Haven area. During a Safe Haven, DOD responsibilities are to provide security, firefighting equipment, communications, and logistics support. DOE convoys schedule routine stops at bases for crew changeover or sometimes for crew rest overnight (RON) which means the crew will return the following day.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

012. Nuclear weapons security fundamentals

1. What must a physical security program do to be effective?

2. What does the security PL system identify?

3. Match the resources listed in column A with the security priorities listed in column B. Items in column B may be used more than once.

Column A	*Column B*
____ (1) Weapons systems capable of being on alert status.	a. PL 1.
____ (2) Nuclear weapons and aircraft designated to transport the president.	b. PL 2.
____ (3) Nonnuclear alert forces.	c. PL 3.
____ (4) Facilities storing sensitive conventional MUNS.	d. PL 4.
____ (5) A resource which its loss, theft, destruction, misuse, or compromise would damage war-fighting capability.	
____ (6) A resource which its loss, theft, destruction, misuse, or compromise would cause great harm to the strategic capability of the US.	

4. What are the three types of security areas?

5. What is a national defense area?

6. What is another name for a close-in security area that contains critical components?

013. Nuclear weapons movements

1. What type of operational movement happens *inside* the WSA?

2. List three examples of outside WSA weapons movements.

3. What are the requirements for a convoy's *vehicle operator*?

4. What potential problems or situations increase when moving nuclear weapons over public roads?

5. Why would a DOE convoy seek sanctuary (Safe Haven) at a military base?

6. What are the DOD's responsibilities during a Safe Haven?

2–2. Classified Information

It is everyone's responsibility to safeguard classified information. In order to uphold your responsibility to protect classified information, you must have a thorough understanding of how classifications are determined and how classified information and materials should be handled and stored.

In the course of your duties, much of the information you handle is classified. It is your responsibility to safeguard this information. Therefore, you must be able to identify classified material and provide proper safeguards. In this section, we will cover the basic terms associated with classified information, and how to store and control classified information.

014. Classified information definitions

In order to understand certain aspects of security and classified information, you must understand certain terms. The definitions in the following table are provided so that you can better understand what security is all about.

Classified Information Definitions	
Term	**Meaning**
Access	To gain access, you must have the ability and opportunity to obtain and gain knowledge of classified information.
Authorization	There are three elements of authorization: • Authorized—having the security clearance and the need-to-know. • Not authorized—*not* having the required security clearance. • Unauthorized—having the security clearance, but *not* the need-to-know.
Classified information	This information is owned by, produced for, or under the control of the US government *and* determined under prior orders or instructions to require protection against unauthorized disclosure *or* as directed by a classifier.
Classified information nondisclosure agreement (NdA)	All persons with authorized access to classified information must sign the Standard Form (SF) 312, Classified Information Nondisclosure Agreement. This NdA is legally binding and is an acknowledgment that the individual has received security indoctrination concerning protection and dissemination of classified information. **NOTE:** Any *authorized* NdA remains valid for a 50-year retention period. Refer to AFI 16–1404, *Air Force Information Security Program,* for additional information.
Classifier	This person makes a classification determination and applies a security classification to information. This can be anyone, but if the individual is *not* an original classification authority (OCA), he or she must use a security classification guide (SCG). Classifying information in this manner is referred to as *directive classification*.
Communications security (COMSEC)	COMSEC outlines protective measures to take to deny unauthorized persons gaining information. This is the primary measure taken for national security information that can be derived from any US government communications and to make sure of the authenticity of such information. COMSEC material requires additional controls compared to classified TOs. Accurate inventory procedures are mandatory. Some examples of COMSEC materials include: • Secure telephone equipment (STE) keys. • Permissive action link (PAL) coding information. • WS3 code storage modules (CSM). The forms used to maintain the COMSEC accounts include the SF 153, COMSEC Material Report and the AFCOMSEC Form 16, COMSEC Account-Daily Shift

Classified Information Definitions	
Term	**Meaning**
	Inventory. USAFE uses the USAFE Form 15, Weapons Storage and Security System (WS3) COMSEC Inventory. The forms provide a record of who received the material and when the material was returned or destroyed. Ultimately, the SQ/CC is responsible for COMSEC accounts; however, commanders normally appoint a COMSEC custodian to maintain the account. AFMAN 17–1302-O, *Communications Security (COMSEC) Operations,* and MAJCOM procedures are the publications for COMSEC materials.
Compromise	Any disclosure of classified information to a person *not authorized access* is called a compromise. This may also be called an unauthorized disclosure.
Critical nuclear weapons design information (CNWDI)	CNWDI is Top Secret restricted data (RD) or Secret RD revealing the theory of operation or design of components contained in thermonuclear or implosion-type fission devices.
Formerly RD	This information is removed from the RD category when joint determination by the DOE and DOD is made. It relates primarily to military use of nuclear weapons and that such information can be safeguarded adequately as classified defense information. However for the purpose of foreign dissemination, such information is treated as RD. This information is exempt from declassification through the Freedom of Information Act.
Information	Information is knowledge that can be communicated by any means.
Information security	This type of security is the result of policies and procedures for identifying, controlling, and protecting information from unauthorized persons.
OCA	The Secretary of the Air Force serves as the OCA and delegates this authority to other OCAs. They apply levels of classification to protect information and assets from disclosure to our adversaries. OCAs make an initial determination that information requires protection against unauthorized disclosure in the interest of national security. OCAs publish classification guides (CG) for each weapons systems type.
RD	RD is information involving: • Design, manufacture, or use of nuclear devices. • Production of special nuclear materiel. • Use of special nuclear materiel in the production of energy. RD does *not* include materiel that is declassified or removed from this category by proper authority. This information is exempt from declassification through the Freedom of Information Act.

Security classification designators

Security classification designators are only assigned to classified material. It is a method used to readily identify the sensitivity of classified material. The designator also indicates the degree of protection needed to prevent its unauthorized disclosure. Do *not* use terms such as “For Official Use Only” (FOUO) and “Limited Use Only” to identify classified information. Furthermore, do *not* use other terms such as “sensitive,” “conference,” or “agency use” in conjunction with classified material.

- A *Top Secret* designator is applied to information or material that disclosure would reasonably be expected to *cause exceptionally grave damage* to the national security.
- A *Secret* designator is applied to information that disclosure could reasonably expect *to cause serious damage* to national security.

- A *Confidential* designator is applied to classified information that disclosure could reasonably expect to *cause damage* to national security.

You can identify each designator by key words:

- Top Secret—Exceptionally grave damage.
- Secret—Serious damage.
- Confidential—Damage.

Security classification guides

An OCA issues an SCG. The document prescribes the level of classification and appropriate declassification instructions for specific, sensitive information. The guides break down essential concepts and associated information to ensure personnel are able to classify information properly, when required. However, DOD automatically exempts RD and formerly RD from declassification.

There are many different CGs out there that are used for all parts of the DOD mission. The main guide used in our field of work today is the CG-W5. This guide is a broad-brush approach to classifying certain aspects of the nuclear mission. However, each weapon system has its own SCG describing exactly what system information is classified and to what level. These individual weapon system SCGs are the most accurate source for classifying information pertaining to each system.

Everything that has a security classification assigned must be safeguarded. People who have access to classified material and/or information must be trained in protection procedures. We stress preventing the loss of classified material and/or information to help maintain a secure environment. After you have met the requirements for a security clearance and been given access, it is your responsibility to guard any classified material and/or information and these SCGs are available to assist you with that responsibility.

015. Storing and safeguarding classified information

Safekeeping classified information includes eliminating physical conditions that could lead to compromise. The safekeeping of classified information is everyone’s responsibility. This is done by using security aids designed to prevent unauthorized access or by giving an alarm when an unauthorized individual attempts access. When used properly, security aids (e.g., safes, alarms, and limiting access only to those with an authorized need) maximize our security effort to protect classified information.

Storage and storage equipment

The possession or use of classified material must be limited to locations where you have the facilities to protect it. If you work in an area where there is classified material, you are required to know how to handle and store it. Classified material is handled only by people who have the proper security clearance, need-to-know, authorized access, and a signed SF 312. No one may remove classified material from its storage location unless they are authorized to do so. Storage equipment requirements vary according to the security category and type of material involved. The General Services Administration (GSA) establishes the minimum requirements for security containers. However, the Secretary of the Air Force can establish additional controls or requirements in order to prevent unauthorized access to classified information. Secret and Confidential documents must be stored in a safe, vault, or approved room that is protected by a built-in, three-position, dial-type combination lock.

Storage container restrictions

Certain restricted items must not be stored in the same security containers used to store classified information. These include funds, weapons, drugs, precious metals, or other such materials. There is always the possibility of theft of restricted items, and storing them with classified information could lead to the information being compromised or destroyed.

Authorized safes for storing classified information include the GSA Class 5, Class 6, and the two-person control safes. The important thing to remember is that whenever a safe is opened, it must be kept under constant surveillance. Typically, we store classified TOs, messages, COMSEC and/or crypto, storage structure keys, and/or vault modules in a safe.

Combination changes

Only designated people can change combinations. These individuals must have the proper clearance and need-to-know. Changing a combination is mandatory when:

- The container is put into service.
- An individual no longer requires access unless other sufficient controls exist to prevent that individual's access to the lock.
- When compromise of the combination is suspected.
- The container is taken out of service.

Classify the combination to the highest level of classified material that could be held in the container. Do *not* physically record a combination other than the required SF 700, Security Container Information. This form will be used as the record of the combination change and comes in two parts. Part 1 is unclassified and identifies information about the container and how to contact specified personnel. Once the combination is recorded on part 2, ensure it is stored in a separate classified storage container. This container will have a separate combination and will be able to safeguard to at least the classification of the part 2. This is a failsafe in case the combination is forgotten or to validate the correct combination during troubleshooting a lock malfunction.

When changing a combination, do *not* use the following:

- Factory settings.
- Numbers that all end in zero (0) or five (5).
- Numbers particular to your activity (e.g., phone or building numbers).
- Sequential number sets.
- Numbers of one container to build on (e.g. 10-20-30, 10-20-31…).

016. Maintaining accountability

When you have classified material in your possession, *you* are the custodian of that material. You must know what is required of you when you are tasked with this responsibility. The following information is designed to help you understand some of the responsibilities and requirements.

Controlling classified material

When classified material is in your possession, you are accountable for its protection. When such material is in storage, the primary custodian is responsible for the material. DOD personnel must take all necessary actions to prevent unauthorized access to classified material. Use the *minimum* amount of force at first.

Keep classified documents that you have removed from storage under constant surveillance. This means that you *cannot* leave documents such as TOs or messages in the maintenance bay while on break, at lunch, or overnight. Someone penetrating the building would have easy access to the unattended classified material. The best protective measure is to put the material back in the safe when you are not using it. When you remove classified material and/or information from a safe, complete an AF Form 614, Charge Out Record. This record accounts for the document or documents not in the safe and ensures proper accountability and easier inventory. Use cover sheets like the SF 704, Secret (Cover Sheet), or SF 705, Confidential (Cover Sheet), to ensure all classified material is properly identified. Additionally, if you remove classified material from the building, use a locked briefcase or zippered pouch made of canvas or other heavy-duty material; make sure you have an integral key-operated lock for hand-carrying classified material.

Receipt and destruction of classified information

Whenever you receive classified information an AF IMT 310, Document Receipt and Destruction Certificate (fig. 2–2), accompanies the package. This form is used to validate the receipt of classified material when it arrives at its final destination. When you receive classified information, fill out the form indicating who received the package and the date the item was received. Keep one copy for your records and mail/e-mail the original back to the sender in order to prevent needless tracer action.

DOCUMENT RECEIPT AND DESTRUCTION CERTIFICATE

1. TO:	2. FROM:	3. DATE
HQ AFSEC/SEWN (ACCT 0927) 9700 G Ave SE, Bldg 24499, Suite 124A Kirtland AFB NM 87117	AFNWC/NDET Kirtland AFB NM Fax: DSN 246-8911 Com: 505-846-8911 Return SIGNED -- by FAX or E-MAIL	20160323 4. CONTAINER NO. NDET-16-0137

5. DESCRIPTION OF DOCUMENT(S): *(Indicate overall classification, originator, type (letter, message, plan, etc.), date, unclassified subject title, number of copies, and originator control number and copy number if Top Secret. Also use these data elements for identifying any attachments that would require a receipt if transmitted separately.)*

11N-B83-1 w/ Chg1 dated 16-Mar-16, (CFRD) 1 cd copy.////////////////////////////////Last Item//

Per AFI 16-1404 signed copies of AF IMT 310 must be returned within 15 days CONUS, 30 days OCONUS
Email POC: AFNWC.NDET.TODATA@US.AF.MIL OR william.harp@us.af.mil or william.rodriguez.9@us.af.mil

TO AVOID TRACER ACTION, RETURN SIGNED RECEIPT BY →	6. DATE 20160413

DOCUMENT RECEIPT

I ACKNOWLEDGE RECEIPT OF THE ABOVE DOCUMENTS

7. DATE RECEIVED	8. NAME, ORGANIZATION, AND PHONE NUMBER (DSN)	9. SIGNATURE OF RECIPIENT
23 MAR 2016	MSgt Aric Wickware / AFSEC/SEWN 246-6035	

DESTRUCTION CERTIFICATE

10. THE DOCUMENT(S) LISTED ABOVE WERE		DESTROYED		COMMITTED TO CENTRAL DESTRUCTION FACILITY ON →	11. DATE

12. TYPED OR PRINTED NAME AND SIGNATURE OF WITNESSING OFFICIAL	13. TYPED OR PRINTED NAME AND SIGNATURE OF WITNESSING OFFICIAL

AF IMT 310, 19951101, V4 PREVIOUS EDITION WILL BE USED.

Figure 2–2. Sample, AF IMT 310.

When classified information is no longer needed, destroy it in a manner that prevents compromise. Authorized methods and equipment used to destroy classified information routinely include burning, crosscut shredding, wet pulping, mutilation, chemical decomposition, or pulverizing. Methods used for clearing, sanitization or destruction of classified IT equipment and media include overwriting, degaussing, sanding, and physical destruction of components or media. Authorized means of destroying classified material include crosscut shredding, burning at an authorized burn facility, or pulping. The most widely used method of destroying classified information is by using an authorized crosscut paper shredder and optical media destruction devices that have been validated and identified on the evaluated products list (EPL) issued by the National Security Agency.

Routine security paperwork

The AF utilizes a SF 702, Security Container Checksheet (fig. 2–3), for all security containers and vaults. This form indicates the date/time the security container or vault is opened, closed, and checked along with the initials of the individual accessing the container. When you open the security container or vault, you annotate the day in the "Date" column along with your initials and time under the "Opened By" column. Prior to closing the security container or vault, you must account for all classified material in the container or vault. Then, once you secure the container or vault, you annotate your initials and time under the "Closed By" column. You initial and note the time in the "Checked By" column during the end-of-day check to verify, once again, that the container or vault is secure. Unless otherwise directed by your MAJCOM, the same person who closes/secures the container can also initial the "Checked By" block on the SF 702.

SECURITY CONTAINER CHECK SHEET

FROM	ROOM NO.	BUILDING	CONTAINER NO.
	103	3426	MUNS-23

CERTIFICATION

I CERTIFY, BY MY INITIALS BELOW, THAT I HAVE OPENED, CLOSED OR CHECKED THIS SECURITY CONTAINER IN ACCORDANCE WITH PERTINENT AGENCY REGULATIONS AND OPERATING INSTRUCTIONS.

MONTH/YEAR 02/17

DATE	OPENED BY		CLOSED BY		CHECKED BY		GUARD CHECK (if required)	
	INITIALS	TIME	INITIALS	TIME	INITIALS	TIME	INITIALS	TIME
5	ACW	0730	RLH	0900				
5	RLH	0900	[illegible]	0915	ACW	0920		
6	ACW	0715	[illegible]	0730	ACW	0930		

STANDARD FORM 702 (11-2010)
Prescribed by NARA/ISOO
32 CFR PART 2001 EO 13526

Figure 2–3. Sample, SF 702.

During the end-of-day checks, before you leave the maintenance building, you will complete the SF 701, Activity Security Checklist (fig. 2–4). The SF 701 is required to be posted outside of the room or building where a container/vault is located. This is a double check to make sure all classified material is secured properly and the area is secured. This check includes all rooms, areas, and machines where classified material is stored, handled, processed, and destroyed. Everyone must make sure to secure classified material properly at all times. If not secured properly, report any security violations. Each MAJCOM has set up specific procedures on how this is to be accomplished. The SF 701 is designed for monthly use and contains columns for each day along with the items to verify on each row. At the end of the day, you will verify each item by placing a check mark in the correct column/row. Once you verify all of the items, you will annotate your initials and the time the check was completed.

ACTIVITY SECURITY CHECKLIST

DIVISION/BRANCH/OFFICE	ROOM NUMBER	MONTH AND YEAR
363 TRS/TRR/CDC Writer Lab	125	02/2017

Irregularities discovered will be promptly reported to the designated Security Office for corrective action.

Statement

I have conducted a security inspection of this work area and checked all the items listed below.

TO *(if required)* | FROM *(if required)* | THROUGH *(if required)*

*ITEM	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1. Ensure all classified is returned to storage	✓	✓																													
2. Ensure Safe MUNS-23 is secured	✓	✓																													
3. Ensure lights have been turned off	✓	✓																													
4. Ensure all exterior doors have been locked	✓	✓																													
5. Ensure Alarm has been set and verified as active	✓	✓																													
6.																															
7.																															
8.																															
INITIAL FOR DAILY REPORT	ACW	RLH																													
TIME	1630	1600																													

* Fill in each ITEM as needed in order to meet your organization's requirements; e.g. "1. Security alarm(s) and related equipment have been activated (where appropriate)."

701-101
NSN 7540-01-213-7899

STANDARD FORM 701 (11-2010)
Prescribed by NARA/ISOO
32 CFR PART 2001 EO 13526

Figure 2–4. Sample, SF 701.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

014. Classified information definitions

1. Match each term in column B with its definition in column A. The items in column B are used only once.

Column A	*Column B*
____ (1) Knowledge that can be communicated by any means. ____ (2) Information under the control of the US government and determined under prior orders to require protection. ____ (7) Information involving the design or use of nuclear devices or the use of special nuclear materiel in the production of energy. ____ (8) A person who makes a classification determination and applies a security classification to information. ____ (9) Top Secret RD or Secret RD revealing the theory of operation of thermonuclear devices. ____ (10) A document issued by an OCA that prescribes the level of classification for specific information. ____ (11) Information removed from the RD category upon a joint determination by the DOE and DOD. ____ (12) The ability and opportunity to obtain knowledge of classified information. ____ (13) Protective measures taken to deny unauthorized persons from gaining information. ____ (14) Any disclosure of classified information to a person not authorized access. ____ (15) Program that outlines protective measures to take to deny unauthorized persons from gaining information. ____ (16) A person who has authority to make an initial determination that information requires protection in the interest of national security.	a. Access. b. OCA. c. SCG. d. Classified information. e. Classifier. f. COMSEC. g. Compromise. h. CNWDI. i. Formerly RD. j. Information. k. Information security. l. RD.

2. Give some examples of COMSEC material.

3. What are the three security classification designators?

4. What are the key terms we use to identify the security classification designators you listed above?

015. Storing and safeguarding classified information

1. The possession or use of classified material must be limited to what locations?

2. What agency establishes minimum requirements for security containers?

3. How must Secret and Confidential documents be stored?

4. When must a security container's combination be changed?

5. What is the classification of the combination to a safe that contains Secret and Confidential material?

016. Maintaining accountability

1. What is your responsibility for classified material that is in your possession?

2. What is the best way to protect classified material when it is not being used?

3. What must you use when transporting classified material outside of a building?

4. What is the purpose of the AF Form 310?

5. What is indicated on the SF 702?

6. When you sign the SF 701, what are you verifying?

Answers to Self-Test Questions

012

1. Detect hostile activity, control entry and access to sensitive areas, and defeat a hostile force if necessary.
2. Critical resources that you must secure and the amount of security effort you must dedicate to those particular resources.
3. (1) c.
   (2) a.
   (3) b.
   (4) d.
   (5) c.
   (6) a.
4. (1) National defense area.
   (2) Restricted area.

(3) Close-in security area.

5. A military zone that contains military resources of security interest located on property not under the control of the DOD.
6. No-lone zone.

013

1. Intra-area movement.
2. (1) Hot cargo pad for a SAAM.
   (2) Flight line for alert aircraft upload.
   (3) Missile site locations for mating an ICBM.
3. Must be qualified to operate the vehicle, have a valid operator's permit, and be certified to transport weapons.
4. The possibility of sabotage, accidents, and delays.
5. As the result of a hostile or emergency situation (such as civil disorder, natural disaster, adverse weather conditions, or vehicle breakdown).
6. Provide security, firefighting equipment, communications, and logistics support.

014

1. (1) j.
   (2) d.
   (3) l.
   (4) e.
   (5) h.
   (6) c.
   (7) i.
   (8) a.
   (9) k.
   (10) g.
   (11) f.
   (12) b.
2. STE phone keys, PAL coding information, and WS3 CSMs.
3. (1) Top Secret.
   (2) Secret.
   (3) Confidential.
4. (1) Top Secret—Exceptionally grave damage.
   (2) Secret—Serious damage.
   (3) Confidential—Damage.

015

1. Locations where you have the facilities at hand for its protection.
2. The GSA.
3. In a safe, vault, or approved room, which has a built-in, three-position, dial-type combination lock.
4. When the container is put into service, when an individual no longer requires access, if the combination may be or has been compromised, if the combination has not been changed for 12 months (or 6 months for NATO classified), and if the container is taken out of service.
5. Secret (the highest classification of material stored in the container).

016

1. To protect and account for it.
2. Put it back in the safe.

3. A locked briefcase or zippered pouch made of canvas or other heavy-duty material and having an integral key-operated lock.
4. To validate the receipt of classified information when it arrives at its final destination.
5. The date/time opened, closed, and checked along with the initials of the person accessing the container.
6. That all classified material has been secured properly and that the area is secure.

Complete the unit review exercises before going to the next unit.

Unit Review Exercises

Note to Student: Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter.

34. (012) An aircraft loaded with nuclear weapons is assigned security protection level (PL)
    a. 1.
    b. 2.
    c. 3.
    d. 4.

35. (012) A military zone that contains military resources of security interest located on property *not* under control of the Department of Defense (DOD) is the definition of which security area?
    a. Limited.
    b. Close-in.
    c. Restricted.
    d. National defense.

36. (012) Which security area located within a restricted area is used to contain one or more nuclear weapon(s) systems (protection level [PL] 1)?
    a. Limited.
    b. Close-in.
    c. Response force.
    d. National defense.

37. (012) A close-in security area containing nuclear weapons or critical components is also designated as a
    a. special area.
    b. special zone.
    c. no-lone zone.
    d. sensitive area.

38. (013) The two types of nuclear weapons movements are
    a. intra-area and outside weapons storage area (WSA) movements.
    b. intra-area and in between WSA movements.
    c. extra-area and intra-area movements.
    d. inner-area and intra-area movements.

39. (013) When transporting a nuclear weapon from a storage structure to the maintenance facility, it is known as what type of movement?
    a. Normal-area.
    b. Special-area.
    c. Extra-area.
    d. Intra-area.

40. (014) *All* persons authorized access to classified information *must*
    a. sign a classified information nondisclosure agreement (NdA).
    b. have a Top Secret security clearance as a minimum.
    c. be on the Personnel Reliability Program (PRP).
    d. attend category II security training.

41. (014) Which is *not* an example of communications security (COMSEC) materials?
    a. Weapons storage and security system (WS3) code storage modules.
    b. Permissive action link (PAL) coding information.
    c. Secure telephone equipment (STE) keys.
    d. Classified external hard drives.

42. (014) What designator is applied to information that reveals the operating theory of thermonuclear devices?
    a. Restricted data (RD).
    b. Formerly RD.
    c. Critical nuclear weapons design information (CNWDI).
    d. North Atlantic Treaty Organization (NATO) Restricted.

43. (015) Who is responsible for safekeeping of classified information?
    a. Everyone.
    b. Supervisor.
    c. Air Force (AF) personnel.
    d. Squadron commander (SQ/CC).

44. (015) As a *minimum*, Secret and Confidential documents must be stored in a
    a. cabinet that has a built-in, dial-type combination lock.
    b. steel file cabinet with a built-in, three-position, dial-type combination lock.
    c. container-type steel file container with a built-in, dial-type combination lock.
    d. safe, vault, or room protected by a built-in, three-position, dial-type combination lock.

45. (015) The combination for a security container is assigned what classification?
    a. Highest classification of the material held in the container.
    b. Highest classification of the material that *could* be held in the container.
    c. There is no requirement to classify the combination of a security container.
    d. Classification of the area of operations as required by Headquarters, United States Air Force (HQ USAF).

46. (016) What form do you use to validate the receipt of classified material when it arrives to its final destination?
    a. Air Force (AF) Form 310, Document Receipt and Destruction Certificate.
    b. AF Form 425, Document Storage Listing.
    c. Air Force Technical Order (AFTO) Form 1515, Receipt of Classified Materials.
    d. AFTO Form 1623, Classified Container Inspection.

47. (016) What is the *last* piece of paperwork that you complete before you leave the maintenance building?
    a. Standard Form (SF) 701, Activity Security Checklist.
    b. SF 702, Security Container Checksheet.
    c. SF 699, Activity Container Sheet.
    d. SF 988, Security Check Sheet.

Please read the unit menu for unit 3 and continue ➔

Student Notes

Unit 3. Nuclear Surety

PERHAPS no weapons have a greater psychological or political impact on a nation than nuclear weapons. Most of the world's population realizes the severe consequences of a nuclear war. Just as important as the capability to deliver these nuclear devices is the necessity for an effective nuclear safety program. Nuclear weapons are a status symbol of a nation's power and are given due respect. For this and other reasons, more people and nations have become involved in nuclear weapons activities. As the scope of these activities broadened, more people were included to oversee them, creating the need for an effective, widespread nuclear safety program. The political ramifications (national and international) of a nuclear accident make effective nuclear control and safety paramount in preventing nuclear mishaps.

The results of an accidental peacetime nuclear detonation would be extremely serious for any country—especially our own. The political repercussions alone would deal a stunning blow to our foreign relations. People associated with the nuclear weapons program in any way must be constantly alert to prevent such an accident or incident. As a nuclear weapons journeyman, you have a critical role and responsibility in maintaining an effective nuclear safety program at all times and under all conditions. In our discussion on nuclear surety, you will find that the subject encompasses the areas of safety, security, and reliability. Because the different operations involving nuclear weapon systems are much broader than just safety, we refer to them collectively as *nuclear surety*. The policies and procedures directing the USAF nuclear surety program are found in Department of Defense Directive (DoDD) 3150.2, *DoD Nuclear Weapons Surety Program,* and implemented in AFI 91–101, *Air Force Nuclear Weapons Surety Program.* You must be particularly concerned with maintaining an effective nuclear surety program.

3–1. The Nuclear Surety Program

Four surety standards form the basis of our entire nuclear surety program. All nuclear surety policies and procedures are based on one or more of these standards. You may also hear them called pillars, since they support the program as a whole. Failure to comply with any portion of these standards is inexcusable. Before we begin our discussion on nuclear surety, let's look at the various terms that we'll be using throughout this unit. Then, we'll turn our attention to the nuclear surety program itself.

017. Nuclear surety purpose

The nuclear surety program is designed to ensure that personnel design and operate nuclear weapons and nuclear weapons systems to satisfy the nuclear weapons systems safety standards established by the DOD. There are several terms we use regularly in our field. In the following table, we'll look at some definitions you need to know.

Term	Meaning
Nuclear weapon	A complete assembly (e.g., implosion, gun, or thermonuclear) in its intended ultimate configuration, which, upon completing the prescribed arming, fuzing, and firing sequence, is capable of producing the intended nuclear reaction and release of energy.
Nuclear weapon system	This system encompasses combat delivery vehicles with their nuclear weapon or weapons and associated support equipment, noncombat delivery vehicles, facilities, and services.
Tamper	Tampering—to *knowingly* perform an incorrect act or unauthorized procedure involving a nuclear weapon, nuclear weapon system, or certified critical component.
Critical component	A component of a nuclear weapon system that if bypassed, activated, or tampered with, would result in or contribute to deliberate or inadvertent authorizing, prearming, arming, launching of a combat delivery vehicle carrying a nuclear weapon, or the targeting of a nuclear weapon to other than its planned target. AFSEC/Weapons Safety Division (SEW) designates critical components. An example of a critical component is an assembled RS.
TPC	Designed to ensure that a lone individual is denied access to nuclear weapons, nuclear weapon systems or critical components, never allowing the opportunity for tampering, damage, or an unauthorized act to go undetected. This concept mitigates the insider threat due to the requirement that at least two authorized personnel must be present.
TPC team	This team must consist of at least two personnel authorized by their commander and verified by their supervisor to meet the following requirements: • Are certified under PRAP. • Know the nuclear surety requirements of the task they perform. • Can promptly detect an incorrect act or unauthorized procedure. • Have completed nuclear surety training. • Designated to perform the task.
No-lone zone	An area containing nuclear weapons, nuclear weapon systems, or certified critical components where the TPC must be enforced is a no-lone zone. • Indoors—a no-lone zone extends from wall-to-wall and floor-to-ceiling. • Outdoors—a no-lone zone is depicted by use of painted lines around a nuclear-loaded aircraft, a fenced area surrounding a nuclear-loaded aircraft, roped off areas surrounding a nuclear-loaded aircraft, or a roped off area surrounding a nuclear-loaded trailer awaiting transport to the flight line.
Opportunity	As applied to the TPC, this term considers the time and physical proximity needed for an individual to tamper with or damage nuclear weapons, nuclear weapon systems, or certified critical components. Opportunity must be judged in terms of the nature of the activity being performed and the knowledge of the person suspected of tampering.

Nuclear safety standards

The four nuclear safety standards that govern the nuclear surety program are from AFI 91–101. These standards state that there must be positive measures to:

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

2. Prevent deliberate prearming, arming, launching, or releasing of nuclear weapons, except upon execution of emergency war orders or when directed by competent authority.
3. Prevent inadvertent prearming, arming, launching, or releasing of nuclear weapons in all normal and credible abnormal environments.
4. Ensure adequate security of nuclear weapons, as governed by DoDD 5210.41, *Security Policy for Protecting Nuclear Weapons.*

The numbers and titles of the AFI 91-series instructions are a valuable part of your job. Knowing the contents of the AFI 91-series is one of your first tasks in understanding the nuclear surety program.

Nuclear surety program overview

The main purpose of the nuclear surety program is to incorporate maximum nuclear surety consistent with operational requirements from weapon system development to dismantlement. As we mentioned in the introduction, this includes ensuring zero accidental nuclear detonations. The guidance for the development of our program is provided by DoDD 3150.2. Each service uses this directive as a guide for conducting appropriate safety studies, reviewing various nuclear weapons systems, developing safety rules, and applying certain standards that are laid down by this directive. These standards are the go/no-go gauge for nuclear weapons designers, developers, researchers, manufacturers, and maintainers. Each standard is designed to deal with one of four problem areas identified in DoDD 3150.2:

- Accidents and incidents.
- Deliberate actions.
- Inadvertent actions.
- Security.

We'll take a closer look at each of these problem areas in the following paragraphs.

Accidents and incidents

This safety standard is concerned with preventing weapons from producing a nuclear yield. The standard considers nuclear weapon design, nuclear weapon storage, and detailed safety procedures. The development of a nuclear weapon system requires every component to be carefully designed and tested to assure maximum safety. To do this, the armed forces must prepare a document referred to as military characteristics and incorporate safety requirements into nuclear weapon design.

The DOE is responsible for making sure the weapon design incorporates these characteristics so the weapon can be accepted and entered into the nuclear weapons stockpile.

There are many military characteristics involved in a weapon's design. A few of the most important ones are listed below:

- The nuclear weapon must be designed so that it cannot accidentally or unintentionally trigger a nuclear reaction, even if the high explosive detonates due to a fire, aircraft accident, or accidental jettison.
- The weapon must remain inert in storage.
- It must be impossible or extremely difficult to trigger the weapon for a nuclear detonation while it is being stored or transported.

Deliberate actions

Psychotics and saboteurs are a major concern. Therefore, surety standards were developed to prevent deliberate launching, arming, or releasing of nuclear weapons except on competent authority. To implement this surety standard, you must consider the following:

- Concealed safety switches.
- Use of two (or more) controls.

- Making a nuclear weapon system inaccessible to a single person.
- Tamper detection.

The design of a nuclear weapon system plays an important role in this problem area. Switches—such as explosive switches and electro-explosive devices—used to prevent a detonation can be embedded in the weapon's circuitry. Some of the designs for these switches place them deep inside the weapon, which would take hours or days to locate and bypass. Another design consideration is using dual controls. Circuits can be designed so that two people are required to make independent actions to actuate the circuits such as missile launches. It is very difficult, if not impossible, for one person to physically do this task. A second feature is using two or more circuits in the arming, fusing, and firing sequences.

Another method of dealing with psychotics and saboteurs is requiring that no fewer than two authorized persons are permitted access to a nuclear weapon or system. AFI 91–104, *Nuclear Surety Tamper Control and Detection Programs*, states that two or more persons must be present during any operation involving nuclear weapons. These operations include loading and downloading, storage, maintenance, and inspection. Finally, the tamper detection program can provide evidence of tampering or foul play by a saboteur. This is accomplished via tamper detection indicators (TDI) which are malleable seals and a controlled die or self-locking seals with a non-reversible feature with a singularly unique wing identifier or serial number, as well as a color control system. They can also help prevent any unauthorized acts by focusing attention on the broken seal.

Inadvertent actions

The third surety standard for preventing inadvertent arming, launching, or releasing is intended to reduce the problem of human error. This surety standard considers many of the same features as the second standard, but with a different purpose. The purpose here is to prevent the careless or inadvertent acts of people working with nuclear weapons, rather than the planned and deliberate acts of psychotics and saboteurs. Human error accounts for many nuclear weapon system's mishaps. Analysis of these human-error mishaps finds that the actual causes fall into one or more of these categories:

- Poor handling techniques.
- Failure to follow TO procedures.
- Poor maintenance techniques.
- Failure of the supervisor to detect and correct improper procedures.
- Poor judgment.

Some of the methods used to reduce human error include:

- Certification of the task to be performed by QA evaluators.
- Using training weapons to validate training.
- Ensuring proper knowledge of TO procedures by using demand/response (where a TC reads the step to the team member and the team member responds back to the TC when the step is completed) and checking off each TO step when completed.

Additional measures include a visual inspection of the interior by a qualified third party to make sure that all steps were properly completed before assembling the weapon's major components.

Security

The fourth safety standard is designed to assure adequate security. This safety standard includes features such as physical barriers, restricted access to vital areas, security clearances, armed guards, and alarm devices. Many security aspects overlap with other standards and provide redundancy or augmentation. For example, using armed guards to prevent or restrict access to the weapon system overlaps with preventing access by saboteurs and psychotics.

Weapon system safety rules

The nuclear weapons system safety group (NWSSG) develops the WSSRs as a set of safety rules for each weapon system environment/mission set and publishes them in the following AFIs:

- AFI 91–111, *Safety Rules for US Strategic Bomber Aircraft.*
- AFI 91–112, *Safety Rules for US/NATO Strike Fighters.*
- AFI 91–114, *Safety Rules for the Intercontinental Ballistic Missile System.*
- AFI 91–115, *Safety Rules for Nuclear Logistics Transport by the Prime Nuclear Airlift Force*.

These rules are developed to minimize the probability of a weapon becoming involved in a mishap or being damaged at any time. These rules are approved by the Under Secretary of Defense. Know the instructions in this series thoroughly, as most of them are only a few pages long. As a source of information, the AFI 91-series is a powerful tool that can make sure that all safety standards are met. Following these safety rules is mandatory at all times when a nuclear weapon system is involved. A commander can deviate from a specific safety rule *only* during an emergency. Nuclear weapons cannot be expended until a nuclear control order giving proper release is received and authenticated. There is an additional nuclear surety policy that you must be aware of—nuclear weapons are not to be used in troubleshooting any aircraft or equipment faults!

018. Nuclear mishaps

To say that a nuclear mishap is serious business is an understatement. Because of the seriousness of such a mishap, there are special investigating and reporting procedures that must be followed. These procedures are contained in two 91-series publications:

- AFMAN 91–221, *Weapons Safety Investigations and Reports.*
- AFI 91–204, *Safety Investigations and Reports.*

In the following paragraphs, we identify the different types of mishaps and reporting methods used by the AF.

Flag words

An important part of the nuclear safety program is identifying and reporting nuclear safety mishaps. You must be able to distinguish between each mishap. They are defined in AFMAN 91–221 and each has a certain flag word that you use when reporting the mishap event. The following table lists the flag words used and some of the criteria for determining when to submit a report. This is not an all-inclusive list of criteria; always refer to AFMAN 91–221 for reporting requirements.

Nuclear Mishap Flag Words	
Flag Word	**Description**
Nucflash	Nucflash is a reporting flag word identifying a nuclear weapon system accident, which could create the risk of war. This includes accidental, unauthorized, or unexplained events meeting any of the following criteria: • Accidental, unauthorized, or unexplained actual or possible nuclear detonation by US forces or US-supported allied forces. • Accidental or unauthorized launch of a nuclear-armed or nuclear-capable missile by US forces or US-supported allied forces. • Unauthorized flight or deviation from an approved flight plan by a nuclear-armed or nuclear-capable aircraft of US forces or US supported allied forces, which could be perceived as a hostile act.
Broken Arrow	Broken Arrow is a reporting flag word identifying a nuclear weapon system accident, which could *not* create risk of war.

Nuclear Mishap Flag Words	
Flag Word	**Description**
	This includes the following situations: • Radioactive contamination. • Public hazard—actual or perceived. • Jettisoning of a nuclear weapon or nuclear component. • An accidental, unauthorized, or unexplained nuclear detonation. • Non-nuclear detonation (no nuclear yield) or burning of a nuclear weapon or nuclear component. • Accidental or unauthorized launching, firing, or use by US forces or US supported allied forces of a nuclear capable weapons system.
Empty Quiver	Empty Quiver is a flag word used to identify the loss, theft, seizure, or destruction of a nuclear weapon or nuclear component. Loss includes, but is *not* limited to: • Intentional weapon jettisoning according to approved AF procedures. • Inadvertent release of a nuclear weapon or nuclear component.
Bent Spear	Bent Spear is a reporting flag word identifying a nuclear weapon system incident. This includes mishaps not in the accident category but meeting any of the following criteria: • Radioactive contamination from burning, theft, seizure, or destruction of a radioactive LLC. • Inadvertent initiation of an LLC (except parachutes), or evident damage to a nuclear weapon or nuclear component that requires major rework, replacement, or examination or re-certification by the DOE. (Report minor damage as a nuclear weapon system safety deficiency.) • Events requiring immediate action in the interest of nuclear surety (such as render safety procedures or failed positive measures) or which could result in adverse national or international public reaction or premature release of information (such as an attempted theft or seizure of a nuclear weapon). **NOTE:** This includes damage to a nuclear weapon carrier that could lead to loss of, or damage to, nuclear components. • Events indicating that a nuclear weapon or nuclear warhead has been armed without proper authorization. • Events that could lead to a nuclear weapon system accident and warrant the informational interest of, or action by, any of the following agencies: o Appropriate military department or service. o Office of the Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs). o Office of the Assistant Secretary of Defense (Strategy and Threat Reduction). o Office of the Assistant Secretary of Defense (Public Affairs). o Federal Emergency Management Agency (within the CONUS). • Abnormal readings encountered during non-nuclear verification procedures of Joint Test Assemblies.
Dull Sword	Dull Sword is a reporting flag word identifying a nuclear weapon safety deficiency not falling into the accident or incident categories. Reporting Dull Swords brings safety-related problems to the immediate attention of the agencies that can evaluate the problems and correct them if necessary. Trend analysis is then created and becomes available for the nuclear weapon community to use. AFMAN 91–221 provides detailed criteria for Dull Sword categories. Events or conditions classified as Dull Swords include but are not limited to: • Actual or suspected exposure to sources of electricity or electromagnetic energy.

Nuclear Mishap Flag Words	
Flag Word	**Description**
	• Malfunction, failure, or anomaly that results in damage to nuclear weapon systems due to sources of electrical energy (i.e., lightning, over voltage, and power fluctuations). • Exposure of a nuclear weapon, nuclear component, or nuclear weapon system to an abnormal environment (e.g., flood and earthquake) whereby there is a possibility of damage to the nuclear weapon. • Use of uncertified equipment/hardware or software on a nuclear weapon or weapon system that requires nuclear certification. • Minor damage to a nuclear weapon or nuclear component resulting from errors committed during the assembly, testing, loading, or transporting of the nuclear weapon. Materiel deficiencies/failures (e.g., dents, scratches, scuffs, chips, rips, tears, cuts, and splits) which are not safety related will be reported as applicable with TO 00–35D–54, *USAF Materiel Deficiency Reporting, Investigation, and Resolution*, or TO 11N–5–1, *Unsatisfactory Reports*. • Violations involving nuclear WSSRs or nuclear system TO procedures. • Abnormal status on a nuclear weapon or system according to applicable technical publication guidance. • Damage, malfunction, failure, or anomaly to items listed in the master nuclear certification list (MNCL).

Mishap reporting

The AF investigates nuclear mishaps to determine their cause and prevent recurrences. The AF objectives are to:

- Prevent nuclear weapon system accidents and incidents.
- Minimize their effects if they should occur.
- Reduce the occurrence of other nuclear weapon system safety deficiencies.

Mishap reports and DRs bring actual or potential problems to the immediate attention of agencies that can evaluate the situation and correct the problems. All flag word reports are communicated via the Secret Internet Protocol Network (SIPRNet) except for unclassified Dull Sword reports, which are transmitted via the Air Force Safety Automated System (AFSAS). The most frequently reported mishaps are Dull Swords because the events that cause them are more likely to occur.

Responsibilities

Your main responsibility in the reporting process is to furnish as much information as possible to your local weapon safety office since it has the primary responsibility for all reporting and messaging. The MAJCOM with command responsibility for the unit that had the mishap is responsible for ensuring that the accident and/or incident is reported and investigated unless HQ AFSEC/SEW assumes this responsibility.

Types of messages and reports

There are two main reasons for reporting nuclear mishaps. The first reason is the need for rapid notification to the proper authority that a mishap of the stated proportion has occurred. The second reason is the need to report the results of the investigation so that the AF can take all the necessary steps to prevent recurrences of nuclear mishaps. Methods for submitting a report include telephone calls, electronic message reports, and formal reports. All reports—regardless of severity—must be reported within their prescribed timelines.

Aside from the actual flag word reporting and messaging completed via the safety office, operational report (OPREP)–3 reports are completed through the command post to quickly notify the upper chain of command that an extremely serious nuclear mishap (Nucflash, Broken Arrow, Empty Quiver, or

Bent Spear) has occurred. This is done by transmitting the information immediately and via appropriate devices IAW AFMAN 10–206, *Operational Reporting (OPREP)*.

The following table describes the different messages and reports used for nuclear mishaps.

Nuclear Mishap Messages and Reports	
Type	**Description**
Preliminary message	You use this message type to immediately inform of a mishap and in cases when it is impossible to provide all required information before the reporting deadline. Include a narrative description of what happened (but not why), stating the best and most complete information available in simple and direct terms. Do not delay a preliminary message just to obtain additional information. The preliminary message must be completed within 24 hours. You can provide additional information via a "Status Message" at a later time.
10-day message	This is a message completed within 10 calendar days. Its purpose is to relay new information discovered since the preliminary message and to identify the investigating officer by name, grade, organization, and position.
Status message	These are completed as required. You use this message to furnish additional information when it becomes available. You also use a status message to keep addressees informed on the progress of the investigation for nuclear weapon system accidents at least until on-site investigations are completed.
Final message	This message provides a narrative of the mishap/event sequence, states the mishap cause, and recommends preventive actions. It contains the investigation, analysis, and conclusions of the safety investigator. It is written so the reader clearly understands how the findings and causes were determined and clearly states the role of the individuals found causal in the mishap sequence.
Formal Report	If required by a higher authority these reports present all of the information from the mishap much like the "Final Message" with increased detail and organization. This is done by creating a package that is tabbed out and compartmentalized in AFSAS.

Reporting Dull Swords

Dull Sword reporting is routinely completed for AF-designed nuclear items (e.g., Minuteman missile, WS3 vault, and missile-handling unit [MHU]–204/M trailer) so you must be familiar with the process. Suppose, for example, the braking system fails on a piece of support equipment you are using during an operation, and it's listed on the MNCL. Therefore, you are required to begin the Dull Sword reporting process. Depending on your MAJCOM, a potential Dull Sword worksheet is normally completed and submitted to your local weapon safety office. This detailed early data helps determine whether to continue with the reporting process. If the safety office determines the deficiency is in fact a Dull Sword, it must be reported to AFSAS within 5 calendar days. You may gather additional information, along with photographs and other exhibits, to ensure you compile and relay all pertinent information during a status message. You must submit a final message within 90 calendar days after the original report submission.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

017. Nuclear surety purpose

1. What is meant by the term *tamper*?

2. What is the TPC designed to do?

3. A TPC team must meet what requirements?

4. What is a no-lone zone?

5. List the four nuclear surety standards.

6. What is the main purpose of the nuclear surety program?

7. What are the four recognized nuclear surety problem areas?

8. What four things must you consider for protection against psychotics and saboteurs?

9. What problem area does the third surety standard address?

10. When is a deviation from the nuclear WSSRs authorized?

018. Nuclear mishaps

1. Match the type of event in column A with the corresponding flag word in column B. The options in column B may be used more than once.

Column A	*Column B*
____ (1) Destruction of a nuclear weapon.	a. Nucflash
____ (2) Minor weapon damage.	b. Dull Sword.
____ (3) Damage to a nuclear weapon, which requires rework by DOE.	c. Bent Spear.
____ (4) Exposure to sources of electricity or electromagnetic energy.	d. Empty Quiver.
____ (5) Nuclear detonation of a nuclear weapon not creating the risk of war.	e. Broken Arrow.
____ (6) Nuclear weapon has been armed without proper authorization.	
____ (7) A nuclear weapon involved in an earthquake.	
____ (8) Nuclear weapons accident, which could create the risk of war.	
____ (9) Violations of the TPC.	

2. What type of mishap report do you submit if a nuclear weapon is lost?

3. What are the two main reasons for reporting nuclear safety mishaps?

4. Aside from the mishap reporting, what other report do you generate?

5. What is the purpose of a status message during nuclear mishap reporting?

6. When must you initially report a Dull Sword, and when is the final message due?

3–2. Two-Person Control and the Personnel Reliability Program

The AF executes the PRAP, which is comprised of both Arming and Use of Force (AUoF) and the Personnel Reliability Program (PRP). AUoF is for security forces personnel and acts as a PRP program equivalent. We will be focused on PRP since it directly applies to you as a 2W2. PRP is a continuous evaluation and management program. This section discusses the program and its evaluation processes.

019. Personnel Reliability Program

DoDM 5210.42/AFMAN 13–501, *Nuclear Weapons Personnel Reliability Program (PRP),* establishes the requirements and responsibilities for screening, selecting, and continuously evaluating everyone who controls, handles, has access to, controls the launch of, or controls access to nuclear weapons or nuclear weapons systems. It contains the procedures for selecting and retaining individuals who are emotionally stable and have demonstrated good judgment and professional competence. The manual also tells you how to remove or suspend someone with reliability concerns from the program.

Overview

DoDM 5210.42/AFMAN 13–501 states that the reason for PRP is to make sure that each person who performs duties with nuclear weapons, systems, or critical components meets the highest possible standards of individual reliability. Individuals who are unable to perform consistently at a high level of efficiency should *never* work with or around nuclear weapons. This may be due to an emotional disorder, personality makeup, character deficit, or habit. They must be screened out and reassigned to less sensitive duties, retrained to another Air Force specialty code (AFSC), or processed for discharge from the service. A program requirement is to identify all individuals who have shown through their lifestyle that they are not capable of dealing with the stresses involved in such an assignment and remove them from nuclear weapons duty.

Positions

PRP applies to personnel who are presently assigned or selected for assignment to duties involving the control, handling, or access to nuclear weapons, nuclear weapons systems, or critical components. The exception to this is security forces, who fall under the AUoF program. PRP also applies to civilians and contract personnel who perform jobs or duties that come under a similar program. DoDM 5210.42/AFMAN 13–501 divides personnel into two categories—critical and controlled positions—described in the following table.

PRP Personnel Position Categories	
Category	**Description**
Critical	• Has access and technical knowledge. • Can either directly or indirectly cause the launch or use of a nuclear weapon. • Has accountability, control, or use of positive control materials or devices, such as sealed authentication systems, PAL materials and related codes, strategic and tactical nuclear-certified computer data (NCCD), nuclear targeting tapes or materials, emergency action messages, or release procedures for nuclear weapons; or • Has been designated as a CO at an operational unit or staff activities with designated critical PRP positions.
Controlled	• Has access, but no technical knowledge. • Controls access into areas containing nuclear weapons, but does not have access or technical knowledge. • Is armed and assigned duties to protect or guard nuclear weapons. • Has been designated as a CO at an operational unit or staff activities with only designated controlled PRP positions.

Only critical or controlled positions are used in PRP. The number of positions identified must be the minimum necessary to meet operational requirements. Including positions in PRP that do *not* meet the criteria dilutes the impact of the program, reduces its total effectiveness, and increases the number of people and cost required to administer the program. Each year the unit commander must review all positions identified as requiring PRP certification and delete any unnecessary positions. MAJCOMs also annually review the number of positions identified in each unit.

Investigative requirements

A person in a critical position must have the proper security clearance investigation completed to warrant Top Secret eligibility. The clearance investigation must have been completed within the last 5 years and be adjudicated before final certification.

A person assigned to a controlled PRP position must have the proper security investigation completed to warrant Secret eligibility or higher which must have been completed within the last 5 years and be adjudicated before final certification.

The CO may grant an interim certification for either position if clearances are pending and have not been adjudicated.

Reliability determination

In the interest of national security, and because of the possibility of dire consequences when working around nuclear weapons, persons assigned PRP duties must meet higher standards than those who are *not* PRP certified. During the initial screening process, and the continuing evaluation of those selected for nuclear weapons duty, there are standards used to judge acceptable behavior patterns. Failure of a person to meet these standards is evidence or a basis for disqualification from work with nuclear weapons.

People who display indications of excessive worry, anxiety, or apprehension concerning the dangers of the job must *not* be assigned to these positions. In reality, weapons work is no more hazardous than many occupations. Nuclear weapons do deserve a healthy respect, but morbid fear of or brooding about the consequences of accidents with nuclear weapons does *not* represent a mature and balanced outlook on the potential risks involved.

A person selected for PRP must meet the following criteria:

- Have an S–1 physical profile (for civilians, physical competence and mental alertness).
- Be technically competent to perform the assigned duties.
- Have the required security investigation and a security clearance level that is commensurate with the security classification of information required for the position. A person is disqualified from PRP duties when the security clearance is withdrawn for cause.
- Have a positive attitude toward nuclear weapons duty and the objectives of PRP.
- Not be under consideration for separation for cause, court-martial charges, or awaiting civilian trial for felony charges.

  NOTE: The CO can temporarily decertify an individual pending the outcome of these actions.
- Be a US citizen or US national.
- Not have a history of drug abuse.
- Not abuse or misuse drugs. With the exception of pre-service and experimental cannabis use all other drug abuse and misuse is permanently disqualifying.

Certification procedures

Ideally, the unit commander (SQ/CC) or immediate commander is the formal certifying authority. However, when a unit is so large that the commander cannot keep personal contact with everyone, the commander may delegate, in writing, certification authority to certain individuals. DoDM 5210.42/AFMAN 13–501 provides requirements and procedures for certifying individuals for PRP.

During the screening process, the immediate commander interviews prospective assignees and assures that each individual’s medical and personnel records are reviewed. A medical officer reviews the person’s medical records, and in some cases, the commander may request a medical evaluation of the person in addition to the records review. After the results of the medical records review and/or medical evaluation are received, the commander makes a final decision. If the individual is considered acceptable for assignment to nuclear weapons duties, the commander and the individual

sign the AF Form 286, Personnel Reliability Program (PRP) Qualification/Certification Action. In addition, the person's medical and military records are annotated to reflect the individual's qualification or disqualification status. There are four types of certification that the commander can use under the PRP program—administrative, initial, interim, and personnel transfer. These certification types are described more fully in the following table.

PRP Certification Types	
Type	**Description**
Administrative	This consists of a PRP screening process by the losing commander to make sure that the person is qualified for a projected assignment to PRP duties. The commander will also be relaying any suitability information to the gaining CO until the individual gets to the gaining installation.
Initial	This is a statement by the CO that the person is qualified for assignments requiring critical or controlled PRP duties. Formal certification occurs on the person's arrival at the new assignment but *before* he or she performs any PRP duties.
Interim	People with this certification are subject to restrictions pending completing a current security clearance investigation. For example, two interim persons may not form a TPC team. However, one interim certified person and one formerly certified person may form a TPC team.
Personnel transfer	This is a result when, as a PRP-certified individual, you are moved to another PRP position. This can happen when you transfer from one unit to another. If the transfer does *not* involve a change in the reviewing official, a rescreening of the medical and personnel records is not required. If this transfer results in a change of both certifying and reviewing officials, a rescreening of the medical and personnel records is conducted.

Determining individual reliability

The CO (normally the commander) makes a judgment based on knowledge of past and present behavior and insight gained from a personal interview with the person. The commander must use this insight, together with facts, detailed knowledge of performance, and consultative opinions from other agencies (such as the hospital) to arrive at the best judgment about an individual's reliability.

The commander's judgment must account for the capability and intent of the person to perform assigned duties as well as the nature of these duties. To arrive at the "best judgment" of reliability, the commander requires input from supervisory, medical, and security forces personnel. The underlying concept is simply to make the best judgment about whether an individual can be depended on to perform the assigned duties.

The commander must review the person's job and duty history for evidence of the following desirable traits:

- Dependability in accepting responsibility.
- Carrying out duties effectively and in the approved manner.
- Flexibility in adjusting to changes in the working environment.
- Ability to use good judgment in meeting adverse or emergency situations.

Evidence of any of the following would give the commander a reason to question the reliability of an individual:

- Any court-martial or civil conviction of a serious nature.
- Negligence or delinquency in duty performance.
- Significant physical, mental, or character traits or unusual behavior, substantiated by medical authority that might affect the reliable performance of duties.
- Behavior patterns that show or suggest a contemptuous attitude toward the law or regulations.

After all historical data is evaluated and the commander has personally interviewed the person, the commander makes a judgment about the reliability of the individual.

020. Continuing Personnel Reliability Program evaluation

Once individuals are assigned to nuclear weapons duties, they are continually subject to the standards of PRP. When a person's general behavior, emotional stability, or reliability is in question, the person must be immediately removed from PRP duties. Monitoring personnel reliability is a responsibility that belongs to everyone in PRP, from the commander to the supervisor and each individual.

Responsibilities

Supervisors must be alert to recognize unreliable behavior and report it before a person becomes a danger to safe operations. This does *not* mean that everyone should go around with a notebook taking notes on everyone else's behavior. Witch hunts present a demoralizing situation to all involved and hinder rather than improve reliability. On the other hand, if you ignore obvious signs of unreliable behavior, you may be contributing to an eventual destructive act. COs receive information on an individual's reliability from various sources including:

- Medical notification of illness, injury, or treatment that could affect duty performance.
- Being a suspect or subject in an Office of Special Investigations (OSI) or security forces report.
- Observations of co-workers.
- Comments of the individual or dependents.
- Community agencies (Red Cross, crisis action center, and so forth).

The best method of continuous evaluation is to measure present performance and behavior against past performance and to look for any changes in behavior or performance patterns. Supervisors make recommendations concerning reliability, but the CO (commander) makes the final decision.

We mentioned supervisor responsibilities previously, but each individual certified under PRP has the following responsibilities:

- Monitor your own reliability and the reliability of others performing PRP duties. Notify the commander of any potentially disqualifying information. This is a 24-hours-a-day, 7-days-a-week responsibility.
- Be aware of how problems, concerns, and circumstances may reduce individual effectiveness and impair capability or reliability.
- Inform your supervisor, the unit PRP monitor and/or CO of any factors that could have an adverse impact on your performance, reliability, or safety while performing PRP duties.
- Inform your medical providers and support agencies of your PRP status *before* receiving treatment or consultation.
- Inform your supervisor, the unit PRP monitor, and/or CO when another individual in the PRP appears to be involved in situations that may affect reliability.

- Inform the unit PRP monitor and/or CO of medical and mental health treatment that may affect/impact reliability, and submit documentation to the competent medical authority as early as possible for review and CO advisement.
- Complete your security investigation paperwork when notified by the security manager. Failure to do so could result in termination of access to classified information and or removal from PRP.

Before using over-the-counter medications or supplements for the first time, consult with a competent medical authority at the base hospital. This may give you a better idea of side effects or issues associated with the product that could impact your reliability. If you ever have questions regarding this subject, be sure to consult your medical provider.

PRP removal

Suspension and decertification procedures are designed to remove a person from PRP-related duties when, in the judgment of the CO (commander), reliability could be impaired or is in question. Members are removed from PRP duties by either suspension or decertification. Commanders decide which way best suits the circumstances. The following table describes the suspension and decertification processes for removing an individual from PRP duties.

Removing Personnel from PRP Duties	
Type	**Description**
Suspension	Suspension relieves individual from PRP-related duties immediately without decertification. This applies to individuals who have received interim or formal PRP certification. A suspended person is still considered reliable for the PRP, but because of circumstances, is not authorized to perform PRP duties. Suspension is used when: • The individual's reliability is not in question. • The problem is expected to be of short duration. • Conducting an investigation or medical evaluation to determine if a situation or incident could have an adverse effect on an individual's reliability. For example, when a person is prescribed or administered a medicine that could affect physical or mental abilities, the commander would take suspension actions instead of decertification action. Someone under suspension must be excluded from having access to nuclear weapons. A suspension can initially last up to 3 months; however, the CO may extend the period of suspension up to 1 year in 3-month increments.
Decertification	This action is used to permanently remove an individual from PRP. The person cannot perform duties requiring PRP certification. This also includes permanent disqualification. Decertification indicates that the CO has deemed that the individual no longer meets PRP standards. This can be indicated by the person having questionable reliability or long-term impaired capability. Decertification applies to individuals who are certified under PRP or are being screened for PRP. Disqualification normally applies to those in the screening process. The commander decertifies an individual for the following mandatory items: • An individual diagnosed with alcohol use disorder who subsequently fails to participate in the prescribed rehabilitation program or treatment regimen. • An individual found to be involved in the unauthorized trafficking, cultivation, processing, manufacturing, or sale of any controlled or illegal drug, including cannabis-based products. • An individual found to have ever used a drug that could cause flashbacks. • An individual diagnosed with severe substance use disorder.

Removing Personnel from PRP Duties	
Type	**Description**
	• Loss of confidence by the CO in the reliability in the individual. • Revocation of the individual's security clearance. The reviewing official—the WG/CC immediately above the CO—makes final decisions on decertification cases. Decertification stays in effect until it is removed via a requalification and reinstatement process.

021. Two-person concept and no-lone zone

The information contained in AFI 91–104 provides guidance on setting up procedures for nuclear surety tamper control through the use of the TPC and for tamper detection through approved nuclear component sealing methods. For now, we'll discuss the TPC and no-lone zone.

Purpose of the two-person concept

The TPC is central to nuclear surety tamper-control measures in the AF. It is designed to ensure that a lone individual cannot perform an incorrect act or unauthorized procedure on a nuclear weapon, nuclear weapon system, or certified critical component.

AFI 91–104 provides the requirements and restrictions concerning the TPC. A TPC team consists of at least two individuals who have the following qualifications:

- Are certified under the PRAP, as specified in DoDM 5210.42/AFMAN 13–501, and/or AFI 31–117, *Arming and Use of Force by Air Force Personnel*.
- Know the nuclear surety requirements of the task they perform.
- Can promptly detect an incorrect act or unauthorized procedure.
- Have successfully completed nuclear surety training according to AFI 91–101.
- Are designated to perform the required task.

Team members need to be positioned where they can promptly detect the use of incorrect or unauthorized procedures while performing a given task or operation. Keep in mind, a momentary breach of the no-lone zone is not a violation if no individual had the opportunity to perform an incorrect act or unauthorized procedure. In performing certain tasks, team members may lose sight of each other or be far apart. One team member may be briefly out of sight to perform a specific task if it is unsafe or physically impossible to maintain constant observation.

As a member of a TPC team, you have the following responsibilities:

- Enforce the TPC while performing a task or operation and continue to enforce it until you are either relieved by authorized personnel or you have secured the nuclear weapon, nuclear weapon system, or certified critical component.
- Take immediate, positive steps to prevent or stop an incorrect procedure or unauthorized act.
- Report deviations immediately to the appropriate supervisor.

You must declare a TPC violation when a lone individual in a no-lone zone has the opportunity to tamper with or damage a nuclear weapon or system, or critical component. Report any violations IAW AFMAN 91–221.

There are two instances where you are authorized to deviate from the TPC:

- When the nuclear WSSRs specifically authorize a deviation.
- During an emergency presenting an immediate threat to safety of personnel or the security of a nuclear weapon or system, or certified critical component. (Exercises are not considered emergencies.)

Personnel restrictions

There are three additional restrictions you need to know and watch for while performing two-person duties.

- First, two interim-certified individuals may not form a TPC team.
- Second, a person who does not qualify as a member of a TPC team may enter a no-lone zone to perform a specific task only if escorted by a TPC team.
- Finally, entry controllers may not form a TPC team with people inside the no-lone zone.

You must also know who can make up a TPC team and who is authorized in a no-lone zone. Each individual is responsible for the application of the TPC. This concept is enforced constantly by the persons making up the two-person team when doing the assigned tasks or operation, and also up to the time the team departs the no-lone zone. Each person is responsible for complying with the TPC.

No-lone zone

TPC teams are chosen carefully and must perform assigned tasks in the proper manner. An equally important aspect of the TPC is the question of what areas or tasks require the use of such a team. Areas or tasks requiring the two-person team concept are designated as no-lone zones.

A *no-lone zone* is defined as an area where the TPC must be enforced because the area contains nuclear weapons, nuclear weapon systems, or certified critical components.

In nuclear weapons facilities, a locally manufactured sign or placard indicating TPC is required (e.g., No-Lone Zone Two-Person Concept Mandatory) at the entrance to the maintenance bay when applicable. Signs are *not* required in storage areas or for outside operations.

The no-lone zone requires strict adherence to all requirements of the TPC. Only authorized persons are allowed to enter a no-lone zone. Entry of any lone person, even a person qualified as a TPC team member, is strictly prohibited. Only suitable two-person teams perform tasks in a no-lone zone. All persons in the no-lone zone must be familiar with the safety and security requirements of the task or tasks to be performed.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

019. Personal Reliability Program

1. According to DoDM 5210.42/AFMAN 13–501, what is the reason for the PRP?

2. To whom does the PRP apply?

3. Explain critical and controlled PRP positions.

4. What are the investigative requirements for a person being considered for a *critical* position? For a *controlled* position?

5. Who is the formal certifying authority for PRP?

6. Match the type of PRP certification in column B with its description in column A. Items in column B will be used only once.

Column A	Column B
____ (1) Occurs upon arrival at a new assignment but before performing PRP duties.	a. Interim.
____ (2) Subject to restrictions pending completing a security investigation.	b. Administrative.
____ (3) Results from a PRP-certified individual moving from one unit to another, changing position number and CO.	c. Personnel transfer.
____ (4) Consists of a statement from the losing commander that a person is qualified for a projected assignment to PRP duties.	d. Initial.

7. What are four things in a person's past performance that may indicate future reliability?

020. Continuing Personnel Reliability Program evaluation

1. List at least five sources from which you can receive information on an individual's reliability.

2. What is the *best* method for continuous evaluation?

3. When would the commander use a suspension for removing PRP duties?

4. What are the timelines for a suspension from PRP?

5. What does decertification indicate?

6. Give three examples of behavior that will result in decertification.

021. Two-person concept and no-lone zone

1. List the requirements for individuals who make up a TPC team.

2. When may a two-person team member go unobserved temporarily?

3. What is each team member's responsibility in the TPC?

4. When are you authorized to deviate from the TPC?

5. List three personnel restrictions to watch for while performing two-person duties.

6. What is a no-lone zone?

3–3. Controlling No-Lone Zone/Exclusion Area

For most Airmen, entering a worksite is a matter of walking through a set of doors and into a building. This scenario is quite simple for many, but for nuclear weapons technicians, it's a daily challenge because of the various security requirements due to the nature of our business. There are specific procedures that everyone must follow. In this section, we discuss controlling no-lone zones and exclusion areas including entry and lock requirements for the WSA and the WS3. We will also discuss the internal control measures that are outside the scope of security forces responsibilities.

022. Opening and closing of storage facilities

You enter a secure area only through an established entry point, normally referred to as an ECP, and only after you have been identified as being authorized for entry. You must have a regular need for entry into the area in order to be authorized access to a restricted area. If your need to enter the area is occasional, you will only be granted escorted entry. In this case, a restricted area escort official—appointed by the commander to make such decisions—must verify your entry. When you are granted escorted entry into a restricted area, you remain under continuous escort until you exit the area.

Weapons storage area

Entry control procedures used at the WSA will be either the Exchange Badge System or the Automated Entry Control System (AECS). The Exchange Badge System used for entry into the WSA requires that you have two restricted area badges (RAB). You keep one badge and the entry controller retains your second badge at the WSA ECP. When you want to enter the area, the entry controller must match the two badges in order to make sure that they are identical. Both badges must identify you as the individual requesting entry into the area. The entry controller then exchanges the badges, allowing you to enter the area. When you leave the area, you repeat the process.

Restricted areas containing PL 1 resources, such as nuclear weapons, require certain internal controls in addition to the entry controls already discussed. Security forces and MUNS personnel devise internal controls to protect close-in security areas located within the restricted area. Security patrols during duty and nonduty hours, intrusion detection alarm systems, and specialized locking systems, among other features, all ensure the security of nuclear weapons maintenance and storage facilities. Figure 3–1 shows a typical nuclear WSA. The TPC discussed previously provides additional restrictions when nuclear weapons are present in the area.

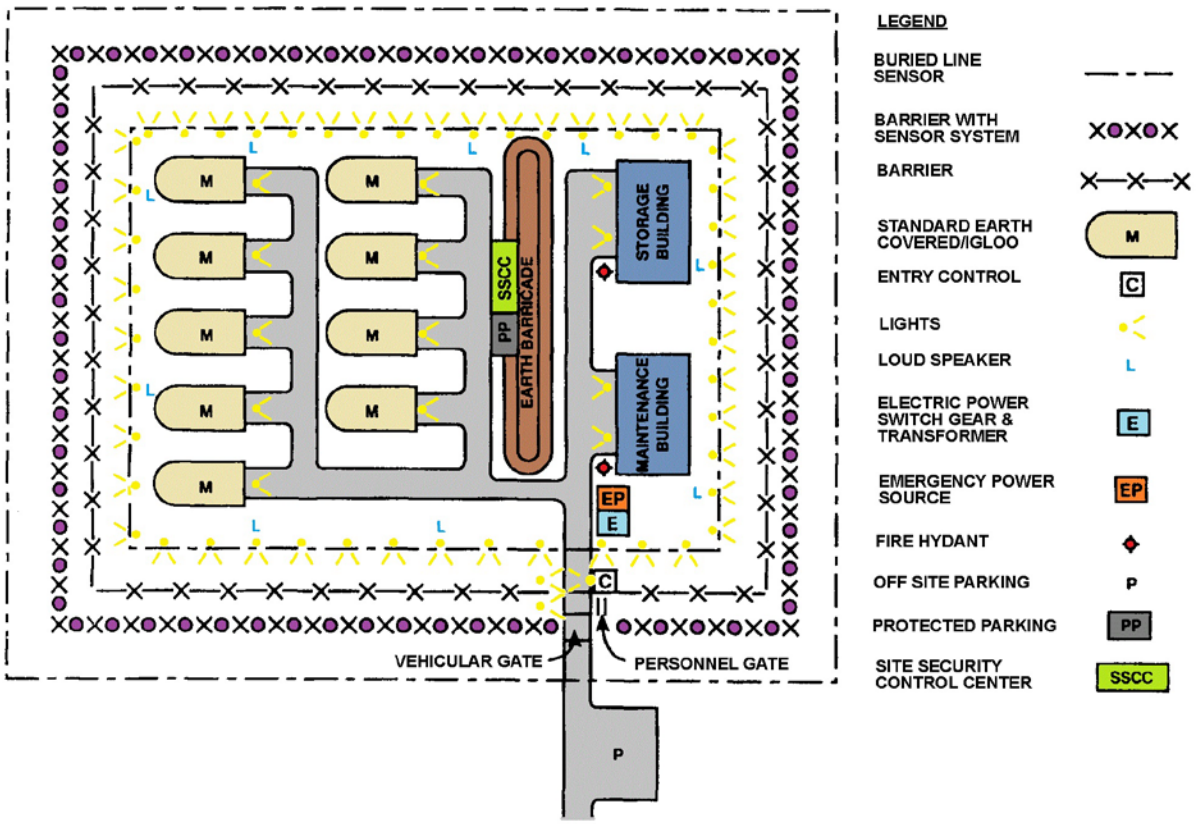


Figure 3–1. Nuclear weapons storage area.

All persons who have been granted unescorted entry into a security area by the commander are placed on an access list, and their access area is entered on their AF Forms 2586, Unescorted Entry Authorization Certificate. A USAF RAB (AF Form 1199A/B/C/D, USAF Restricted Area Badge series), is available in four colors (green, pink, yellow, and blue), is issued to each person, and is used for positive ID when entering a security area. A photograph and other pertinent ID data are entered on the badge. A series of numbers indicates the particular base areas for which unescorted entry is authorized. If you are designated as an escort official, a large letter E is typed or stamped on the badge to the right of the numbers 1 to 10 or to the left of numbers 11 to 20 to show the areas for which you are authorized to be an escort official.

The USAF RAB is a serially numbered, accountable form and must be maintained in a secure status. You are always personally responsible for your badge's security. Always wear it when inside the area, but never display it when outside the area. If it is lost, immediately notify the base-issuing agency and your security manager.

Automated Entry Control System

When the AECS is used at the WSA, the same restrictions used with the Exchange Badge System apply. You must enter the secure area only through the established entry point, and only after you are identified as authorized for entry. You must have a regular need for entry into the area in order to be authorized regular access to a restricted area. If you need to enter the area occasionally, you are only granted an escorted entry. In this case, a restricted area escort official—appointed by the commander to make such decisions—must verify your entry. When granted entry into a restricted area, you remain under continuous escort until you leave the area.

With AECS, instead of exchanging your area badge, you enter a control booth where authorization to enter the area is verified. This is accomplished through three levels of ID: your ID card, your personal ID number, and personal identity verification (biometric identifier). Security forces develop and

implement strict controls for the manufacturing process of all AECS badges issued. The commander certifies the access list of all personnel granted unescorted entry into the WSA.

Procedures are established to promptly remove or "lock-out" any individual whose PRP status has changed or if the individual has been reassigned or transferred. If you try to enter the area after being removed from the system, or fail any of the three levels of ID, security forces will take immediate action and remove you from the area.

Opening nuclear facilities

Entry into a facility containing nuclear weapons requires specific authorization. In order to maintain maximum security, regulations specify strict procedures that must be followed to gain access to nuclear weapons. These procedures go hand-in-hand with the nuclear WSSRs. Opening and closing procedures vary according to location. To accommodate the needs of your organization, the governing regulations allow some latitude. Because these procedures can vary, we do not discuss maintenance bay opening procedures. However, we do address the common requirements and procedures for opening a facility containing nuclear weapons used at many locations.

Authorization lists

Every organization provides the security forces with a list identifying those individuals in the organization who are authorized access to nuclear weapons. This list is known as the access, approval, and authority list (AAAL) or the EAL. It contains names of those individuals who have been properly screened and meet all requirements. To maintain control over facility openings, a minimum number of personnel on this list are identified as a "vouching authority." The unit commander certifies the list, and security forces authenticates it.

Change letters

Change letters are used for interim changes to the AAAL and kept to an absolute minimum. A single letter may be used to add and delete individuals. AAAL change letters are consecutively numbered, beginning with number one, and identify the date of the affected AAAL it is changing. The change letter sequence number starts over with one with each AAAL revision. These letters are authorized, certified, authenticated (except for deletion letters), and distributed in the same manner as the AAAL. Entries on the referenced AAAL are made in pen and ink (handwritten or typed), and the change letter is filed with or attached to the AAAL it changes.

Preannouncement

The first thing you do to open a facility or storage location containing nuclear weapons is to notify security personnel. This notification is called a "preannouncement" and it is done by an individual authorized to do so on the AAAL. This individual gives security personnel the names of the individuals—a two-person team consisting of an "A" and a "B" lock—who will "call in" at the facility or storage location to be opened. Security personnel check their copy of the authorization list to make sure there are no changes affecting the status of these individuals. Security personnel most commonly use the "coded matrix" or "number of the day," described below, to authenticate with the individual conducting the preannouncement. After authentication, you are ready to begin the process to enter the facility.

Access codes

Positive ID is controlled by using an access code. Using an access code also provides you with a means to convey a duress signal if a hostile situation arises. Two coding methods currently in use: code or number of the day and a coded matrix. They are described in the following table.

Code or number of the day

Here is an example of how to use the code of the day (fig. 3–2):

Today is 5 January. SSgt John Smith and you are preannounced to open the maintenance facility.

SSgt Smith picks up the receiver and says, "This is SSgt John Smith at the maintenance building."

The alarm monitor responds by saying, “I give you a 3.” (The code of the day for 5 January is 12.)

SSgt Smith’s response is, “I give you a 9.” (9 + 3 = 12, the code of the day.)

Then, you follow the same procedure when SSgt Smith gives you the phone.

****
* SAMPLE *
****

Codes for the month of January 2017

DAY	CODE	DAY	CODE
1.	45	16.	49
2.	21	17.	90
3.	99	18.	87
4.	18	19.	71
5.	12	20.	33

****
* SAMPLE *
****

Figure 3–2. Sample code or number of the day.

Coded matrix

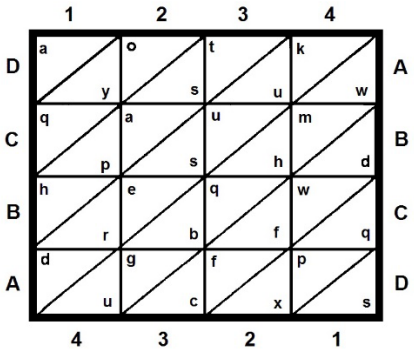
A coded matrix (fig. 3–3) works differently than a code of the day.

You are told by the alarm monitor to read the card in one of several ways, such as right to top.

Then, the alarm monitor may say something like “alpha 3,” meaning “A3.” In this example, read the card in figure 3–3 right to top. First, locate the “A” on the right hand side of the card. Then, move up to the top of the card and locate the “3.”

If local directives stipulate that the block where the two designators intersect is read left to right, your response would be “tango uniform” meaning “TU.”

****
* SAMPLE *
****



****
* SAMPLE *
****

Figure 3–3. Sample matrix.

Duress signals

The purpose of a duress system is to notify the security forces that assistance is needed. You can give a duress signal in many different ways. Local policies dictate which method to use. No matter which method you use, one thing is standard—a good duress system should appear as if everything is normal. One widely used method is using a predetermined duress word in a sentence when on the phone with the security forces. Another method is using an *incorrect* access code response to the alarm monitor. In either case, the alarm monitor may tell you to "stand by." Within a very short time, security assistance *will* arrive to secure the surrounding area and all personnel in the immediate vicinity.

Entry procedures

Simply following the procedures already discussed is not enough to open a facility containing nuclear weapons. Since most WSAs have different types of storage structures, you may need several other items such as cranks, jacks, hand-held heaters, or a jack phone. You also will need authorized personnel, keys, and codes. To open and enter a nuclear weapons maintenance facility a minimum of two people (for compliance with the TPC) who have been preannounced and have keys must be present.

Before entering some weapon storage structures, you must remove the massive modular block (MMB) system (fig. 3–4). It is made up of large, heavily reinforced precast concrete blocks that are designed to be stacked in front of WSA MUNS storage facility access doors. The installation of MMBs in front of storage facility doors creates a massive, attack-resistant physical boundary and adds specific delay time to unauthorized entry. The system is made up of blocks, locating alignment pins, and mats. The blocks have two rectangular pockets with steel sleeves below the center of each block (for balance when lifting) to allow the forklift tines to be inserted for transport and stacking.

Figure 3–4. MMBs.

To open and enter a nuclear weapons storage structure takes a *minimum* of *three* people—two with keys and one with a weapon. The two key personnel need to comply with key-control procedures and the TPC while in the facility. The primary purpose of the third member is to provide munitions close-in sentry (MCIS) duties.

Munitions close-in sentry

The MCIS is essentially an extension of security forces—fellow team members serving an important role. The MCIS maintains surveillance over assigned areas of responsibility and provides final denial to unauthorized entry. Also, the MCIS uses the minimum force necessary to prevent unauthorized access and, if necessary, uses deadly force but only as a last resort. The MCIS provides immediate

guard duties and challenges anyone encroaching in close proximity to the exclusion area unless permission is granted from the SVA.

Sole vouching authority

The SVA is the individual who approves entry into an occupied exclusion area. This is normally a position held by the senior member or the TC of the operation. The SVA must ensure that the TPC requirements are met at all times and, depending on the situation, may transfer responsibilities to another member on the team. Prior to this change, security forces must be notified to ensure that continuity of authority is maintained until the completion of the operation.

Closing facilities

Closing a facility is the reverse of the opening procedures we have covered. The only difference is the joint area security check. Complete this check at the end of the shift to verify that all locks are on and secure.

Weapons storage and security system

WS3, with its associated weapons storage vault (WSV), has different procedures than those used inside a WSA. WSV and vault are used interchangeably throughout. These procedures may vary from one base to another. We discuss the *minimum* security procedures required for gaining access to and opening a WSV.

Opening a WSV requires using an authorization list and making preannouncements. Currently, USAFE units are the only bases using the WS3. The vaults are installed in the ground inside a protective aircraft shelter (PAS) or a hardened aircraft shelter (HAS) depending on location. The process to open a vault is more involved than opening storage facilities inside a WSA.

Due to the nature of the USAFE mission, a great deal of planning and execution happens prior to opening any vault. All agencies involved are thoroughly briefed and understand the execution of the mission in advance. Before opening the vault, you may need to coordinate to remove equipment, hazardous materials, and aircraft from the PAS/HAS prior to performing vault or major weapons maintenance. Scheduling must also be structured to ensure there are no other operations in the area. The US or host nation security forces will amass the required personnel to post around the area prior to gaining access to the vault. During normal day-to-day operations, when the vault is closed and locked, security forces personnel keep it under constant video and alarm surveillance. Before discussing the procedures for opening a vault, you need to become familiar with some of the equipment.

Coder transfer group

To open the vault, electronic codes comprised of a part “A” and a part “B” are used. The coder transfer group handles the process of transferring these codes from their secure storage location to the vault itself. This group is capable of storing and transferring unlock codes and encoding keys. It also provides the means to enter and update vault ID numbers and time delays (TD), which are required for each vault. Rekey and recode modules are part of this group; however, we will discuss their full use in a different lesson. Look at figure 3–5 to see the six major component groups described in the following table.

Coder Transfer Group	
Item	**Purpose**
Code transfer unit (CTU)	Transfers unlock codes from the CSM or universal release code (URC) cards into the unlock modules. Also maintains ID and TD operations.
A and B unlock modules	Stores unlock codes and interfaces with the shelter control panel (SCP) at the WSV to transfer the codes into the vault processor for validation.

Coder Transfer Group	
Item	**Purpose**
A and B CSMs	Contains the maintenance and mass upload unlock codes which are transferred into the unlock modules for use.
A and B URC cards	Contain a manual three-digit hexadecimal unlock code which can be entered into the unlock module via the CTU enabling the unlock modules to unlock all vaults without an imposed TD.
A and B recode modules	Stores and transfers a complete set of unlock codes to the vault processor memory during a recode operation.
A and B rekey modules	Stores and transfers a complete set of encryption keys to the authentication unit and data authenticators. This is used to encrypt communications between WS3 equipment groups.

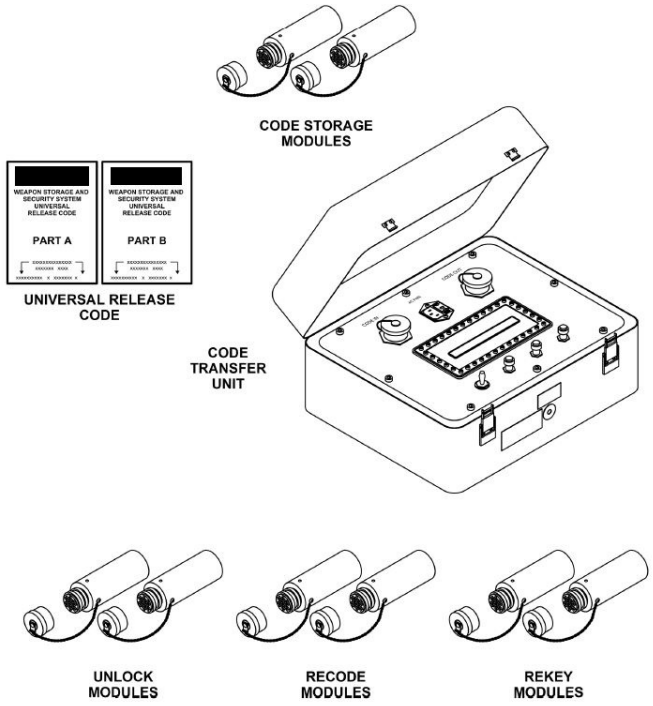


Figure 3–5. Coder transfer group.

Unlock modules

You can think of unlock modules as electronic access devices. They are completely erased at the end of each use and are capable of storing six vault-specific codes, one mass upload, or one URC. The unlock codes are transferred from the CSM via the CTU's CODE OUT receptacle into the unlock module. This transfer of codes is completed for both part A and part B. Once both parties are at the SCP, both transfer their stored codes from the unlock module through the SCP into the vault processor. To ensure authenticity, unlock codes entered at the SCP are electronically compared to the matching code stored in the vault processor memory. A valid unlock code must be entered before the vault processor electronically unlocks the vault. Once the code is used, it cannot be used again and is electronically marked on the unlock module but the information contained—which is Secret COMSEC material—remains. Therefore, it is extremely important that the unlock module is erased prior to returning it to storage.

Code storage modules

CSMs are used to store and transfer maintenance and mass upload unlock codes to the unlock modules through the CTU. Each CSM set is capable of storing 40 maintenance unlock codes and 20 mass upload codes. The A CSM contains the A part of the two-part codes. The B CSM contains the B part. Each CSM is also capable of storing a unique ID number and TD for each vault. The vault ID number is a security feature that restricts maintenance unlock codes to a specific vault. The TD is a security feature that delays vault opening for a predetermined time period following entry of a valid unlock code.

The CSM contains a unique access code. These three-digit hexadecimal codes must be entered before information stored in the CSMs may be accessed. Each CSM interfaces with the CTU's CODE IN receptacle to transfer up to six vault-specific maintenance unlock codes, one mass upload code, or vault ID-TD data to the respective (A or B) unlock module. Codes are marked as used in the CSMs after they are transferred to the unlock modules.

A set of CSMs consists of primary A and B and backup A and B modules. This is considered part of the *effective* edition since it is currently in place and used daily. There is also a *reserve* edition that contains another primary and backup set of modules, which must be maintained on site. The backup A and B CSMs from the effective edition are required in the event of a primary CSM failure. The reserve edition of CSMs is required in the event of a failure in both the primary and backup CSMs from the effective edition. The reserve edition of CSMs replaces the effective edition when a new set of unlock codes is necessary. Once you replace the effective edition, it is considered obsolete; then the reserve edition is considered the effective edition, and you must obtain a new reserve edition. Each pair of CSMs is electronically marked as primary or backup with a set number that corresponds to a set of recode modules containing matching unlock codes. Each CSM is also physically labeled as primary or backup and must be physically labeled as belonging to either the effective or reserve edition.

There are three unlock codes: maintenance unlock code, mass upload unlock code, and universal release unlock code. These are described in the following table.

Unlock Codes	
Type	**Description**
Maintenance Unlock Code	You use this code to unlock a particular vault to perform maintenance. These codes are vault-specific and contain vault ID numbers, which must match the ID numbers you enter during the ID-TD operations. Opening of the vault delays the TD you enter during the ID-TD operations. Only one maintenance unlock code for each vault may be transferred to a pair of unlock modules. Any attempt to transfer any type of code with the same ID to an unlock module that already has a code loaded writes over the existing code.
Mass Upload Unlock Code	This code is used to unlock any or all vaults during base exercises. These codes are *not* vault specific and do *not* contain vault ID numbers. Vault opening is delayed by the TD you entered during the ID-TD operations. You can use each mass upload unlock code only one time per vault.
URC Cards	A and B code cards are made of a special protective technologies opaque material with an outer protective plastic shipping sleeve and are distributed by the Director, National Security Agency (DIRNSA). You must break open the code cards to reveal the code inside. The code is manually input into the CTU without using a CSM since it is a manual code. To use the URC, you only need the code from the card, an unlock module, and a CTU to upload the information into the unlock module.

Unlock Codes	
Type	**Description**
	This code will unlock any or all vaults any number of times and without an imposed TD. When directed, using the URC is restricted to wartime operations and actual emergencies.

Entry procedures

Now that you have the basic knowledge of the equipment requirements, let's look at the procedures you use to open a vault. As part of a two-person team, you and one other individual obtain the effective primary A and B CSMs, CTU, and a pair of unlock modules from their storage location. A self-test and inspection of the CTU is required prior to performing operations along with the inspection of associated modules. We will discuss the general steps for loading a maintenance code. Refer to figure 3–6 as we describe where connections are made and codes are entered.

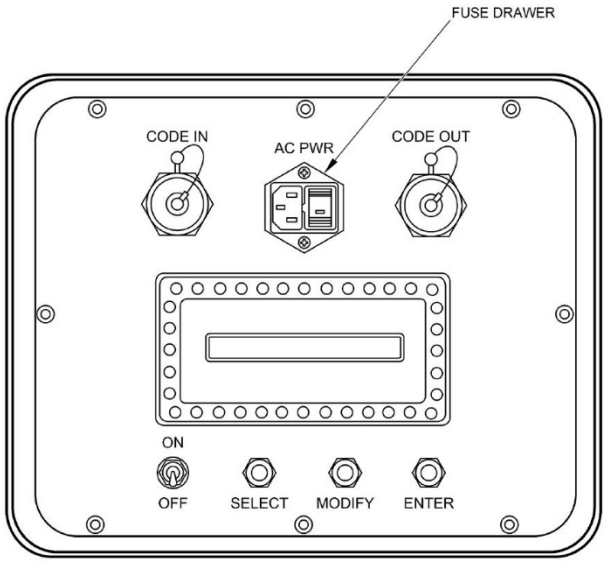


Figure 3–6. Code transfer unit.

First, connect an A or B CSM to the CODE IN receptacle on the CTU, and connect the corresponding unlock module to the CODE OUT receptacle. Next, enter the CSM access code and the vault ID number for the vault to which you require access. Enter the codes by using the SELECT, MODIFY, and ENTER switches on the CTU. Just as you protect combinations from personnel who are unauthorized, you must also protect your CSM access code from the other part of your two-person team. If you are the "A," you will never allow the "B" to have access to your access code. This would potentially cause a compromise and create a massive workload on your unit. Repeat this procedure for the other CSM and unlock module. Store the CSMs and CTU in their respective storage locations. Once you load the unlock modules with the unlock codes, they become SECRET/no foreign nationals (NOFORN) COMSEC materials. You must control these modules until you erase the unlock code from the unlock modules IAW procedures with the CTU.

You must preannounce to the local monitoring facility (LMF) to open a vault. Security forces personnel staff the LMF 24 hours a day. Once you have completed your preannouncement with the LMF, proceed to the PAS. Make sure that security personnel have arrived and are posted around the PAS to provide security while the vault is open. Contact the LMF using the phone on the exterior of the PAS and authenticate using the local matrix or access code. Once the LMF verifies that you are authorized access, you may enter the PAS. Once inside, contact the LMF again using the phone inside

the PAS. You must authenticate again using the access code with the LMF to gain access to the vault. After you receive authorization from the LMF, you may proceed to open the vault.

Perform the appropriate preliminary procedures to access the vault as specified in TO 11N–50–1004, *Operation and Maintenance Instructions, Processor, Vault Control Group*. Open the SCP connector door and connect the unlock modules to the appropriate receptacles (fig. 3–7). Press the SCP START push-button switch and verify that the digital display shows code 32. Disconnect the unlock modules. After the required TD, you can open the vault.

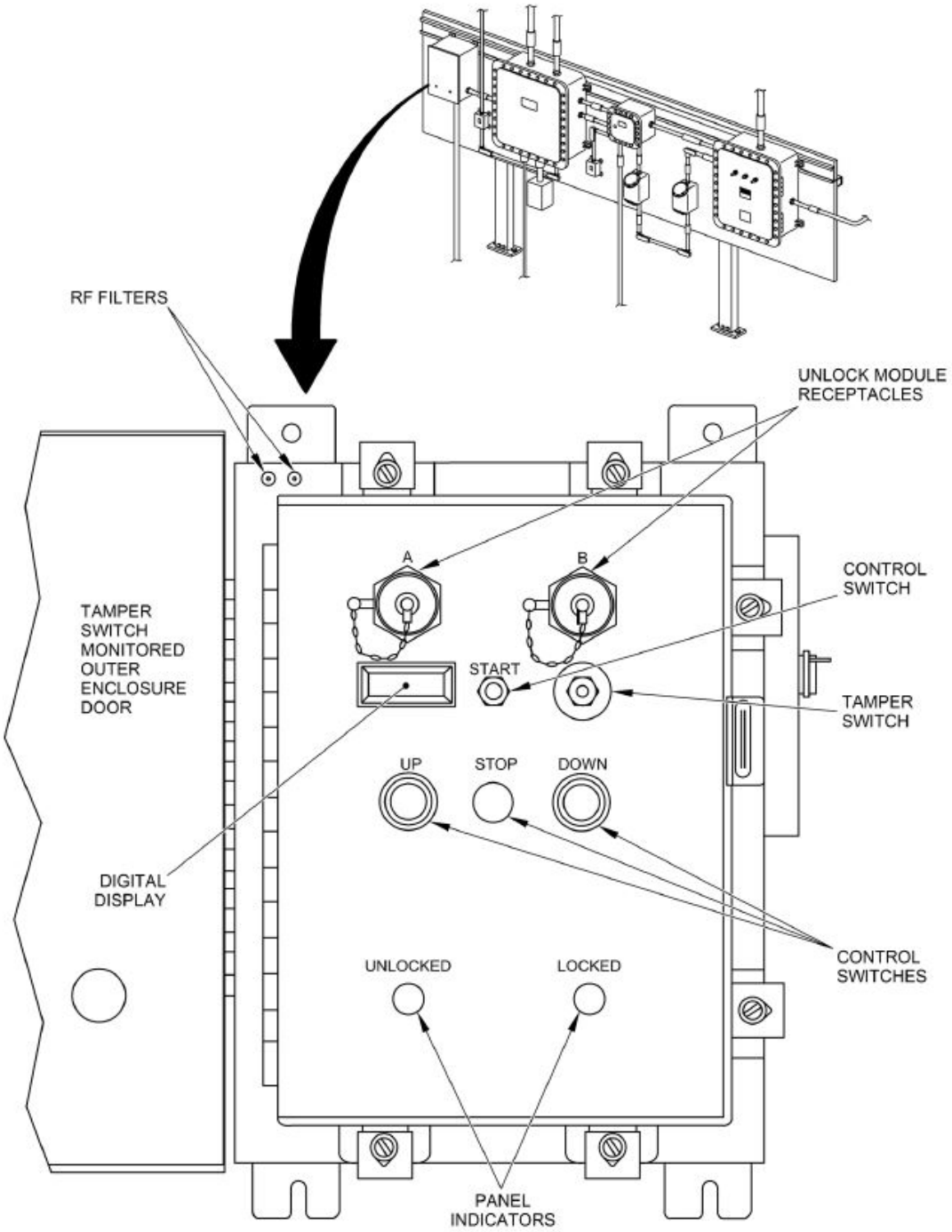


Figure 3–7. Shelter control panel.

Closing procedures

To close and secure the vault, press the down button on the SCP until the vault is in the full down position. Once the vault reaches the down position, press and hold both the down and stop buttons until the locked lamp on the SCP illuminates. Close the SCP door and install a padlock. After the vault is secure and no alarms are present, security forces will initiate a sweep. Then, exit the PAS, install the lock on the PAS personnel door, and contact the LMF to activate the PAS alarms.

023. Control and audit of keys, locks, and codes for nuclear structures and WS3

It should be quite evident that the locks you use to secure nuclear weapons structures must be very secure, dependable, and essentially tamper-proof. In addition, you must strictly safeguard and control the keys for these locks. Lock requirements for MUNS maintenance and storage structures and WS3s are contained in DoDD 5210–41M/AFMAN 31–108, Volume 2 (S), *(S)General Nuclear Weapon Security Procedures(U)*; and AFMAN 21–200, *Munitions and Missile Maintenance Management.*

Control of nuclear locks and keys

Structures used to protect nuclear weapons require high-security locks and hasps. You must install two locks on all exterior doors that allow entry to the immediate area where nuclear weapons or nuclear weapon systems are kept.

As you can imagine, control of these locks and keys is quite stringent. All locks and keys for nuclear weapons storage structures are controlled as classified material. Never remove any keys currently being used with installed locks from the storage area (except during an actual emergency). In addition, you cannot use master keys or duplicate the keys.

Each lock-and-key set is made up of the lock housing, a lock cylinder, and three keys (two noncontrol keys—one primary and one spare, and one control key—a maintenance key). Each lock cylinder and key set has a serial number from the manufacturer. You must engrave or stamp a local serial number on the keys to high-security padlocks, and obliterate the manufacturer's serial number. Do *not* engrave or stamp serial numbers on lock bodies or cylinders. An assembled lock is controlled by the serial number of its key. To keep track of its current location and custody, you record the serial number on an AF IMT 2427, Lock and Key Control Register (fig. 3–8).

Audits

You perform a monthly audit to verify the location of all keys and locks. At the time of the audit, check each lock to make sure that it functions properly and is not rusting or corroding. If necessary, clean and lubricate the locks using procedures in TO 44H2–3–1–101, *Operation and Maintenance Instructions, High, Medium, and Low Security Hardware.*

In order to open a structure, a key team must have two keys—an A and B key. Each member of the team is designated as either an "A-lock" or a "B-lock," which identifies which key set they are able to receive from the key issuing authority. This means the individual with the A combination can only have the A key set. This method is used to prevent any single individual from having both A and B key sets to a storage structure at the same time. You must ensure the locks securing nuclear weapons maintenance and storage facilities are rotated annually and are documented on the AF IMT 2427, Lock and Key Control Register. If the key to a storage structure is lost or compromised, you must replace or recylinder the lock.

People authorized to issue and receive keys must be designated in writing by the group commander, who may delegate the authority to the SQ/CC. Anyone authorized to issue keys may also be authorized to receive keys. In fact, it is permissible for everyone in your shop to be authorized to both issue and receive keys. You may issue both the primary and spare key sets when necessary. You must inventory primary and spare key sets by serial number at the end of each shift (change of custody) when you issue the key sets, but at least weekly if you do not issue any key sets. Inventory key containers sealed with railroad seals or similar coded devices by verifying the seal integrity and seal serial numbers. Annotate seal numbers on the AF IMT 2432, Key Issue Log. Use the AF IMT 2432

(fig. 3–9) to record all key issues, turn-ins, and inventories. Notice that two signatures are required for each key set you issue.

LOCK AND KEY CONTROL REGISTER

I certify that locks and keys listed hereon were audited on date indicated.

1. SERIAL NUMBER	2. LOCATION	3. DATE INSTALLED	4. KEY STORAGE LOCATION PRIMARY	4. KEY STORAGE LOCATION SPARE	5. DATE	6 SIGNATURE
4806262	Bldg 2410 (A)	20170201	Bldg 1200	Bldg 3600	20170301	James Smith Laura Kinder
6925331	Bldg 2410 (B)	20170201	Bldg 1200	Bldg 3600	20170301	James Smith Laura Kinder
2447108	Igloo 1 (A) 3 Mar 17	20170201	Bldg 2410	Bldg 2410	20170301	James Smith Laura Kinder
5742428	Igloo 1 (B)	20170201	Bldg 2410	Bldg 2410	20170301	James Smith Laura Kinder
9863969	Shelter 2 (A)	20170201	Bldg 2410	Bldg 2410		
5832136	Structure 4 (A)	20170201	Bldg 2410	Bldg 2410		
7812387	Structure 5 (B)	20170201	Bldg 2410	Bldg 2410		
6328461	Structure 4 (B)	20170201	Bldg 2410	Bldg 2410		
7755551	Shelter 2 (B)	20170201	Bldg 2410	Bldg 2410		
2712094	Spare		MUNS-23	MUNS-23		
4304147	Structure 5 (A)	20170201	Bldg 2410	Bldg 2410		
4525288	Spare		MUNS-23	MUNS-23		
2250809 Two Keys Remain	Igloo 1 (A)	20170303	Bldg 2410	Bldg 2410		

AF IMT 2427. 19950701. V2 PREVIOUS EDITION IS OBSOLETE.

Figure 3–8. Sample, AF IMT 2427.

KEY ISSUE LOG

STRUCTURE	OUT TIME	OUT DATE	OUT SIGNATURE	IN TIME	IN DATE	IN SIGNATURE
Example - Key Issue and Turn-in Single Signature (w/key issuing authority, conventional units)			1 2			1 2
Igloo 1	0800	7 Feb 17	1 Jeremy Rickers Rickers 2 Kevin Styles Styles	1500	7 Feb 17	1 Jeremy Rickers Rickers 2 Kevin Styles Styles
Example - Key Transfer (w/key issuing authority, conventional units)			1 2			1 2
Igloo 3	0900	8 Feb 17	1 Jeremy Rickers Rickers 2 Kevin Styles Styles	1100	8 Feb 17	1 KEY TRANSFER 2 Kevin Styles Styles
Igloo 3 KEY TRANSFER	1100	8 Feb 17	1 Mead, Cassandra 2 Kevin Styles Styles	1500	8 Feb 17	1 Cassandra Mead Mead 2 Kevin Styles Styles
Example - Key Issue and Turn-in Dual Signature (two individuals, nuclear units)			1 2			1 2
IMF, Bay 2	0600	10 Feb 17	1 Paul Thatcher Thatcher 2 George McNeil McNeil	0800	10 Feb 17	1 Paul Thatcher Thatcher 2 George McNeil McNeil
Example - Key Transfer Dual Signature (two individuals, nuclear units)			1 2			1 2
IMF, Bay 2	0745	11 Feb 17	1 Paul Thatcher Thatcher 2 George McNeil McNeil	1100	11 Feb 17	1 KEY TRANSFER Paul Thatcher Thatcher 2 George McNeil McNeil
IMF, Bay 2 KEY TRANSFER	1100	11 Feb 17	1 Vidaurri, Roque 2 Treat, Casey	1500	11 Feb 17	1 Roque Vidaurri Vidaurri 2 Casey Treat Treat
Example - Key Inventory			1 2			1 2
KEY INVENTORY			1 2	1500	11 Feb 17	1 Cassandra Mead Mead 2 Kevin Styles Styles
			1 2			1 2
			1 2			1 2

AF IMT 2432, 19950801, V2

Figure 3–9. Sample, AF IMT 2432.

Coder transfer group control

Coded and keyed material management must be performed according to USAFE Air Forces Africa Instruction (AFARICAI) 17–1302, *Operational Doctrine for Safeguarding and Control of Weapon Storage and Security System*, AFMAN 17–1302–O, and other MAJCOM guidance. The DIRNSA generates all of the codes that you require for access to the WSVs. DIRNSA delivers the material in two editions—effective and reserve—with each edition containing a primary and back up COMSEC set of WS3 materials.

You must perform a receipt inspection for all DIRNSA-provided materials within 72 hours from the time of receipt. The inspection includes a critical inspection of the material for evidence of tampering. If you find evidence of tampering, you must report it to the DIRNSA and USAFE/A4WN, who is the controlling authority (CONAUTH). Most WS3 material is designated COMSEC, and the stringent COMSEC rules apply.

HQ USAFE/A4WN is the point of contact for any issues relating to WS3 material. Units must request permission from the CONAUTH before using the reserve edition for any reason other than implementation during the scheduled anniversary month. You must store the effective edition primary set and backup set of modules in authorized storage containers in separate facilities. Never store the reserve edition in the same container as the effective edition; however, you may store them in the same facility. Be sure that no single individual knows the combinations to both locks securing the modules.

Document all WS3 COMSEC material issues, turn-ins, transfers, erasures, and destruction on the USAFE-AFAFRICA Form 13, Weapons Storage and Security System (WS3) COMSEC Module Issuing Log. The USAFE-AFAFRICA Form 13 must reflect the signature of the person receiving the modules and the date and time received. When the unlock modules are loaded with codes, they are tracked on this form. This is because when they are erased and “empty,” they do not contain COMSEC information. However, when they are loaded, they are handled as SECRET/NOFORN and are then tracked accordingly.

Use a USAFE Form 15, Weapons Storage and Security System (WS3) COMSEC Inventory, to control all module sets and sealed envelopes. You must inventory WS3 COMSEC material each day the container is opened just prior to final closing, and at a minimum, it must be done monthly. Maintain USAFE Form 15 for 6 months plus the current inventory.

Maintaining code modules

Inspect and maintain modules per TO 11N–50–1005, *Code-Transfer Group OX-69/FSQ-143 (V) Weapons Storage and Security System AN/FSQ-143 (V).* Inspections include, but are not limited to, connector damage, overall cleanliness, markings, and possible signs of tampering and sabotage. Do this before each day’s use. There may not be a spring finger under the module key way. This is a normal condition and is acceptable.

Maintaining high-security padlocks

TO 44H2–3–1–101 prescribes the *minimum* periodic maintenance interval and the operation and maintenance instructions for high-security padlocks. It also contains a list of NSNs for both the high-security locks and hasps.

Perform maintenance on the locks at least every 6 months or more frequently if you use them in sandy areas. Lock maintenance requires using hazardous, flammable materials and personnel protective equipment.

The 833C is the preferred lock for use by the AF. To perform maintenance of this lock:

1. Disassemble the lock.
2. Inspect all padlock components for corrosion. If any signs of corrosion are evident, remove them with a wire brush.

3. Clean all padlock components and the cavity of the padlock body with the recommended solvent.
4. Lubricate the lock using molybdenum disulfide powder or dry film lubricant.
5. Reassemble the lock.
6. After you reassemble the lock, operate it several times to make sure that it is functioning properly.

Self-Test Questions

After you complete these questions, you may check your answers at the end of the unit.

022. Opening and closing of storage facilities

1. What procedure is used for entry control into the WSA?

2. List three internal controls used to protect close-in security areas within a restricted area.

3. What is required for a person to be granted unescorted entry into a security area?

4. How are authorized escort personnel identified on their RAB?

5. Why are opening procedures established?

6. What is used to identify individuals who are authorized access to nuclear weapons?

7. What must be done first, prior to opening a facility or storage location containing nuclear weapons?

8. What are the two coding methods for accessing facilities?

9. List two ways to indicate a duress situation.

10. What must you accomplish before you open the vault prior to performing vault or major weapon maintenance?

11. What are the six major component groups that make up the coder transfer group?

12. What contains the maintenance and mass upload unlock codes?

13. What is the purpose of the TD for vaults?

14. How do you access the CSMs?

15. When does the reserve edition take place of the effective edition of CSMs?

16. What are the three different types of unlock codes?

17. How many maintenance unlock codes can be transferred to a pair of unlock modules for each vault?

18. What are the things you need to load the URC to unlock the vault?

19. When are the unlock modules controlled as SECRET/NOFORN COMSEC material?

20. What code must be displayed in the digital display after you press the SCP's START push-button?

023. Control and audit of keys, locks, and codes for nuclear structures and WS3

1. What are the lock and hasp requirements for exterior doors to a nuclear weapons structure?

2. When, if ever, may the keys to a structure containing nuclear weapons be removed from the WSA?

3. How often do you check locks for proper functioning?

4. When are locks securing nuclear weapons maintenance and storage structures rotated, and how is it documented?

5. When are you required to inventory primary and spare key sets?

6. How do you inventory key containers sealed with railroad seals?

7. What form do you use to record nuclear storage structure key issues, turn-ins, and inventories?

8. Who generates all codes for the WSV?

9. When storing the effective edition modules, how do you store primary and backup set of modules?

10. What form do you use to control all module sets and sealed envelopes?

11. How often are the high-security padlocks required to have maintenance?

12. What do you use to lubricate the 833C lock?

Answers to Self-Test Questions

017

1. To knowingly perform an incorrect act or procedure involving a nuclear weapon, nuclear weapon system, or certified critical component.
2. Ensure that a lone individual is denied access to nuclear weapons, nuclear weapon systems or critical components, never allowing the opportunity for tampering, damage, or an unauthorized act to go undetected.
3. Be certified under PRAP, know the nuclear surety requirements of the task they perform, can promptly detect an incorrect act or unauthorized procedure, completed nuclear surety training, and designated to perform the task.
4. An area where the TPC must be enforced because it contains nuclear weapons, nuclear weapon systems, or certified critical components.
5. (1) Prevent nuclear weapons involved in accidents or incidents, or jettisoned weapons, from producing a nuclear yield.

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

(3) Prevent inadvertent arming, launching, firing, or releasing of nuclear weapons.

(4) Make sure of adequate security of nuclear weapons.

6. To incorporate maximum nuclear surety consistent with operational requirements from weapon system development to dismantlement.
7. Accidents and incidents, deliberate actions, inadvertent actions, and security.
8. Concealed safety switches, use of two or more controls, TPC, and tamper detection.
9. Human error; to prevent the careless or inadvertent acts of people working with nuclear weapons.
10. Only during an emergency.

018

1. (1) d.
   (2) b.
   (3) c.
   (4) b.
   (5) e.
   (6) c.
   (7) b.
   (8) a.
   (9) b.
2. Empty Quiver.
3. (1) The need for rapid notification to authorities that a mishap has occurred.
   (2) The need to report the results of the investigation so the AF can take necessary steps to prevent recurrence of nuclear mishaps.
4. OPREP–3 report.
5. To furnish additional information when it becomes available and to keep addressees informed on the progress of the investigation for nuclear weapon system accidents at least until on-site investigations are completed.
6. Within 5 calendar days with the final message completed within 90 calendar days.

019

1. To make sure that each person who performs duties with nuclear weapons, systems, or critical components meets the highest possible standards of individual reliability.
2. Personnel who are presently assigned or selected for assignment to duties involving the control, handling, or access to nuclear weapons, nuclear weapons systems, or critical components with the exception of security forces who fall under the AUoF program.
3. (a) A critical position designates a person who performs maintenance on nuclear weapons, and has working knowledge and authorized access to nuclear weapons and the launch or release systems for the performance of internal maintenance.

   (b) A controlled position requires entry into a no-lone zone or control entry in a no-lone zone; the person has no technical knowledge pertaining to launching, releasing, or detonating a nuclear weapon or critical component.
4. Critical position–Top Secret eligibility which must be completed within the last 5 years and be adjudicated. Controlled–Secret eligibility or higher which must be completed within the last 5 years and be adjudicated.
5. The unit commander (SQ/CC) or immediate commander. However, when a unit is so large that the commander cannot keep personal contact with everyone, the commander may delegate, in writing, certification authority to certain individuals.
6. (1) d.
   (2) a.
   (3) c.

(4) b.

7. (1) Dependability in accepting responsibility.
   (2) Carrying out duties effectively and in the approved manner.
   (3) Flexibility in adjusting to changes in the working environment.
   (4) Ability to use good judgment in meeting adverse or emergency situations.

020

1. Medical reports, OSI or security forces report, coworker observations, comments of the individual or the person's dependents, chaplain, and community agencies.
2. To measure present performance and behavior against past performance and to look for any changes in behavior or performance patterns.
3. The individual's reliability is not in question, the problem is expected to be of short duration, while conducting an investigation or medical evaluation to determine if a situation or incident could have an adverse effect on an individual's reliability.
4. A suspension can initially last up to 3 months. However, the CO may extend the period of suspension up to 1 year in 3-month increments.
5. The CO has deemed that the individual no longer meets PRP standards. This can be concluded by the person having questionable reliability or long-term impaired capability.
6. Confirmed drug abuse, diagnosed as an alcohol abuser or alcohol dependent, or being involuntarily discharged or removed for cause.

021

1. Be certified under PRAP, know the nuclear surety requirements of the task they perform, can promptly detect an incorrect act or unauthorized procedure, completed nuclear surety training, and designated to perform the task.
2. Momentarily, when performing certain tasks.
3. To enforce the TPC until relieved by authorized personnel or until the nuclear weapon or critical component is secured, take immediate, positive steps to prevent or stop incorrect procedures or unauthorized acts, and report deviations immediately to the appropriate supervisor.
4. When the nuclear WSSRs specifically authorize a deviation or during an emergency that presents an immediate threat to the safety of personnel or the security of a nuclear weapon or critical component.
5. (1) Two interim-certified individuals may not form a TPC team.
   (2) A person who does not qualify as a member of a TPC team may enter a no-lone zone to perform a task only if escorted by a TPC team.
   (3) Entry controllers may not form a TPC team with people inside the no-lone zone.
6. An area where the TPC must be enforced because the area contains nuclear weapons, nuclear weapon systems, or certified critical components.

022

1. The Exchange Badge System or the AECS.
2. Security patrols during nonduty hours, intrusion detection alarm systems, and specialized locking systems. When nuclear weapons are present, the TPC is also a control.
3. The commander grants unescorted entry into a security area. The individual is placed on an access list and the area entered on his or her AF Form 2586. A USAF RAB is issued to the individual.
4. By a letter E next to the area number that they are authorized as escort official.
5. To maintain maximum security.
6. The AAAL or the EAL.
7. Security personnel must be notified. This notification is called a "preannouncement" and it is done by an individual authorized to do so on the AAAL.
8. Code or number of the day and coded matrix.
9. (1) Use one of the predetermined duress words in a sentence when on the phone with the security forces.
   (2) Use an incorrect access code response to the alarm monitor.

10. Coordinate to remove equipment, hazardous materials, and aircraft from the PAS/HAS prior to performing vault or major weapons maintenance. Scheduling must also be structured to ensure there are no other operations in the area.
11. A and B CSMs, CTU, A and B unlock modules**,** A and B recode modules, A and B rekey modules, and URC cards.
12. CSMs.
13. It is a security feature that delays vault opening for a predetermined time period following entry of a valid unlock code.
14. By using a unique three-digit hexadecimal code.
15. The reserve edition of CSMs is required in the event of a failure in both the primary and backup CSMs from the effective edition.
16. Maintenance, mass upload, and universal release.
17. One.
18. The code from the card, an unlock module, and a CTU to upload the information into the unlock module.
19. From the time they are loaded with the unlock codes until the unlock codes are erased.
20. 32.

023

1. Two high-security locks and hasps must be installed on all exterior doors that allow entry.
2. Only during an actual emergency.
3. Monthly, during the audit.
4. Annually and ensure it is documented on the AF IMT 2427.
5. At the end of each shift (change of custody) during which they are issued but at least weekly if they have not been issued.
6. Verify the seal integrity and seal serial number.
7. AF IMT 2432.
8. DIRNSA.
9. In authorized storage containers in separate facilities.
10. USAFE Form 15.
11. At least every 6 months or more frequently if you use them in sandy areas.
12. Molybdenum disulfide powder or dry film lubricant.

Complete the unit review exercises.

Unit Review Exercises

Note to Student: Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter.

48. (017) The term *tamper* is defined as
    a. performing any unauthorized act, whether accidental or intentional.
    b. inadvertently operating or manipulating of a device to a position that would arm, launch, or release a nuclear weapon.
    c. unknowingly performing an incorrect act or procedure involving a nuclear weapon, nuclear weapon system, or certified critical component.
    d. knowingly performing an incorrect act or unauthorized procedure involving a nuclear weapon, nuclear weapon system, or certified critical component.

49. (017) The four nuclear safety standards are stated in Air Force Instruction (AFI) 91–
    a. 101, *Air Force Nuclear Weapons Surety Program*.
    b. 102, *Nuclear Weapon System Safety Studies, Operational Safety Reviews, and Safety Rules.*
    c. 202, *The US Air Force Mishap Prevention Program*.
    d. 204, *Safety Investigations and Reports*.

50. (017) Which is *not* a nuclear surety standard positive measure?
    a. Ensure adequate security.
    b. Report minor weapons safety mishaps.
    c. Prevent weapons from accidentally producing a nuclear yield.
    d. Prevent deliberate arming, launching, or releasing of nuclear weapons.

51. (017) Which organization develops the weapon system safety rules (WSSR)?
    a. Department of Energy (DOE).
    b. Major command (MAJCOM).
    c. Headquarters, United States Air Force (HQ USAF).
    d. Nuclear weapons system safety group (NWSSG).

52. (018) An *unauthorized* takeoff of a US nuclear-armed aircraft, which could be perceived as a hostile act, would be reported as a
    a. Nucflash.
    b. Bent Spear.
    c. Dull Sword.
    d. Broken Arrow.

53. (018) Which flag word is used for an unexpected event involving nuclear weapons or components, resulting in a nonnuclear detonation or radioactive contamination?
    a. Nucflash.
    b. Bent Spear.
    c. Dull Sword.
    d. Broken Arrow.

54. (018) The flag word for damage to a nuclear weapon or nuclear component resulting in *major* rework or complete replacement is
    a. Nucflash.
    b. Bent Spear.
    c. Dull Sword.
    d. Broken Arrow.

55. (018) Which organization holds the *primary* responsibility for submitting nuclear mishap reports and messages?
    a. Unit.
    b. Weapon safety office.
    c. Quality assurance (QA) office.
    d. Major command (MAJCOM).

56. (018) The *preliminary* message during nuclear mishap reporting *must* be completed within
    a. 12 hours.
    b. 24 hours.
    c. 5 calendar days.
    d. 10 calendar days.

57. (018) A Dull Sword *must* be reported to Air Force Safety Automated System (AFSAS) within
    a. 5 calendar days.
    b. 3 calendar days.
    c. 5 duty days.
    d. 3 duty days.

58. (019) Positions that fall under the Personnel Reliability Program (PRP) are categorized as
    a. sensitive and limited.
    b. critical and controlled.
    c. controlled and limited.
    d. sensitive and controlled.

59. (019) A person *cannot* be assigned to a critical position under the Personnel Reliability Program (PRP) unless what is accomplished before final certification?
    a. An Federal Bureau of Investigation (FBI) investigation.
    b. A national agency check.
    c. A psychological evaluation.
    d. A Top Secret security clearance investigation.

60. (019) Which type of certification is used pending completion of a security investigation?
    a. Formal.
    b. Interim.
    c. Administrative.
    d. Permanent change of assignment (PCA) recertification.

61. (020) The *best* method for the continuing evaluation of individuals covered by the Personnel Reliability Program (PRP) is to
    a. listen to recommendations from supervisors.
    b. ensure individuals have an annual urinalysis test.
    c. request individuals have an annual mental health examination.
    d. measure present performance and behavior against past performance and behavior.

62. (020) What *must* the commander do if an individual covered by the Personnel Reliability Program (PRP) is prescribed medication that could affect his or her physical or mental abilities?
    a. Decertify the person due to short-term impaired capability.
    b. Disqualify the person due to short-term impaired capability.
    c. Suspend the individual until he or she stops taking the medication.
    d. Administratively decertify the individual until he or she stops taking the medication.

63. (020) Under the Personnel Reliability Program (PRP), a suspension can be extended up to a year in increments of
    a. 30 days.
    b. 45 days.
    c. 2 months.
    d. 3 months.

64. (021) Which Air Force instruction (AFI) governs the two-person concept (TPC)?
    a. 91–105, *Critical Components.*
    b. 91–104, *Nuclear Surety Tamper Control and Detection Programs.*
    c. 91–103, *Air Force Nuclear Safety Design Certification Program.*
    d. 91–101, *Air Force Nuclear Weapons Surety Program.*

65. (021) Which individuals can make up a two-person concept (TPC) team?
    a. Two Personnel Reliability and Assurance Program (PRAP)-certified people designated to perform the task.
    b. One non-Personnel Reliability Program (PRP) certified person and one PRP certified person.
    c. Two interim-certified individuals who can perform the task.
    d. Entry controller with people inside the no-lone zone.

66. (021) Your responsibility as a member of a two-person concept (TPC) team is to
    a. write down an incorrect procedure so that it can be corrected later.
    b. warn the other person about an incorrect procedure and correct the act.
    c. decide if an unauthorized act affects reliability and if it needs reporting.
    d. take steps to prevent or stop an incorrect procedure and tell a supervisor.

67. (021) When are you authorized to deviate from the two-person concept (TPC)?
    a. During a fire exercise that requires evacuating the building.
    b. During an emergency that threatens the security of a nuclear weapon.
    c. Never, the nuclear weapons system safety rules do not allow deviations.
    d. For short periods of time when you cannot maintain constant observation.

68. (022) Security patrols during nonduty hours, intrusion detection alarm systems, and specialized locking systems are internal controls used in
    a. limited access areas.
    b. combat alert facilities.
    c. Protection level (PL) 2 resource areas.
    d. PL 1 resource areas.

69. (022) The access, approval, and authorization list (AAAL) or entry authorization list (EAL) lists the names of people who are
    a. in controlled positions on base.
    b. authorized restricted area badges.
    c. authorized access to nuclear weapons.
    d. subject to the Personnel Reliability Program (PRP).

70. (022) To open a facility containing nuclear weapons, you *must* be “preannounced” by
    a. security forces.
    b. a two-person team.
    c. the sole vouching authority (SVA).
    d. an individual authorized on the access, approval, and authorization list (AAAL).

71. (022) A *good* duress system should
    a. sound an immediate alarm.
    b. appear as if everything is normal.
    c. keep the infiltrator from escaping.
    d. always be different than the one used at another base.

72. (022) What is the *minimum* number of people needed to open and enter a nuclear weapons maintenance facility?
    a. 2.
    b. 3.
    c. 4.
    d. 5.

73. (022) Besides controlling access, the *primary* purpose of a guard at an open facility containing nuclear weapons is to
    a. move the modular blocks.
    b. direct vehicle movements.
    c. act as a sole vouching authority (SVA).
    d. provide munitions close-in sentry duties.

74. (022) What component is used to transfer unlock codes and to maintain vault identification (ID) numbers and time delays (TD)?
    a. Rekey module.
    b. Recode module.
    c. Code transfer unit.
    d. Shelter control panel.

75. (022) The reserve set of code storage modules (CSM) replaces the effective set
    a. in the event of a primary CSM failure.
    b. if both the primary and backup CSMs fail.
    c. every 2 years if no compromise occurs.
    d. only in a wartime situation.

76. (023) How often are the locks for nuclear weapons maintenance and storage facilities rotated?
    a. Monthly.
    b. Quarterly.
    c. Semiannually.
    d. Annually.

77. (023) Which reference contains guidance for managing coded and keyed material?
    a. US Air Forces Europe-Air Forces Africa Instruction (USAFE-AFAFRICAI) 17–1302, *Operational Doctrine for Safeguarding and Control of Weapon Storage and Security System.*
    b. Air Force System Security Instruction (AFSSI) 31–104, *The Air Force Raven Program*.
    c. Air Force Regulation (AFR) 50–12, *Key Codes and Locks*.
    d. Air Force Instruction (AFI) 50–14, *Lock Control and Security*.

78. (023) What form do you use to document *all* issues, turn-ins, erasures, and destruction of Weapon Storage and Security System (WS3) communications security (COMSEC) modules?
    a. United States Air Forces Europe-Air Forces Africa (USAFE-AFAFRICA) Form 13, Weapon Storage and Security System (WS3) COMSEC Module Issuing Log.
    b. Air Force Communications Security (AFCOMSEC) Form 16, Inventory Control.
    c. AFCOMSEC Form 23, Inventory Accounting.
    d. Air Force (AF) Form 2432, Key Issue Log.

79. (023) Perform lock maintenance on high-security locks *every*
    a. 3 months.
    b. 6 months.
    c. 9 months.
    d. 12 months.

80. (023) What is the *preferred* high-security lock for use by the Air Force (AF)?
    a. 833C.
    b. 880 HK.
    c. HK 100.
    d. BK 1000.

Glossary of Abbreviations and Acronyms

ºF	degrees Fahrenheit
(HM)	hazardous materiel
(HM)(F)	hazardous materiel, flammable
20 AF	Twentieth Air Force
8 AF	Eighth Air Force
AAAL	access, approval, and authority list
AECS	automated entry control system
AETC	Air Education and Training Command
AF	Air Force
AFAFRICA	Air Forces Africa
AFAFRICAI	Air Forces Africa instruction
AFECD	Air Force Enlisted Classification Directory
AFGSC	Air Force Global Strike Command
AFI	Air Force instruction
AFIA	Air Force Inspection Agency
AFMAN	Air Force manual
AFMC	Air Force Materiel Command
AFNWC	Air Force Nuclear Weapons Center
AFNWC/NIBF	Air Force Nuclear Weapons Center intercontinental ballistic missile directorate
AFSAS	Air Force Safety Automated System
AFSC	Air Force specialty code
AFSEC	Air Force Safety Center
AFTO	Air Force technical order
AGE	aerospace ground equipment
AI	activity inspection
AUoF	Arming and Use of Force
BC	bay chief
C4	command, control, communications, and computer
CAS	Combat Ammunition System
CBU	calibrate before use; calibration before use
CDC	career development course
CFETP	Career Field Education and Training Plan
CG	classification guide

CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff instruction
CMS	calibration and measurement summary
CNWDI	critical nuclear weapons design information
CO	certifying official; commander
COMSEC	communications security
CONAUTH	controlling authority
CONUS	continental United States
CSM	code storage module
CTU	code transfer unit
DDL	delayed discrepancy list
DIAMONDS	Defense Integration and Management of Nuclear Data Services
DIRNSA	Director, National Security Agency
DNSIO	defense nuclear surety inspection oversight
DOD	Department of Defense
DoDD	Department of Defense directive
DoDM	Department of Defense manual
DOE	Department of Energy
DR	deficiency report
DSV	detected safety violation
DTRA	Defense Threat Reduction Agency
EAL	entry authorization list
ECP	entry control point
EDT	enlisted development team
EPL	evaluated products list
ERRC	expendability, recoverability, and reparability code
FIFO	first-in/first-out
FOUO	For Official Use Only
FSC	federal supply classification
GAO	Government Accountability Office
GM	general maintenance
GSA	General Services Administration
HAS	hardened aircraft shelter
HERO	Hazards of Electromagnetic Radiation to Ordnance
HQ USAF	headquarters, United States Air Force

IAW	in accordance with
ICBM	intercontinental ballistic missile
ICO	initial calibration only
ID	identification; integrated defense
IG	inspector general
IMDS	Integrated Maintenance Data System
IMT	information management tool
INSI	initial nuclear surety inspection
IRC	inspection record card
JCS	Joint Chiefs of Staff
JNWPS	Joint Nuclear Weapons Publication System
JQS	job qualification standard
LANL	Los Alamos National Laboratory
LEP	life extension program
LIL	location inventory list
LLC	limited-life component
LLCE	limited-life component exchange
LLNL	Lawrence-Livermore National Laboratory
LMF	local monitoring facility
LOX	liquid oxygen
LRS	logistics readiness squadron
MAJCOM	major command
MAR	maintenance activity report
MASO	munitions accountable systems officer
MCIS	munitions close-in sentry
MCL	maintenance capability letter
MDC	maintenance data collection
MFD	military first destination
MGA	major graded area
MHU	missile-handling unit
MI	management inspection
MMB	massive modular block
MNCL	master nuclear certification list
MSEP	Maintenance Standardization and Evaluation Program
MSgt	master sergeant

MTP	master training plan
MUNS	munitions; munitions squadron
MUNSS	munitions support squadron
MX/SUPT	maintenance superintendent
MXG/CC	maintenance group commander
NAF	numbered air force
NARS	nuclear accountability and reporting section
NATO	North Atlantic Treaty Organization
NCCD	nuclear-certified computer data
NCOIC	noncommissioned officer in charge
NCP	nuclear control point
NCR	no calibration required
NdA	nondisclosure agreement
NIIN	national item identification number
NMC2	nuclear munitions command and control
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
NOFORN	no foreign nationals
NPC	no periodic calibration
NSI	nuclear surety inspection
NSN	national stock number
NSSAV	Nuclear Surety Staff Assistance Visit
NWRM	nuclear weapons-related materiel
NWRMAO	nuclear weapons-related materiel accountable officer
NWSSG	nuclear weapons system safety group
NWTI	nuclear weapons technical inspection
NWTP	nuclear weapons training program
OCA	original classification authority
OO	operations officer
OPREP	operational report
OSD	Office of the Secretary of Defense
OSI	Office of Special Investigations
OST	Office of Secure Transportation
P&S	plans and scheduling
P/N	part number

PAL	permissive action link
PAS	protective aircraft shelter
PC	property custodian
PE	personnel evaluation
PL	protection level
PMEL	precision measurement equipment laboratory
POL	petroleum, oils, and lubricants
POTUS	president of the United States
PRAP	Personnel Reliability and Assurance Program
PRP	Personnel Reliability Program
QA	quality assurance
QVI	quality verification inspection
RAB	restricted area badge
RD	restricted data
RON	rest overnight
RS	reentry system
RV	reentry vehicle
SAAM	special assignment airlift mission
SCG	security classification guide
SCP	shelter control panel
SECDEF	Secretary of Defense
SENEX	senior executive
SEW	weapons safety division
SF	standard form
SGT	safeguards transporter
SI	special inspection
SIPRNet	Secret Internet Protocol Network
SIR	semiannual inventory report
SLC	shelf-life code
SNL	Sandia National Laboratories
SQ/CC	squadron commander
SSgt	staff sergeant
STE	secure telephone equipment
SVA	sole vouching authority
TBA	training business area

TC	team chief
TCTO	time compliance technical order
TD	time delay
TDI	tamper detection indicator
TDV	tech data violation
TECC	Transportation and Emergency Control Center
TMDE	test, measurement, and diagnostic equipment
TO	technical order
TPC	two-person concept
TSgt	technical sergeant
TTTHE	tools, test, tiedown, and handling equipment
UCR	unsatisfactory condition report
UII	unique item identifier
UR	unsatisfactory report
URC	universal release code
US	United States
USAF	United States Air Force
USAFE	United States Air Forces in Europe
USCINCEUR	United States Commander In Chief, European Command
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USEUCOM	United States European Command
USSTRATCOM	United States Strategic Command
WebAFCAV	Web Air Force calibration viewer
WG/CC	wing commander
WIR	weapon information report
WR	war reserve
WS3	Weapons Storage and Security System
WSA	weapons storage area
WSSR	weapon system safety rule
WSV	weapons storage vault
WUC	work unit code
Y-12	Y-12 National Security Complex

Student Notes

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