

# **CDC Z2W271**

## **Nuclear Weapons Craftsman**

### **Volume 2. Nuclear Programs, Reports, Accounting and Use Control**



**Air Force Career Development Academy (AFCDA)**

**TheAir University**

**Air Education and Training Command**

**Z2W271 Volume 02 1213, Edit Code 03**

**AFSC 2W271**

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AS A NUCLEAR weapons craftsman, you are responsible for supervising, directing, and, managing the assembly, testing, maintenance, and modification of nuclear weapons under your control. This also includes the associated test and handling equipment and various programs pertinent to the career field. The knowledge and skills needed in this career field are listed in the 2W2X1 Career Field Education and Training Plan (CFETP). We provide the information you need for upgrade in each required line item of the CFETP in this career development course (CDC). This CDC consists of two volumes and an end-of-course exam for each volume.

Unit 1 of volume 2 covers the nuclear surety, safety, and health programs. Next, unit 2 deals with reports, records, and forms. Finally, unit 3 discusses the weapons accounting and shipping processes including the use control program.

A glossary is 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 Surety, Safety, and Health Programs

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**N**O WEAPON HAS 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. Thus, 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, bringing about the need for an effective, widespread nuclear safety program. The political ramifications (national and international) of a nuclear accident make preventing nuclear mishaps paramount in importance.

The results of an accidental peacetime nuclear detonation would be extremely serious for our country. The political repercussions alone would deal a stunning blow to our foreign relations. People in any way associated with the nuclear weapons program must be constantly alert to prevent such an accident. As a nuclear weapons craftsman, it becomes your responsibility to maintain an effective nuclear safety program at all times and under all conditions.

## 1-1. Nuclear Surety Program

During our nuclear surety discussion, we cover safety, security, and reliability. Since the different operations involving weapon systems are much broader than just safety, we refer to them collectively as nuclear surety. The policies and procedures governing the USAF nuclear surety program you can find in Department of Defense Directive (DODD) 3150.2, *DOD Nuclear Weapon System Safety Program Manual*, December 23, 1996, and are implemented in Air Force Instruction (AFI) 91-101, *Air Force Nuclear Weapons Surety Program*. You must be particularly concerned with maintaining an effective nuclear safety program. Your goal is clearly defined—a zero accidental or unauthorized nuclear weapons detonation.

### 201. Nuclear weapons surety and systems safety rules

Four safety standards form the basis for our entire nuclear surety program. All policies and procedures for nuclear surety are based on one or more of these standards. Failure to comply with any portion of these standards is inexcusable. We begin our discussion on nuclear surety by introducing various terms that we use throughout this unit.

### Four nuclear safety standards

AFI 91–101 ensures that personnel design and operate nuclear weapons and nuclear weapon systems to satisfy the safety standards in DODD 3150.2. The four DOD Nuclear Weapons System Safety Standards are found in AFI 91–101 and state that there must be positive measures to adhere to them:

1. Prevent nuclear weapons involved in accidents or incidents, or jettisoned weapons, from producing a nuclear yield.
2. Prevent deliberate prearming, arming, launching, firing, or releasing of nuclear weapons, except upon execution of emergency war orders or when directed by competent authority.
3. Prevent inadvertent prearming, arming, launching, firing, or releasing of nuclear weapons in all normal and credible abnormal conditions.
4. Ensure adequate security of nuclear weapons, according to DODD 5210.41, *Security Policy for Protecting Nuclear Weapons*.

### Nuclear surety program overview

The goal of the Air Force Nuclear Weapons Surety Program is to incorporate maximum nuclear surety, consistent with operational requirements, from weapon system development to retirement from the inventory. As we mentioned in the introduction, this includes maintaining a zero accidental nuclear detonation. DODD 3150.2 provides the guidance for the development of our program. Each service uses the directive as a guide to conduct appropriate safety studies, review various nuclear weapons systems, develop safety rules, and apply 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 users. Each standard is designed to deal with one of the four areas identified in DODD 3150.2:

1. Accidents and incidents.
2. Deliberate actions.
3. Inadvertent actions.
4. Security.

### 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 that every component be carefully designed and tested to assure maximum safety. To do this, the armed forces must prepare a document we refer to as Military Characteristics and incorporate safety requirements into nuclear weapon design. The Department of Energy (DOE) is responsible for making sure the weapon design incorporates these characteristics so the weapon can be accepted and entered into our nuclear weapons stockpile.

There are many Military Characteristics involved in a weapon's design. We focus on a few of the most important ones. Obviously, 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 drop. The weapon must remain inert in storage. It must also be impossible or extremely difficult to trigger the weapon for a nuclear detonation while it is being stored or transported.

The design characteristics also make sure that various safing devices are incorporated. The concept of safing, as we discuss it here, refers to various internal devices of the weapon that help to prevent a nuclear detonation. These internal safing devices may be environmental sensing devices (ESD), such as baro switches, differential pressure switches, and inertial switches that cannot be activated (by a person) unless the surrounding conditions are right.



Another internal safing device is the electrical safing switch. A switch is available in most weapons to electrically safe the weapon by interrupting the circuit from the power supply. An example includes strong link-weak link circuits within a weapon, which by design fail during prescribed accidental events. These devices isolate critical circuits and switches required for activating the explosives within the weapon. Detailed safety procedures are developed in conjunction with the weapon system development. The safety procedures are formed around the safety rules that govern the operation of the weapon system. After the safety rules are developed, the technical orders (TO) covering such things as maintenance, loading, transportation, and inspection are written. Again, these are based on the safety rules for the weapon system. All the safety procedures are written with one purpose in mind—to prevent the accidental detonation of a nuclear weapon.

### *Deliberate actions*

Psychotics and saboteurs are a major concern. Therefore, safety standards were developed to prevent deliberate launching, arming, firing, or releasing of nuclear weapons except on competent authority:

- Concealed safety switches.
- Use of two (or more) controls.
- Making a nuclear weapon system inaccessible to a single person (two-person concept).
- Tamper detection.

The design of a nuclear weapon system plays an important role in this problem area. Switches used to prevent a detonation can be embedded in the weapon's circuitry, such as explosive switches and electro-explosive devices. 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 the use of dual controls. Circuits can be designed to require two people 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 the use of two or more circuits in the arming, fuzing, and firing sequences.

Another method of dealing with psychotics and saboteurs is the requirement that no fewer than two authorized persons is 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 use of lead seals and strips, as specified in the safing and sealing program, can provide evidence of foul play by a saboteur. They can also help prevent any unauthorized acts by bringing attention to the broken seal or strip.

### *Inadvertent actions*

The third safety standard to prevent inadvertent arming, launching, firing, or releasing is used to reduce the problem of human error. This safety standard considers many of the same features as the second safety 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 the psychotics and saboteurs. Human error accounts for many mishaps involving nuclear weapons systems. If we were to analyze these human error mishaps, we would find the actual causes fall into one or more of the following categories:

- Poor handling techniques.
- Failure to follow TO procedures or standard operating procedures (SOP).
- Poor maintenance techniques.
- Failure of the supervisor to detect and correct improper procedures.
- Poor judgment.

A few methods used to reduce human error include certification of the task to be performed by quality assurance evaluators, using training weapons to validate training. Also included is proper knowledge

of TO procedures, using demand and response where a team chief reads the step to the team member and the team member responds back to the team chief when the step is completed, and also checking off each TO step when completed. Additional measures include a visual inspection of the interior by a qualified third party to make sure 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 to provide redundancy or augmentation. For example, the use of armed guards to prevent or restrict access to the weapon system overlaps with saboteurs and psychotics.

We have discussed the four safety standards of the nuclear safety program. These standards and their related problem areas cannot be separated completely and are interrelated. The effectiveness of the nuclear safety program depends on how effectively all of these standards are maintained by everyone associated with nuclear weapons.

### **System safety rules**

Safety rules are categorized as general and specific provisions applicable to a nuclear weapon system for conducting approved operations while ensuring maximum safety consistent with operational or logistic requirements.

- *General safety rules* apply to all nuclear weapons and nuclear weapon systems. General safety rules primarily apply safety policy and is included as part of the military department's safety rules package.
- *Specific safety rules* are procedural and administrative safeguards unique to each individual nuclear weapon system (and logistics carriers as required) that are identified during the safety studies and reviews.

The military department evaluates system safety throughout the life cycle of a nuclear weapon system by performing periodic safety studies and reviews. This responsibility is given to the nuclear weapons system safety group (NWSSG) to evaluate current information about nuclear safety of the weapon system. Additionally, the NWSSG observes weapon system operations and makes assessments for the nuclear weapon system on DOD nuclear weapon system safety policy and standards. NWSSG may recommend draft safety rules, technical and operational procedures, and other positive measures to maximize safety consistent with operational requirements.

Safety rules for each weapon system in the inventory are developed to minimize the probability of a weapon becoming involved in a mishap or damaged at any time. It is mandatory that these safety rules are followed at all times for the operations of each nuclear weapon system. Safety rules always apply, even during war. The following are general nuclear weapon system safety rules applicable to all nuclear weapon systems:

- Do not intentionally expose nuclear weapons to abnormal environments except in an emergency.
- Do not use nuclear weapons for training or for troubleshooting (i.e., to confirm the existence of a fault, aid in fault isolation, or verify that a fault has been corrected except as explicitly allowed by a specific safety rule.)
- Nuclear weapons can be used for exercises except when explicitly prohibited by specific safety rules.
- Make sure only certified procedures, personnel, equipment, facilities, and organizations, authorized by the appropriate level of authority, are used to conduct nuclear weapon system operations.

- Hold to a minimum, the total number of people performing nuclear weapon system operations consistent with the operations performed.
- At least two authorized persons must be present during any operation with a nuclear weapon, except when authorized by a specific safety rule (i.e., alert fly). They must be able to detect incorrect or unauthorized procedures in the task being performed. They must also have knowledge of and understand applicable safety and security requirements.
- Personnel that have physical access to nuclear weapons must be qualified under the Personnel Reliability Program (PRP), according to DODD 5210.42R, *Nuclear Weapon Personnel Reliability Program (PRP)*.
- Maintain physical security according to DODD 5210.41M, *Nuclear Weapon Security Manual*.
- Transport nuclear weapons as determined by the combatant commander or the Military Department, according to DODD 4540.05, *DOD Transportation of US Nuclear Weapons*. Ensure nuclear movement(s) is kept to a minimum consistent with operational requirements. Positive control must be maintained throughout the transport process by using a courier receipt system.
- Perform permissive action link (PAL) operations according to plans and procedures prescribed by the applicable combatant command and technical publications.
- Deviations from safety rules are permitted in an emergency, except as follows:
  - Nuclear weapons are not to be expended unless a valid, properly authenticated nuclear control order conveying release or expenditure authority is received. US custody must be maintained until receipt of a valid nuclear control order that permits transferring US nuclear weapons to non-US delivery forces.
  - Jettisoning of nuclear weapons is permitted in the event of an emergency, and is to be accomplished according to plans and procedures prescribed for the area of operations.

**NOTE:** DODD 3150.2 defines an emergency as “an unexpected occurrence or set of circumstances in which people or equipment unavailability, due to accident, natural event, or combat, may demand immediate action that may require extraordinary measures to protect, handle, service, transport, jettison, or employ a nuclear weapon.”

## **202. Performing nuclear certification and verification**

The Air Force Nuclear Weapons Center (AFNWC) is responsible for managing the internet-based Master Nuclear Certification List (MNCL). Routine updates to the MNCL occur on the last duty day of every month; however out-of-cycle updates can occur at any time when deemed necessary. Make sure you verify equipment prior to performing operations with nuclear weapons.

The MNCL provides an itemized list of all Air Force equipment (fig. 1-1), hardware and software that is nuclear design safety certified and authorizes its use with nuclear weapons. Headquarters Air Force Safety Center (HQ AFSC) is the only agency that can add nuclear design safety certified or approved items to the MNCL, and is accomplished by way of the AFNWC. Changes to the MNCL are accomplished only after evaluation by the proper engineering command according to AFI 91-103, *Air Force Nuclear Safety Design Certification Program*. Deficiencies discovered on items listed are reported according to Air Force Manual (AFMAN) 91-221, *Weapon Safety Investigations and Reports*.

The general guidance section of the MNCL web site gives general and specific requirements concerning nuclear certified equipment. It also defines common terms and lists certain items that do and do not require certification. Review this section on the web site before using the MNCL.

Users are authorized to produce printed products from the MNCL to verify certification status when the printed product is validated by comparing the print date of the locally produced printed document to the Last Update date on the Main Menu page of the MNCL. If the print date is newer than the Last Update date in the MNCL, the printed product is valid.

If the Last Update date is newer than the print date, the locally produced printed product can be validated by attaching the current Summary of Changes to the locally produced printed product to show no items have been affected by updates since the print date on the printed product. The Summary of Changes must encompass the entire date range from the printed product to the Last Update date on the MNCL.

The MNCL has an automatic search function which allows you to enter nomenclature or national stock numbers (NSN) to find equipment and also has a function to allow you to just search for recent changes.

### **National stock number changes**

A time compliance technical order (TCTO) that results in a change to the NSN and/or part number of the item does not affect the certification status of the item unless such a change is otherwise specifically stated in the TCTO. The affected item may remain in use even if the MNCL has not yet been changed to reflect the updated NSN and/or part number. When the Federal Supply Classification (FSC) of a certified item changes, it does not affect nuclear certification status. For example, a vehicle listed with a FSC of 4220 remains certified even though it is redesignated with a FSC of 1730.

### **Modifications**

Modifications include all physical and/or functional configuration changes or new uses to existing nuclear design certified items. Air Force policy requires all modifications to certified items be identified to the Air Logistics Center (ALC) item manager. According to AFI 91-103, minor modifications to nonspecialized equipment (e.g., trucks, semi-tractors, trailers, hoists, and cranes) may not require formal certification, providing the equipment is still used for its original purpose and the modifications do not impact the item's primary structure, electrical and hydraulic power systems, load bearing capacity, steering and braking capability, or positive control features. Changes must be approved by the operational major command (MAJCOM). Do not perform any modifications to nuclear certified equipment without proper approval.

### **Handling and transporting equipment**

For the handling and transporting of equipment the following provisions apply:

- All Air Force equipment used to lift, hoist, mate, support, store, restrain, tow, transport or otherwise handle complete nuclear bombs or warheads, or warheads with attached or integrated assemblies such as re-entry vehicles payload sections, bomb ballistic cases, boosters, and so forth, *require* nuclear certification.
- Similar equipment which is used to perform the same type functions for unattached or unassociated assemblies intended for use with nuclear bombs or warheads such as re-entry vehicle shells and spacers, payload section shells, bomb ballistic cases, arming and fuzing subsystems, boosters, etc., *does not* require nuclear certification.
- Forklift spacers used to prevent interference between the load and the lift truck *does not* require certification.
- Individual bomb roller assemblies *are nuclear certified* provided they are listed as an authorized accessory in applicable approved technical data and are in original, unmodified condition.
- Tie-down chains, adjusters, straps, load binders, and shackles used for weapon restraint during transportation *are nuclear certified* provided they are in original, unmodified condition.

**NOTE:** Individual restraint items are only listed in the MNCL if a remark is stated or a restriction is imposed. Therefore, individual identification information for all restraint devices *must be checked* in the MNCL to determine if any remarks and/or restrictions are applicable. Tie-down chains *do not* require individual identification information (e.g. markings or attached labels).

- Bridge plates, platforms, shoring ramps, and similar items *do not* require certification.
- Manually operated hydraulic jacks (e.g. floor jacks, canister jacks), and wheeled pry bars (J-Bars), do not require nuclear certification.

**NOTE:** Pallet jacks must meet A-A-59333A, dated 24 March 2005, and the nuclear load will be limited to 50 percent of the rated load.

- Common hand tools (e.g. pliers, wrenches, screwdrivers, measuring devices, magnifiers, vacuum cleaners, and pin straightening/removal/insertion tools, etc) *do not* require nuclear certification.

### Department of Energy test, handling, and support equipment

Equipment provided by DOE to the Air Force for use with nuclear weapons systems is approved and does not require nuclear certification *provided* the equipment is used for the specific purpose intended as outlined in approved Joint Nuclear Weapons Publication System (JNWPS) publications, special procedures, or authorized unsatisfactory report (UR) responses.

### Test equipment

All Air Force equipment which is used to test and verify the proper functioning of critical circuits, assemblies and devices associated with nuclear bombs and warheads in all nuclear weapons systems *requires* nuclear certification. But, test equipment used *only* to test, troubleshoot, and calibrate the above critical test equipment *does not* require nuclear certification. Additionally, common purpose, and non-specialized test equipment (e.g. multimeters, igniter circuit testers, decade resistance boxes, impedance bridges) *do not* require certification unless the equipment directly interfaces with the nuclear weapon or is part of an end item that is nuclear safety designed certified.

### Commercial truck-tractors

Commercial truck-tractors are nuclear certified provided they are in their original, unmodified condition except for authorized common add-on equipment or minor field level modifications (e.g. installing fire extinguishers or land mobile radios). Additionally, commercial truck-tractors must meet the following criteria in order to be considered nuclear certified to tow certified semi-trailers.

For CONUS (continental US) locations, the following items are mandatory:

- 1979 model year or newer.
- Gross vehicle weight rating (GVWR) greater than 20,000 pounds.
- Manufactured in the US or Canada which can be evident by the first character of the vehicle identification number (VIN) starting with 1, 2, or 4.
- Manufactured by Navistar (including International Harvester Co), Chrysler Motor Corp or Daimler Chrysler (including Dodge), General Motors Corp (including Chevrolet), Ford Motor Co., White Motor Co., Mack Truck Co., Sterling, Freightliner, Volvo, or Kenworth.

For OCONUS (outside continental US) locations, the following items are mandatory:

- 1998 model year or newer.
- Tractor is a type N1 or N2.
- Meet all applicable European Community (EC) standards.

- Must be compatible with the nuclear certified semi-trailers (i.e. braking systems, electrical systems, mechanical mate/demate, etc.).
- Incorporate a transmission/starter interlock system.

**NOTE:** Individual semi-trailers are only listed in the MNCL if a remark is stated or a restriction is imposed. Therefore, individual identification information for all semi-trailers must be checked in the MNCL to properly determine if any remarks and/or restrictions are applicable.

### **203. Security classification guides**

Classification management procedures require issuance of guides in regards to classification of any system, plan, program, project, or mission under the jurisdiction of the original classification authority (OCA). Senior leadership, mid-level supervisors, and technicians need to know what piece of information could be expected to cause damage to national security. Therefore, classification guides are developed to protect information that truly warrants protection in the interest of national security.

#### **Requirements**

Security classification guide precisely states the specific information elements that require protection. The language used in the guides must be clear and precise to describe which items of information require classification. It may also contain items that are designated as unclassified controlled nuclear information (UCNI) (e.g. FOUO) or just plainly unclassified, to assist users that the information is in fact UCNI or unclassified and that it was not inadvertently omitted. The guide also identifies classification levels (e.g. TS, S, or C) and any additional dissemination control marking or special handling caveats such as restricted data (RD), formerly restricted data (FRD), releasable to, or not releasable to foreign nationals (NOFORN) that may apply to each element of information. Each of the elements specifies the duration of classification except for information categorized as RD or FRD. Since RD and FRD are not subject to automatic declassification, no declassification instructions are entered unless it is co-mingled with national security information (NSI). To ensure the information remains current and accurate, the OCA reviews the security classification guides once every five years or sooner depending on significant changes in policy or system and updates the guides as required.

#### **Format**

While there is no mandatory DOD-wide format for security classification guides, the following is a typical example of how a guide should be formatted to ensure consistent DOD-wide structure and facilitates understanding and use of other security classification guides when researching information.

#### **Introduction**

The introduction discusses and illustrates a general format for the security classification guide. It may contain a foreword or introduction to provide a short synopsis of the technology, system, plan, program, project, or mission covered in the guide. This helps users quickly understand the content or subjects covered in the guide in more detail than reading the title alone.

#### **Cover page**

A typical cover page format for a security classification guide includes all of the information shown in figure 1-1. As necessary, acronyms, short title or project number is used to keep the title unclassified. It is marked for official use only or if classified, with the appropriate classification marking including classification authority block, portion marks, and any special handling caveats and distribution controls.



[CLASSIFICATION]
[NAME OF THE SYSTEM, PLAN, PROGRAM, OR PROJECT]
SECURITY CLASSIFICATION GUIDE
[Date]
ISSUED BY: [Name and address of issuing office.]
APPROVED BY: [OCA name and title, or personal identifier.]
[Statement of supersession of previous guides, if any.]
[Distribution Statement for DTIC pursuant to DoDI 5230.24, when required.]
[“FOR OFFICIAL USE ONLY” or CLASSIFICATION]

Figure 1-1, Security Classification Guide Cover Page.

### Content

The guide actually starts in this section since it provides specific information on what is to be classified, at what level, and for how long. This is normally completed in table format with each table providing sufficient information to enable the user to fully understand what information is to be protected, at what level, and for how long, so that each derivative document can be properly marked and safeguarded. The remarks column can be used to provide additional information as needed for instance:

- Provide additional clarification about the information to be classified.
- To describe the conditions or criteria for each classification within a range of classifications or for alternative classifications.
- To identify dissemination control markings or special handling caveats.
- To specify downgrading instructions, if applicable.
- To identify another security classification guide that should be consulted for classification guidance for that element of information.
- To identify another guide as the original source for the guidance provided.

## Self-Test Questions

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

### 201. Nuclear weapons surety and systems safety rules

1. List the four nuclear safety standards.
2. What is the goal of the USAF nuclear surety program?

3. What are the four recognized nuclear safety problem areas?
4. What devices provide internal safing to help prevent a nuclear detonation?
5. What four things must we consider to protect against psychotics and saboteurs?
6. What problem area does the third safety standard address?
7. How are safety rules categorized? Describe each?
8. When are nuclear weapons allowed, or not allowed, to be used for exercises?
9. What must you be able to do as one of the authorized individuals working around nuclear weapons?
10. What are the exceptions of deviating from weapons systems safety rules?

## **202. Performing nuclear certification and verification**

1. What agency adds nuclear design safety certified or approved items to the MNCL?
2. What information is found in the general guidance section of the MNCL?
3. How is the printed MNCL validated if the Last Update date is newer than the print date?
4. Explain two ways to locate a piece of equipment in MNCL.
5. Is the item's nuclear certification in question once it undergoes a NSN change?
6. What restrictions apply to certifying individual bomb roller assemblies?
7. What agency provides equipment for use with nuclear weapons and *does not* require nuclear certification?



8. List examples of common multipurpose test equipment that do *not* require certification.
9. How can a commercial truck-tractor be determined to be manufactured in the US or Canada?
10. What determines if a semi-trailer is individually listed in the MNCL?

### **203. Security classification guides**

1. Why are security classification guides developed?
2. Why should information be marked with unclassified controlled nuclear information or plainly labeled unclassified?
3. What instance would require RD or FRD to declassification action?
4. Why should security classification guides be standardized across DOD?
5. What section of the security classification guide contains the foreword or short synopsis of the technology, system, plan, program, project or mission?
6. In what format is the content portion of the security classification guide completed?
7. What column is used to provide additional clarification about the information to be classified?

## **1-2. Safeguard of Facilities and Resources**

It should be quite evident that the locks you use to secure nuclear weapons structures must be very secure, dependable, and essentially tamperproof. In addition, you must strictly safeguard and control the keys for these locks. In this section we will cover lock and key control, Weapon Storage and Security System (WS3) keyed and coded materials, and WS3 communications security (COMSEC).

### **204. Key control procedures**

Keys to nuclear weapons storage and maintenance facilities are controlled in accordance with DOD S-5210.41M *Nuclear Weapons Security Manual*, AFMAN 31-108, *Nuclear Weapons Security Manuals*, and AFI 21-200, *Munitions and Missile Maintenance Management*. The security of and controlling access to munitions storage and maintenance facilities helps guarantee physical inventory control and accountability of nuclear munitions.

### **Authorization to access**

The access, approval, and authority list (AAAL) is used to identify those personnel authorized to accept custodial responsibility and perform certain actions associated with weapon storage areas (WSA) and WS3 locations. But for the intent of this lesson, we will only cover the maintenance and storage keys in WSAs. The AAAL will identify personnel authorized to perform the following duties:

- Issue and receive keys or code modules to weapon maintenance and storage structures. Personnel authorized to issue keys may also be authorized to receive keys.
- Open and close weapons maintenance and storage structures.
- Open and close containers at entry control points (ECP) and secure keys to maintenance facilities (if keys are stored at the ECP).
- Activate and deactivate weapons storage structures (i.e. weapons are present or not present).
- Perform pre-announcements to security forces for personnel accessing weapons maintenance and storage structures or escort personnel into the WSA.

### **Change letters**

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

### **Updates and distribution**

In cases where individuals or information must be deleted, the maintenance superintendent or designated representative will immediately notify all agencies possessing AAALs by telephone and document the time, date, and agency called. Each work center will place a single line through the entry on the AAAL upon receipt of the telephone notification. Once a change letter is received, the sequence number will be annotated next to the deleted entry on the AAAL.

If information needs to be added, the maintenance superintendent or AAAL office of primary responsibility (OPR) will initiate a change letter. Upon receipt of the authenticated change letter, the work centers will annotate the new entry on their AAAL with the change number sequence number.

### **Reviews**

The munitions accountable supply officer (MASO) reviews and grants authorized individual's access to facilities and storage structures containing nuclear weapons by signing the AAAL. The review includes, but is not limited to verifying individuals are not given authorized access or knowledge of more than one combination protecting keys to nuclear maintenance facilities or storage structures.

### **Keys and locks**

Keys and locks used to secure nuclear munitions must be strictly controlled since the keys and locks carry the same classification as the contents they secure. Therefore, master keying is prohibited and keys to high security locks cannot be duplicated. Nuclear munitions keys will be secured with a GSA-approved lock requiring a minimum of two separate combinations or two General Services Administration (GSA) approved locks. Units must ensure no one individual is given both combinations to key container(s) or locks, or has physical possession of both keys at one time.

### **Control**

Keys to nuclear storage structures are secured during nonduty hours and stored in a room where access is restricted to authorized personnel only. At the unit's discretion, the keys can be stored at a 24-hour manned or alarmed container, room, or facility within the restricted area during nonduty

hours. Or, the unit may opt to store the keys in security facilities but ensure Security Forces are not given the combinations or assigned *any* key responsibilities. The key containers and responsibilities belong to and are controlled by the munitions activity.

The primary keys are stored separately from the spare and control (or maintenance) keys but can be stored within the same safe as long as they are located in different drawers. Once the keys are removed from their storage container, they need to be under constant surveillance to preclude unauthorized access or duplication. When not in use, the keys need to be returned to the key issuing authority.

### Audits

An audit is a physical check (operating cylinder with either primary, spare, or control key set) of all lock cylinders used to secure maintenance and storage structures or spare cylinders. In addition, the local serial numbers and location of all keys and cylinders are verified (including spare cylinders) with the AF Form 2427, *Lock and Key Control Register*. The remaining two keys not used during the actual physical check are verified using its serial numbers against the AF Form 2427. Key audits are accomplished for the following two reasons:

1. When new key and lock custodians are appointed.
2. Monthly for nuclear weapons maintenance and storage facilities.

Both individuals performing the audit will enter the date of the audit in column 5 of the AF Form 2427 and print their last names in column 6 and sign in the same box (fig. 1-2).

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		5. DATE	6. SIGNATURE
			PRIMARY	SPARE		
4806262	Bldg 2410 (A)	1 Apr 07	Bldg 1200	Bldg 3600	20070401	Smith <i>Eric Smith</i> LaRock <i>Cory LaRock</i>
6925331	Bldg 2410 (B)	1 Apr 07	Bldg 1200	Bldg 3600	5 May 07	Acuri <i>Win Acuri</i> Fordham <i>Whitney Fordham</i>
2447108	Igloo 1 (A) 5 May 07		Bldg 2410	Bldg 2410		
5742428	Igloo 1 (B)	1 Apr 07	Bldg 2410	Bldg 2410		
9863969	Shelter 2 (A)	1 Apr 07	Bldg 2410	Bldg 2410		
5832136	Shelter 2 (B)	1 Apr 07	Bldg 2410	Bldg 2410		
7812387	Structure 4 (A)	1 Apr 07	Bldg 2410	Bldg 2410		
6328461	Structure 4 (B)	1 Apr 07	Bldg 2410	Bldg 2410		
7755551	Structure 5 (A)	1 Apr 07	Bldg 2410	Bldg 2410		
2712094	Structure 5 (B)	1 Apr 07	Bldg 2410	Bldg 2410		
4304147	Spare		Bldg 2410	Bldg 2410		
4525288	Spare		Bldg 2410	Bldg 2410		
2250809	Igloo 1 (A)	5 May 07	Bldg 2410	Bldg 2410		

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PREVIOUS EDITION IS OBSOLETE

SI075566052

Figure 1-2. Sample AF Form 2427.

### **Documenting key transactions**

The AF Form 2432, Key Issue Log (fig. 1-3) is used to document key activities for keys and locks securing munitions maintenance and storage facilities. The log is annotated when keys are issued, turned-in, transferred or inventoried. Separate forms are required for each primary, spare, and control key sets but make sure each form is marked appropriately with its designation (e.g. primary, spare, or control).

#### ***Issuing keys***

The following procedures apply whenever keys are signed out:

1. Enter structure and bay (as applicable) number in the structure column. If multiples keys are required to be signed out, each key may be entered on one line as long as all entries are legible.
2. Enter time in Out-time block using the 24-hour format (e.g. 0630).
3. Enter date in Out-date block using the day, month, and year format (e.g. 24 Jul 07).
4. Individual 1 will sign their full name and print their last name in the Out-signature column, block 1. The second individual will sign their full name and print their last name in the Out-signature column, block 2.

#### ***Turning-in keys***

Locate the entry on the AF Form 2432 on which the keys were originally signed out. If more than one key was signed out in the structure block and only a portion of those keys are being turned in, then all keys must be turned in and the applicable keys resigned out. The following procedures apply:

1. Enter the time in In-time block using the 24-hour format.
2. Enter the date in In-date block using the day, month, and year format.
3. Individual 1 will sign their full name and print their last name in the In-signature column, block 1. And the second individual will sign their full name and print their last name in the In-signature column, block 2.

#### ***Transferring keys***

The key issue authority is responsible for conducting a key transfer. The key issue authority will locate the entry on the AF Form 2432 on which the keys were originally signed out. If more than one key was signed out in the same structure block and only a portion of those keys are being transferred, then all the keys must be turned in and the applicable keys signed out. The key issue authority performs the following procedures:

1. Enter the structure or bay (as applicable) number(s) of transferred keys in the Structure column and the words "Key Transfer". Enter the time key transfer took place in the Out-time block using the 24-hour format.
2. Enter the date key transfer took place in the Out-date block using the day, month, and year format.
3. Print the name of the person receiving the transferred keys in the Out-signature block. Then the key issue authority enters the time and date the transfer took place in the In-time and In-date respectively using the same format (as mentioned above).
4. In the In-signature block, the key issue authority prints "Key Transfer" in block 1 and signs and prints their last name in block 2, validating the key transfer entry is complete. When personnel receiving the transferred key(s) return, and secure the keys, they complete the In-time, In-date, and In-signature blocks.

KEY ISSUE LOG						
STRUCTURE	OUT			IN		
	TIME	DATE	SIGNATURE	TIME	DATE	SIGNATURE
(Example - Key Issue) IGLOO 1	0800	24 Jul 07	1 Kevin Fuson Fuson			1
			2 Charlie Price Price			2
			1			1
			2			2
(Example - Key Issue/ Turn-in) SHELTER 2	0900	24 Jul 07	1 Ray Guest Guest	1200	24 Jul 07	1 Ray Guest Guest
			2 James Eberhart Eberhart			2 James Eberhart Eberhart
			1			1
			2			2
(Example - Key Transfer) STRUCTURE 4 & 5	0930	24 Jul 07	1 Andrew Hood Hood	1230	24 Jul 07	1 KEY TRANSFER
			2 Rick Pittman Pittman			2 Ron Canfield Canfield
KEY TRANSFER STRUCTURE 4 & 5	1230	24 Jul 07	1 Shawn Piel Piel	1630	24 Jul 07	1 Shawn Piel Piel
			2 Jonathan Figueroa			2 Jonathan Figueroa Figueroa
			1			1
			2			2
(Example - Key Inventory) KEY INVENTORY			1	1800	24 Jul 07	1 Adam Rodriguez Rodriguez
			2			2 Gerald Gibbs Gibbs
			1			1
			2			2
			1			1
			2			2
			1			1
			2			2
			1			1
			2			2

AF IMT 2432, 19950801, V2

SI075566053

Figure 1-3. Sample AF Form 2432.

### Inventorying keys

Keys are inventoried by local serial number at the end of every shift during which keys were issued or weekly if the keys were not issued. Keys contained in containers and sealed with railroad seals or similarly coded devices are verified by checking the seal integrity and seal serial numbers. Once complete, ensure the seal numbers are annotated on the AF Form 2432.

### 205. Using code modules

Coded and keyed material management must be according to the United States Air Forces in Europe (USAFE) Instruction (USAFEI) 33-201, *Operational Doctrine for Safeguarding and Control of Weapon Storage and Security System (WS3)*; AFI 33-201, Volume 2 (FOUO), *Communications Security (COMSEC) User Requirements*, and other MAJCOM guidance. Most of the principles behind handling and documenting WS3 modules are very similar to those that we are all used to with the “old” key control program. Modules are really nothing more than electronic “keys” to the vaults. Unlike “old fashioned” keys, however, some of the modules are also COMSEC material, which brings its own set of rules.

One thing to keep in mind through everything involving WS3 modules is that they do in fact fall under many COMSEC rules and COMSEC rules are very *unforgiving*. There is very little grey area where they are concerned and COMSEC problems are usually handled as COMSEC incidents, which are taken *very* seriously. Make sure you follow WS3 COMSEC rules to the letter.

### Responsibilities

The Director, National Security Agency (DIRNSA) has the overall management of WS3 material, modules, and associated COMSEC aids.

The Cryptologic Systems Group (CPSG) has overall responsibility for procuring, manufacturing, and distributing two-person control erasable programmable read-only memory (EPROM) and message processor hard drives with associated software.

HQ USAFE/A4WN is the controlling authority for WS3 material and maintains responsibility according to AFI 33-215, *Controlling Authorities for COMSEC Keying Material (KEYMAT)*.

USAFE Combat Support Section (CSS) Mission Systems Flight is responsible for the overall management of subordinate COMSEC accounts holding WS3 material.

Missions Systems Flight is responsible for managing and implementing guidance to Communications and Information Directorate (A6) field maintenance organizations for the WS3 system.

COMSEC managers and alternate managers manage all assigned WS3 COMSEC material assigned for use at their base or installation. CMs conduct semi-annual information assurance self-assessments according to AFI 33-230, *Information Assurance Assessment and Assistance Program*.

WS3 user agencies (UA) receive, store, account for, safeguard, control, and destroy WS3 COMSEC material according to USAFEI 33-201 and other applicable national, service, and command directives. UA appoint a COMSEC responsible officer (CRO) and alternate(s) according to AFI 33-201.

### **The Code Transfer Group**

The Code Transfer Group is composed of six major components groups: Code Transfer Unit (CTU), Code Storage Modules (CSM), Unlock Modules, Recode Modules, Rekey Modules, Universal Release Code (URC) Cards. Together they are capable of storing and transferring unlock codes and encoding keys. It also provides a means to enter and update vault identification numbers and time delays. All modules and code cards, *except* unlocks, are produced and distributed by DIRNSA and are unique to a specific WS3 installation.

The Code Module Set contains the following items from the Code Transfer Group:

- CSM A (2 ea).
- CSM B (2 ea).
- Recode Modules A (2 ea).
- Recode Modules B (2 ea).
- Rekey Modules A (2 ea).
- Rekey Modules B (2 ea).
- URC A (2 ea).
- URC B (2 ea).

The DIRNSA delivers the Code Module Set in two editions: effective and reserve. The “effective” edition is the one currently loaded in your vaults, local monitoring facility (LMF), and remote monitoring facility (RMF). When any condition requires any type of code module from the reserve edition to be substituted for daily use in place the effective edition, the “reserve” edition is then considered the current set, and a new reserve edition must be obtained.

Each “effective” and “reserve” edition consists of all the components of a complete Code Module Set which are divided in a “primary” set and a “backup” set.

All of the items in the Code Module Set are classified SECRET – NOFORN. Additionally, Rekey Modules are classified and marked with the CRYPTO designator.

**NOTE:** The A and B Unlock modules are not categorized as belonging to the current or reserve sets, nor are they grouped into primary or back-up pairs. They are ordered through normal supply channels, *not* from DIRNSA. They are *not* classified SECRET-NOFORN until an unlock code is loaded into them from the CSM or the URC. They remain classified until the issuing authority verifies that all the codes have been successfully erased.



You may be confused at first by the difference between the effective and reserve editions and the primary and backup sets. The easiest way to remember the difference is that each *edition* contains a completely different set of keys and codes. A primary and backup set contain the exact SAME set of keys and codes. We are issued a primary and a backup so that if we find a damaged module or have a problem with a specific module, we can go to the backup set and find a replacement module. Using the backup set does *not* entail a system wide rekey and/or recode because the codes are the same. However, going to the reserve edition does require a rekey and/or recode because all the new keys and codes must be loaded into all the facilities.

In addition to the module sets, DIRNSA issues you a current and reserve URC which is placed within protective technologies packaging. The URC can unlock any vault on base, and can unlock a vault any number of times including bypassing the time delay. The use of the URC is restricted to wartime operations and actual emergencies. The wing commander at a major operating base (MOB), squadron commander at a munitions support squadron (MUNSS), or higher authority must approve the use of the URC. You must manually enter the URC into the Code Transfer Unit (CTU) for transfer to the Unlock modules.

You must perform an initial inspection of all materials provided by DIRNSA within 72 hours from arrival on station according to TO 11N-50-1005, *Operations and Maintenance Instructions for Coder-Transfer Group, Weapon Storage and Security System*. The inspection includes a critical inspection of the material for evidence of tampering. If you find any evidence of damage or suspected tampering, you must report it to your COMSEC manager who notifies HQ USAFE/A4WN controlling authority for further disposition instructions.

### **Annual rekey**

The annual rekey and/or recode occurs in the anniversary month of the prior year's rekey and/or recode, and are accomplished together. Units are authorized to implement the reserve edition of WS3 material (conduct a rekey and/or recode operation) during the scheduled month without further controlling authority approval. Units must however, receive authorization from the controlling authority before implementing the reserve edition of WS3 material for any other reason, or at any time other than the scheduled anniversary month. Once the rekey and/or recode operations have been completed, the UAs submit a memorandum to the base COMSEC manager. This memorandum must include the following: edition superseded, edition that became effective, date operation began, date operation was completed, identification of new reserve edition and a statement requesting another reserve edition be provided.

The base CM forwards this information to the controlling authority along with a request for disposition of the superseded edition. The controlling authority uses this memorandum to provide disposition instructions and also requisition a new reserve edition from DIRNSA.

In response to operational emergencies, where prior coordination with the Controlling Authority is not possible, the wing or MUNSS commander is authorized to direct implementation of the reserve edition of WS3 material. Upon implementation, the wing or MUNSS commander immediately notifies the controlling authority, DIRNSA and others by way of Defense Message System (DMS) fully detailing the date, time, and reason for implementation of the reserve edition.

### **Storage and inventory**

You must store the effective primary and backup modules in authorized storage containers in separate facilities. Store the effective edition universal release codes (URC) in facilities equipped with a duress alarm and manned 24-hours a day. The people manning these facilities must be US citizens, possess at least a Secret security clearance and be certified through the PRP. Store A or B URC code in the US command post and the other code in the LMF or RMF. The facilities used to store the primary and backup A sets and primary and backup B sets of effective editions of URCs must be physically separate.

On days the safe is opened, inventory all material before locking the safe for the last time that day. As a minimum, conduct inventories of material issued to the WS3 UA at least once each month. You document inventories of all WS3 COMSEC material on USAFE Form 868, Weapons Storage and Security System (WS3) COMSEC Inventory. Use AF FORM 2432 to document the issue, transfer, and subsequent turn-in of modules and code cards. It must reflect the name, rank, and signature of the person receiving or turning in the modules and the date and time the transaction occurred.

### **Maintaining code storage modules**

Inspect and maintain modules per TO 11N-50-1005. As a minimum, you must inspect all connectors for damage, cleanliness, 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. The connector is also acceptable if 90 percent of the spring fingers are serviceable and there are no more than two missing spring fingers in a 90-degree segment of the connector circumference. Listed are some of the other criteria why you inspect the modules are:

- Accumulation of grease, corrosion, moisture, fungus, metal particles, and other foreign material. Clean according to TO 11N-50-1005.
- A missing, damaged, bent, or splayed pin is unacceptable.
- A resilient insert (inside Code Storage and Unlock Modules) that is punctured is unacceptable.
- A resilient insert with tears or gouges extending more than 50 percent of the distance from the contact to nearest adjacent contact or to insert edge is unacceptable.
- A nonresilient insert (inside Rekey and Recode modules) that is broken or cracked, or which has a chip that extends in depth to the top of any metal contact is unacceptable.
- A chip extending to a maximum of three contacts, but not exceeding in depth to the top of any metal contact is acceptable.
- Damage affecting the function of keys, keyways, or socket contacts is unacceptable.
- Inspect connector with locking (bayonet) pins for movement of the pins using finger pressure. If movement is detected, attempt to remove pin with fingers only. If the pin is removable or missing, connector is unacceptable.
- Inspect module for identification markings for clarity, and refinish as required.
- Inspect module cases for dents or tears that could indicate internal component damage.

Inspect code storage, Recode and Rekey modules classification labels. Replace classification labels that are not legible or cover other marking. Classification label is locally manufactured and should read SECRET-NOFORN. The lettering is white or black on red background, or red letters on white background.

Inspect the Unlock module for presence of a label to make classification when codes are loaded. Unlock module classification label is locally manufactured and should read SECRET-NOFORN or be typed that allows entry of classification when codes are loaded. The lettering is white or black on red background, or red letters on white background. Size and location on cylinder is optional provided no module markings are covered.

### **206. COMSEC accounts and responsibilities**

COMSEC CROs are the focal points for COMSEC matters at the user level. They act as liaison between COMSEC users and the COMSEC account, and train all users under their control of COMSEC materials and equipment. CROs accomplish their duties as outlined in AFI 33-201, Volume 2 (FOUO) and other applicable instructions.



The unit commanders (or equivalents, facility security officer for contractors) appoint, by letter, a primary CRO and at least one alternate to receive material from the COMSEC account. The letter includes each individual's name, rank, social security account number (SSAN), security clearance (including North Atlantic Treaty Organization [NATO] access), duty telephone, and locations the individuals may carry COMSEC materials to and from. Update this letter at least annually or as changes occur. For military, the person appointed as primary CRO must have a minimum grade of staff sergeant (E-5) or General Schedule (GS)-5. Alternates must have a minimum grade of senior airman (E-4) or GS-4. The CRO is changed if deployed, on TDY (temporary duty) for more than 90 days, or is pending a transfer.

CROs notify the COMSEC manager (CM), in writing, of any new requirements, changes (increase or decrease), or pending requirements to existing requirements and annually review the requirement for COMSEC material according to the AFI. They make sure all persons granted access to COMSEC materials have a final security clearance equal to or greater than the classification level of the COMSEC material to be accessed and have a valid need-to-know.

The CRO keeps an accurate list of persons with authorized access to COMSEC holdings and takes responsibility for receiving, accounting for, checking pages of, handling, using, and safeguarding all COMSEC material that they or their alternate receives, until it is destroyed or returned to the COMSEC account. The CRO maintains an exact copy of the hand receipt maintained at the COMSEC account for all material received. Listed are a few of the other responsibilities the CRO performs:

- Conducts initial and refresher training of all COMSEC users.
- Develops local operating instructions (OI).
- Performs and verifies COMSEC materials are inventoried according to their respective accounting legend code.
- Issues COMSEC materials to user activities according to the AFI when applicable.
- Returns or destroy all material as the CM directs.
- Makes sure required security checks are performed.
- Provides an update report every 30 days on findings identified during assessments and/or audits, or as the CM directs, until they are corrected.
- Reports all known or suspected COMSEC deviations to the CM.
- Develops an emergency action plan (EAP) and conducts EAP training.
- Obtains new COMSEC equipment.
- Coordinates with the CM on all requirements.

### **User responsibilities**

The term COMSEC user is generically used here to apply to all types of users that handle COMSEC materials such as WS3 COMSEC material, Secure Voice User, FORTEZZA User, and so forth. COMSEC users safeguard and control all COMSEC materials in their possession and perform duties as outlined in AFI 33-201, Volume 2 (FOUO) and other applicable instructions. COMSEC users have access to COMSEC material and also the responsibility for safeguarding them. COMSEC's ultimate success or failure rests with the material's individual user. The careless user or the user who fails to follow procedures for using, safeguarding, and destroying COMSEC material wastes all security efforts. COMSEC users must make sure that anyone who receives COMSEC material has authorization and has verified the individual's security clearance. Users must follow all security rules at all times. Report to the CRO or the CM any circumstances, intentional or inadvertent acts, which could lead to the unauthorized disclosure of classified information, including its loss, improper use,

unauthorized viewing, or any other instance that could possibly jeopardize the value of COMSEC material. COMSEC users:

- Safeguard COMSEC material according to the applicable instruction or AFI and control the material locally until destroyed or turned in.
- Return material to the CRO on request.
- Maintain and familiarize themselves with correct procedures for operating associated cryptographic equipment and devices using applicable Air Force Systems Security Instructions (AFSSI), Air Force Cryptological Aids Operations (AFKAO), Cryptological Aids Operations (KAO), or instructions provided by the CRO.
- Report immediately any known or suspected compromise of COMSEC material to the CRO or CM according to applicable AFIs.
- Are trained by the CRO before being granted unescorted access to COMSEC materials.
- Obtain relief of accountability from the CRO before being relieved of duties as a COMSEC user.

### **Communication security deviations**

COMSEC deviations are reported so that appropriate officials can determine if the deviations have seriously affected the security of the cryptosystems involved or have the potential to do any harm to the security of the United States. Reporting COMSEC deviations also provides the basis for identifying trends in incident occurrences and for developing policies and procedures to prevent recurrence of similar incidents. The importance of reporting all known or suspected COMSEC deviations immediately cannot be overemphasized. Before issuing material or equipment, the CM and CRO must make sure users know they must immediately report known, suspected, or possible incidents of compromised COMSEC materials. Each user agency must immediately report to the COMSEC account any occurrence that may jeopardize the security of COMSEC material or the secure electrical transmission of national security information. Equipment-unique security documents (e.g., AFSSIs, KAOs) also list reportable incidents.

Some specific actions you must report are as follows:

- Physical Incidents—Loss of control, theft, recovery by salvage, improper destruction, tampering, unauthorized viewing, access, or copying, and so forth.
- Personnel Incidents— Any capture, attempted recruitment, known or suspected control by a hostile intelligence entity, or unauthorized absence or defection of an individual who knows or has access to COMSEC information or material.
- Cryptographic Incidents— Any equipment malfunction or operator error that threatens the security of a cryptographic machine, auto-manual, or manual cryptographic system, including unauthorized use of COMSEC keying material or equipment.

### **Weapon storage and security system communication security vulnerabilities**

Continuing advances in technology stimulate unprecedented growth in the demand for and supply of communications and information services within the government and throughout the private sector. Traditional distinctions between communications and information systems begin to disappear by applying new technologies. Although this trend promises greatly improved efficiency and effectiveness, it also poses significant security challenges. Information operation and/or information warfare activities pose the greatest threats to communications and information systems. Using commercial hardware and software, in combination with extensive network connectivity, provides many potential avenues for information operation and/or information warfare attacks. Such attacks, including introduction of malicious codes, trap doors, or viruses, could result in disabling operations, unauthorized monitoring, and denial or manipulation of communications and information. Various

techniques can be used to jam or spoof communications or otherwise degrade or deny access or use to the communications and information systems. Additionally, communications and information systems are vulnerable to espionage and sabotage (especially from individuals who have legitimate access to the system or the physical plant in which it is housed), and to physical damage or destruction. Further, emission security (EMSEC) hazards (compromising emanations or unintentional signals) that, if intercepted and analyzed, would disclose the information transferred, received, handle, or otherwise processed by an information-processing system.

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### Self-Test Questions

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

#### 204. Key control procedures

1. What is the purpose for controlling the keys to munitions storage and maintenance facilities?
2. Why is the AAAL used?
3. What is the purpose of the change letters?
4. Which change letter does not require authentication?
5. Who is responsible for notifying all agencies if information needs to be added to the AAAL?
6. Why does the MASO review the AAAL?
7. How are keys to nuclear munitions facilities secured?
8. What conditions must be met in order to store keys in Security Forces facility?
9. When are key audits performed?
10. What form do you use to record nuclear storage structure key issues, turn-ins, and inventories?
11. How are multiple keys signed out using the AF Form 2432?
12. If a key team wanted to return only two of the five keys signed out, how is this accomplished?
13. Who is responsible for conducting a key transfer of nuclear storage facilities?

14. How often are the keys inventoried if they were not issued out?

**205. Using code modules**

1. Who must approve the use of the URC?
2. How do you transfer the URCs to the unlock modules?
3. How do you store the effective primary and backup modules?
4. What form do you use to document inventories of all Weapons Storage and Security System (WS3) material?
5. What TO covers inspection and maintenance of code storage modules?
6. List code storage module inspection criteria.

**206. COMSEC accounts and responsibilities**

1. Who is the focal point for COMSEC matters at the user level?
2. How often is the letter appointing a primary and alternate CRO updated?
3. When will the CRO be changed?
4. List a few of the responsibilities of the CRO?
5. List the COMSEC users' responsibilities.
6. Why are COMSEC deviations reported?
7. Can the importance of immediately reporting all known or suspected COMSEC deviations ever be overemphasized?
8. To what are communications and information systems vulnerable?

## 1-3. Safety and Health Programs

The Air Force is committed to protecting and safeguarding you by providing a safe and healthful workplace and preventing work related injuries and illnesses. You will, nearly every day, use or handle materials that can be harmful if you do not follow proper procedures. Be aware of your work environment and always follow proper procedures especially when working around hazardous materials or explosives.

### 207. Hazardous material

In accordance with AFI 32-7042, *Waste Management*, mixed waste (MW) consists of waste containing hazardous waste (HW) and radioactive material. Installations that generate MW must comply with the Resource Conservation Recovery Action (RCRA) HW disposal, Atomic Energy Act (AEA), state, and USAF disposal requirements.

#### Responsibilities

Mixed waste is generated during nuclear weapons maintenance activities governed under AEA Section 91b. The Air Force Safety Center (AFSEC) provides 91b policy under AFI 91-108, *Air Force Nuclear Weapons Intrinsic Radiation and 91B Radioactive Material Safety Program*. All installations coordinate disposal of radioactive waste (RW) and MW with the installation radiation safety officer (IRSO), who in turns, coordinates with the Air Force Radioactive Recycling and Disposal (AFRRAD) office in Wright-Patterson AFB. The AFRRAD office responsibilities are the sole agent for disposal of AF MW and RW.

#### Identification and disposal methods

Three basic types of tightly regulated materials can be generated during nuclear weapons maintenance activities. These generated materials may become wastes regulated either as RCRA HW, 91b waste, or potentially MW. Maintenance personnel make sure all wastes are properly identified, segregated and containerized as the waste is generated and according to the type of waste being generated. Make sure you take appropriate precautions to avoid co-mingling of different types to minimize the generation of a potentially mixed waste.

#### RCRA

RCRA regulated HW includes spent and/or expired hazardous materials that are available for use or used in the routine conduct of the maintenance activities and includes solvent soaked rags or wipes. RCRA hazardous waste, however, does not include materials that become contaminated by a radioactive source or demonstrate a radioactive property. RCRA wastes include items such as unusable or spent solvents, lubricants, and paints.

#### 91b waste

91b waste is generated when a system component is inherently and/or becomes contaminated solely by a radioactive source within the contiguous volume where a tritium reservoir resides without the introduction of a hazardous material. These wastes include items such as compression pads, un-greased O-rings, Kim wipes, or Q-tips used to wipe internal components without the use of solvents, and expired weapon desiccants.

- 91b waste areas for MK12A are inside the associated aft section and inside surfaces of the H1223A/B aft bulkhead cover/ring.
- 91b waste areas for the MK21 are in the enclosure formed by the inside of the warhead electrical system (WES) cap and aft end of the arming and fuzing assembly and inside the WES cap.

Package 91b waste in the smallest possible plastic bags consistent with the operation being performed, and store in 30 to 55-gallon drums. Label packages and drums "Potentially 91b Waste." Coordinate through local bioenvironmental channels for container pickup and disposal according to

AFI 40-201, *Managing Radioactive Materials in the U.S. Air Force*. Overseas units coordinate pick-up and disposal through MAJCOM.

### **Potential mixed waste**

Potentially MW is generated when a 91b waste is combined with a RCRA hazardous waste. An example is a Kim wipe, wiper, or rag that becomes contaminated with spent hazardous material solvent once used to wipe internal components and surfaces of a radioactive source.

Package mixed waste in the smallest plastic bags consistent with the operation being performed, and store in 30 to 55-gallon drums, then label packages and drums “Mixed Waste Potentially 91b.” Coordinate through local bioenvironmental channels for container pickup and disposal according to AFI 40-201. Overseas units coordinate pick-up and disposal through their MAJCOM.

## **208. Basic explosive safety**

You must consider both *quantity-distance (Q-D)* and *storage compatibility* when handling and storing explosives. Quantity-distance refers to the amount (quantity) of explosive material and the distances allowed between them and other facilities, roads, runways, buildings, and so forth, for given degrees of protection. In other words, Q-D is the relationship between quantities of explosives, distances, and degrees of protection. Q-D separations make sure there is an acceptable level of risk between explosives locations, called a potential explosion site (PES), and surrounding facilities, called *exposed sites* (ES). The approved package of all this information we call an *Explosive Site Plan*.

### **Separation criteria**

Criteria separation distances are based on the following four factors:

1. Type of PES.
2. Explosive content of PES.
3. Type of ES.
4. Distance separating the PES from the ES.

Separation is needed to lessen explosive hazards as much as possible. The locations you use for storing explosives must be separated from the following:

- Locations containing other explosives and propellants.
- Inhabited buildings. This includes structures or other places *not* directly related to explosives operations where people usually assemble or work.
- Public traffic routes.
- Aircraft parking and storage areas, runways and approach zones, and taxiways.
- Operating lines or buildings. This includes structures or other places where people usually assemble or work who is directly related to explosives operations.
- Petroleum, oil, and lubricant storage.
- Utilities, buildings, and facilities.

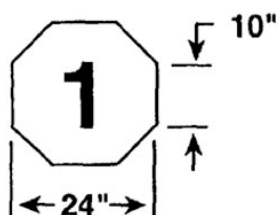
### **Department of Defense Hazard Classification System**

The DOD Hazard Classification System is based on the system recommended for international use by the United Nations Organization. It consists of nine classes for dangerous goods. Most ammunition and explosives items are included in “Class 1, Explosives.” The DOD Hazard Classification System is applied in the development, manufacture, testing, maintenance, storage, handling, transportation, and loading and unloading of vehicles and aircraft of ammunition and explosives. They are used to determine the levels of protection for people and property from the effects of fires and explosives on and off military installations. As a nuclear weapons craftsman, of the nine classes of dangerous goods, the main class you need to be interested in is Class 1—Explosives.



### Hazard classes and divisions

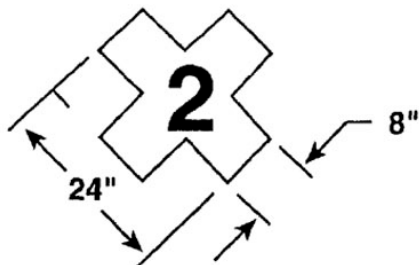
We group munitions with like explosive characteristics together in a division. We use these divisions to determine quantity-distance criteria for storing munitions. Explosives in Class 1 are divided into six divisions which show the types of hazards expected and its potential for injury or damage. The Air Force actively uses four of the Class/Divisions (1.1 through 1.4). Explosives fire symbols signs (fig. 1-4) are used to represent the explosives Class/Division. These signs are used as a back-up precaution for alerting response personnel to the kind of explosives present.



#### 1.1 EXPLOSIVES AND LIQUID PROPELLANTS

##### MASS DETONATION HAZARD.

1. WILL NOT BE FOUGHT UNLESS A RESCUE ATTEMPT IS BEING MADE.
2. IF THERE IS A SUITABLE SEPARATION BETWEEN NONEXPLOSIVE AND SYMBOL 1 MATERIALS AND IF APPROVED BY THE FIRE CHIEF, FIREFIGHTING FORCES MAY ATTEMPT TO EXTINGUISH THE FIRE.
3. IF PERSONAL SAFETY IS IN DOUBT, TAKE SUITABLE COVER.



#### 1.2 AMMUNITION AND EXPLOSIVES EXPLOSION WITH FRAGMENTS HAZARD.

GIVE THE ALARM AND ATTEMPT TO EXTINGUISH THE FIRE IF IN AN EARLY STAGE.

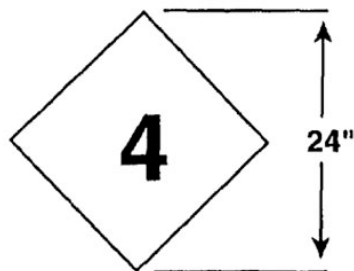
FIREFIGHTING FORCES SHOULD FIGHT THE FIRE. IF NOT POSSIBLE, PREVENT THE SPREADING OF THE FIRE.

1. IF PERSONAL SAFETY IS IN DOUBT, TAKE SUITABLE COVER.



#### 1.3 AMMUNITION AND EXPLOSIVES. MASS FIRE HAZARD.

1. MAY BE FOUGHT IF EXPLOSIVES NOT INDIRECTLY INVOLVED.
2. IF WP MUNITIONS ARE INVOLVED, SMOKE IS LIBERATED.
  - A. WP MUNITIONS MAY EXPLODE.
  - B. PHOSPHORUS SHOULD BE IMMERSSED IN WATER OR SPRAYED WITH WATER CONTINUOUSLY.
3. FOR FIRES INVOLVING HC AND INCENDIARIES:
  - A. WATER SHOULD NOT BE USED UNLESS LARGE QUANTITIES ARE AVAILABLE.
  - B. USE DRY SAND OR DRY POWDER AGENT IN THE EARLY STAGE.
4. FOR FIRES INVOLVING PYROTECHNICS AND MAGNESIUM INCENDIARIES:
  - A. PROTECT ADJACENT FACILITIES AND EQUIPMENT.
  - B. DO NOT USE CO2 OR HALON EXTINGUISHERS OR WATER ON OR NEAR THE MUNITIONS.
  - C. ALLOW MAGNESIUM TO COOL UNLESS UPON FLAMMABLE MATERIAL IN THIS CASE, USE A 2-INCH LAYER OF DRY SAND OR POWDER ON THE FLOOR AND RAKE THE BURNING MATERIAL ONTO THIS LAYER AND RESMOTHER.



#### 1.4 AMMUNITION AND EXPLOSIVES. MODERATE FIRE HAZARD

1. FIGHT THESE FIRES.
2. EXPECT MINOR EXPLOSIONS AND HOT FRAGMENTS.

**COLOR - SYMBOLS ARE ORANGE WITH BLACK NUMERALS**

Figure 1-4. Fire symbol signs.

### *Class 1 (explosives)*

Class 1 explosives are any substances or articles (including a device) designed to function by explosion (e.g., an extremely rapid release of gas and heat). There are six divisions of class 1 explosives:

- *Class/Division 1.1 (mass-detonating)*—Items in this division are principally a blast hazard and may be expected to mass-detonate when a small portion is initiated by any means. These explosions generally cause severe structural damage to adjacent objects. Items in HC/D 1.1 include bulk high explosives, some propellants, mines, bombs, demolition charges, some missile warheads, some rockets, palletized projectiles loaded with TNT or Comp B, mass-detonating cluster bomb units (CBU), and ammunition components having mass-detonating characteristics. Explosives and munitions in HC/D 1.1 also present a fragmentation hazard, either from the case of the explosive device or from the packaging or facility in which the explosives are stored.
- *Class/Division 1.2 (nonmass-detonating, fragment-producing)*—Items in this division do not mass detonate when configured for storage or transportation if a single item or package is initiated. When these items function, the results are burning and exploding progressively with no more than a few reacting at a time. The explosion throws fragments, firebrands, and nonfunctioned items from the point of initiation. Blast effects are limited to the immediate vicinity and are not the primary hazard. The effects produced by the functioning of HC/D 1.2 items vary with the size and weight. Events involving HC/D 1.2 items lob large amounts of unexploded rounds, components, and subassemblies that remain hazardous after impact. Such items are likely to be more hazardous than in their original state because of possible damage to fuse safety devices or other features by heat and impact.
- *Class/Division 1.3 (mass fire)*—These items burn vigorously, and the fires are difficult to put out. Explosions are usually pressure ruptures of containers, possibly producing fragments (especially missile motors), but not producing propagating shock waves or damaging blast overpressure beyond intermagazine distance. A severe hazard of the spread of fire may result from tossing about of burning container materials, propellant, firebrands, or other debris. Depending on the amounts of burning explosive materials, their downwind toxic effects usually do not extend beyond inhabited building (IB) distances. Explosives that have a fire hazard and a minor blast hazard or a minor projection hazard (or both), but not a mass explosion hazard.
- *Class/Division 1.4 (moderate fire, no blast)*—Items in this division present a fire hazard but no blast hazard. There is virtually no fragmentation or toxic hazard beyond the fire hazard clearance ordinarily specified for high-risk materials. An external fire must not cause virtually instantaneous explosion of almost the entire contents of the package.
- *Class/Division 1.5 (very insensitive explosive substances [VIDS])*—This division comprises substances that have a mass explosion hazard but are so insensitive that there is very little probability of initiation or of transition from burning to detonation under normal conditions of transport or storage.
- *Class/Division 1.6 (extremely insensitive explosive articles [EIDS])*—This division comprises articles that contain only extremely insensitive detonating substances and that demonstrate a negligible probability of accidental ignition or propagation. The risk from these articles is limited to the explosion of a single article.

### *Insensitive high explosives*

Insensitive high explosives (IHE) are the exception to every rule. It is an explosive substance that, although mass detonating, is so insensitive to initiation by fire, severe concussion, or impact the probability of detonation is slim. IHE weapons are not categorized as a separate class and/or division. They depend on other explosives with which they are stored for their class and/or division. For



example, nuclear weapons containing IHE are considered as class and/or division 1.4 when stored with other IHE weapons. When you store munitions with compatible items of other class and/or divisions, the most restrictive class/division takes priority.

Quantity-distance criteria for each division of explosive are in AFMAN 91-201, *Explosives Safety Standards*. TO 11N-20-7, *Nuclear Safety Criteria*, provides limiting factors for nuclear weapons; when more restrictive, they override the Q-D criteria listed in AFMAN 91-201. It is very unlikely that you ever have to worry about Q-D based on explosive weights. In most cases, your main concern when working with nuclear weapons is the amount of plutonium present and the criticality spacing. For general guidance and adjustments required in Q-D determination, refer to AFMAN 91-201. Always remember that separation distances are not absolute safe distances, but are *relative* protective, or safe, distances.

### **Storage compatibility**

The compatibility of explosives is determined through extensive testing of different types of munitions. These tests show that certain types of explosives behave alike under all circumstances. These circumstances vary from intentional fires and detonations to attempts to extinguish these fires. The difficulty encountered, the length of time the fire burned, and the degree and number of detonations were all noted.

Explosives that react the same way, test after test, are placed in compatibility groups. The storage compatibility groups are A through H, J, K, L, N, and S along with a similar system for liquid propellants. If two types of explosives are compatible you can store them together and expect the same reaction if they are detonated. To put it another way, explosives are “compatible” when their characteristics are such that two or more of the items stored together is no more hazardous than a comparable quantity or any one of the same items stored alone. Explosives are grouped for compatibility based on these criteria:

- Chemical and physical properties.
- Design characteristics.
- Type of inner and outer packaging.
- Quantity-distance class/division.
- Net explosives weight.
- Rate of deterioration.
- Sensitivity to initiation.
- Effects of deflagration (burning), explosion, or detonation.

To find out the number of nuclear weapons that can be stored together, use AFMAN 91-201 with TO 11N-20-7, so that explosive limits, plutonium limits, and criticality limits are not exceeded.

### **209. Lightning protection system**

The purpose of a lightning protection system (LPS) is to dissipate lightning strikes safely into the earth. They are part of a LPS that must feature air terminals, low impedance paths to ground, side-flash protection, surge suppression of all conductive penetrations into the protected area, and earth electrode systems. Structural elements of the building may serve as air terminals, down conductors, or the earth electrode. For air terminals to be omitted on earth covered igloos the reinforcing bars or steel arch must be electrically bonded between structural elements and connected to the grounding system. Lightning protection systems used to protect DOD ammunition must be designed to intercept lightning at a 100 feet or less striking distance arc. The sole purpose of a lightning protection system is to protect a building, its occupants, and its contents from the thermal, mechanical, and electrical effects of lightning. LPSs must be installed on all facilities used for manufacturing, processing, handling, or storing explosives, ammunition, explosive ingredients, flammable gases or liquids, and

other hazardous materials except as specifically exempted by AFMAN 91-201. Lightning protection systems must comply with requirements in National Fire Protection Association (NFPA) 780, *Standards for the Installation of Lightning Protection Systems* and responsibilities for maintenance of lightning protection systems in AFI 32-1065, *Grounding Systems*.

### **Inspection criteria**

Lightning protection systems for explosive areas require a visual inspection every six months and a continuity and resistance check every 24 months. Base civil engineering (BCE) must check static bus bar continuity to ground every 24 months with readings of one ohm or less. Normally, BCE performs these inspections but not always. You, as the user, are responsible for making a visual inspection of static wires and grounds before use each day for a hazardous explosive area and quarterly for a non-hazardous explosive area. Also, you are responsible for making a continuity check from equipment to static ground bar every three months for a hazardous explosive area. For nonhazardous explosive areas, make the continuity check from equipment to static ground every 24 months.

The following must be included by inspectors and testers when they compile and maintain records of inspections and tests:

- A sketch of the grounding and lightning protection system showing test points.
- Date action or test was taken.
- Name of person taking action.
- Inspector's name.
- General condition of air terminals, conductors, and other components.
- General condition of corrosion protection measures.
- Security of attachment for conductors and components.
- Resistance measurements of the various parts of the ground terminal system.
- Variations from the requirements of AFI 32-1065.
- Discrepancies noted and any corrections made.
- Date of repairs.

BCE must provide copies of the completed inspection and test to the user. Keep records for explosive facilities for at least six inspection cycles. If your munitions facilities are maintained by host nation civil engineers, then you must get a copy of all completed paperwork.

### **Munitions support squadron**

Munitions support squadrons work under different rules. Because a MUNSS is a tenant on a host owned base, the host country is responsible for the LPS installed on vaulted protective aircraft shelters (PAS). The US responsibility is to appoint an LPS monitor to serve as a liaison between the host nation and the MUNSS commander. Below are some of the LPS monitor's responsibilities:

- Maintain a complete listing of all MUNSS WS3 related facilities.
- Make sure all WS3 facilities have an installed LPS with certification by host nation electrical engineer that the LPS conforms to host nation standards. A memo is used to certify conformance, sent from the host nation to the MUNSS commander indicating installed LPS on all WS3 related facilities complies to host nation standards of design, installation, inspection, and maintenance.
- As a minimum make sure testing of installed WS3 LPS meets the frequency and ohm values of AFI 32-1065.
- Perform a six-month visual inspection on all WS3 LPS, including verifying operational condition of installed surge suppressors, and forward a list of discrepancies to the host nation for repair and/or correction.

- Maintain copies of the last six test cycles, and develop a trend analysis from the results.
- Make sure surge protection is installed on all equipment associated with the MUNSS WS3 mission and be familiar with procedures and/or actions to verify surge protectors are operational.
- Make sure host nation provides detailed LPS testing procedures and criteria to MUNSS LPS monitor. LPS testing procedures and criteria include, as a minimum, a checklist for visual and ohmic inspection items, instrumentation setup procedures, building testing procedures, and certification that testing procedures and criteria meet host nation standards.

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### Self-Test Questions

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

#### **207. Hazardous material**

1. Mixed waste consists of what?
2. Who provides 91b policy under AFI 91-108?
3. What are maintenance personnel responsible for in regards to wastes?
4. What material does RCRA not include?
5. Where are the 91b waste areas located for MK21 system?
6. How is the potential MW packaged and labeled?

#### **208. Basic explosive safety**

1. Define the term “quantity-distance” as it applies to explosives.
2. On what four factors are separation distances based?
3. How is the DOD Hazard Classification System applied to ammunitions and explosives?
4. What hazard do explosives in class/division 1.1 have in common?

5. How is a class/division assigned to IHE weapons?
6. Where do you find Q-D criteria for explosives and nuclear weapons?
7. Explosives are grouped for compatibility on the basis of what criteria?

**209. Lightning protection system**

1. What is the sole purpose of lightning protection?
2. What facilities require lightning protection?
3. What are the two main publications governing lightning protection systems?
4. How often do LPSs in an explosives area require a continuity and resistance check? Who makes the check?
5. List the items included in LPS records.
6. How long must LPS inspection records be kept for explosives facilities?

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**Answers to Self-Test Questions****201**

1. (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.
2. To incorporate maximum nuclear surety consistent with operational needs.
3. (1) Accidents and incidents, (2) deliberate actions, (3) inadvertent actions, and (4) security.
4. ESDs such as baro switches, differential pressure switches, inertial switches, and electrical safing switches.
5. (1) Concealed safety switches, (2) use of two or more controls, (3) two-person concept, and (4) tamper detection.
6. Human error; to prevent the careless or inadvertent acts of people working with nuclear weapons.

7. General and specific safety rules. General applies to all nuclear weapons and nuclear weapon systems. They primarily apply safety policy and is included as part of the military department's safety rules package. Specific are procedural and administrative safeguards unique to each individual nuclear weapon system (and logistics carriers as required) that are identified during the safety studies and reviews.
8. When explicitly prohibited by specific safety rules.
9. Must be able to detect an incorrect or unauthorized procedure and have knowledge of and understand applicable safety and security requirements.
10. (1) Nuclear weapons are not to be expended unless a valid, properly authenticated nuclear control order conveying release or expenditure authority is received. US custody must be maintained until receipt of a valid nuclear control order that permits transferring US nuclear weapons to non-US delivery forces.  
(2) Jettisoning of nuclear weapons is permitted in the event of an emergency and is to be accomplished according to plans and procedures prescribed for the area of operations.

**202**

1. HQ AFSC.
2. General and specific requirements concerning nuclear certified equipment. It defines common terms and lists certain items that do and do not require certification.
3. By attaching the current "summary of changes" to the printed product to show no items have been affected by updates since the print date on the printed product. The "summary of changes" must encompass the entire date range from the printed product to the "last update" date on the MNCL.
4. Either by nomenclature or NSN in the automatic search function.
5. It does not affect certification status unless specifically stated in the TCTO.
6. As long as it is listed as an authorized accessory in the applicable approved technical data and they are in the original, unmodified condition.
7. DOE.
8. Multi-meters, igniter circuit testers, decade resistance boxes, impedance bridges.
9. First character of the VIN will start with 1, 2, or 4.
10. If a remark is stated or a restriction is imposed.

**203**

1. Protect information that truly warrants protection in the interest of national security.
2. Assist users that the information is in fact UCNI or unclassified that it was not inadvertently omitted.
3. When co-mingled with NSI.
4. Ensure consistent DOD-wide structure and facilitates understanding and use of other security classification guides when researching information.
5. Introduction.
6. Table format.
7. Remarks column.

**204**

1. Helps guarantee physical inventory control and accountability of nuclear munitions.
2. To identify those personnel authorized to accept custodial responsibility and perform certain actions associated with WSA and WS3 locations.
3. It identifies interim changes to the AAAL.
4. Deletion letters.
5. Maintenance superintendent or AAAL OPR.
6. To verify individuals are not given authorized access or knowledge of more than one combination protecting keys to nuclear maintenance facilities or storage structures.
7. GSA-approved lock requiring a minimum of two separate combinations or two GSA-approved locks.
8. Ensure Security Forces are not given the combinations or are assigned any key responsibilities.
9. When a new key and lock custodians are appointed and monthly for nuclear facilities.

10. AF FORM 2432.
11. Each key may be entered on one line as long as all entries are legible.
12. All keys must be turned in and the applicable keys are re-signed out.
13. Key issue authority.
14. Weekly.

**205**

1. The wing commander at a MOB, squadron commander at a MUNSS, or higher authority.
2. Manually enter the URC into the CTU.
3. In authorized storage containers in separate facilities.
4. USAFE Form 868.
5. TO 11N-50-1005, *Coder-Transfer Group, Weapon Storage and Security System*.
6. For accumulation of grease, corrosion, moisture, fungus, metal particles, and other foreign material, a missing, damaged, bent or splayed pin is unacceptable; resilient insert (inside Code Storage and Unlock Modules) that is punctured is unacceptable. A resilient insert with tears or gouges extending more than 50 percent of the distance from the contact to the nearest adjacent contact or insert edge is unacceptable, a non-resilient insert (inside Rekey and Recode Modules) that is broken or cracked, or which has a chip that extends in depth to the top of any metal contact is unacceptable, chips extending to a maximum of three contacts, but not exceeding in depth to the top of any metal contact is acceptable, damage affecting the function of keys, keyways or socket contacts is unacceptable, inspect connector with locking (bayonet) pins for movement of the pins using finger pressure. If movement is detected, attempt to remove pin with fingers only. If the pin is removable or missing, connector is unacceptable, inspect module for identification markings for clarity, and refinish as required, and inspect module cases for dents or tears that could indicate internal component damage.

**206**

1. The CRO.
2. At least annually or as changes occur.
3. If deployed, on TDY for more than 90 days, or is pending a transfer.
4. Conducts initial and refresher training of all COMSEC users, develops local operating instructions, performs and verifies COMSEC materials are inventoried according to their respective accounting legend code, issues COMSEC materials to user activities according to the AFI when applicable, returns or destroy all material as the CM directs, makes sure required security checks are performed, provides an update report every 30 days on findings identified during assessments and/or audits, or as the CM directs, until they are corrected, reports all known or suspected COMSEC deviations to the COMSEC manager, develops an EAP and conduct EAP training, obtains new COMSEC equipment, coordinates with the CM on all requirements.
5. Safeguard COMSEC material according to AFI and control the material locally until destroyed or turned in, return material to the CRO on request, maintain and familiarize themselves with correct procedures for operating associated cryptographic equipment and devices using applicable AFSSIs, AFKAOs, KAOs, or instructions provided by the CRO, report immediately any known or suspected compromise of COMSEC material to the CRO or CM according to applicable AFIs, is trained by the CRO before being granted unescorted access to COMSEC materials, obtain relief of accountability from the CRO before being relieved of duties as a COMSEC user.
6. So that appropriate officials can determine if the deviations have seriously affected the security of the cryptosystems involved or have the potential to do any harm to the security of the United States.
7. No.
8. Espionage and sabotage (especially from individuals who have legitimate access to the system or the physical plant in which it is housed), and to physical damage or destruction.

**207**

1. Waste containing hazardous waste and radioactive waste.
2. AFSEC.

3. Make sure all wastes are properly identified, segregated, and containerized.
4. Does not include materials that become contaminated by a radioactive source or demonstrate a radioactive property.
5. In the enclosure formed by the inside of the WES cap and aft end of the arming and fuzing assembly and inside the WES cap.
6. In the smallest plastic bags consistent with the operation being performed, and store in 30 to 55-gallon drums labeled with "mixed waste potentially 91b".

## 208

1. The relationship between quantities of explosives, distances and degrees of protection.
2. (1) Type of PES.  
(2) Explosive content of PES.  
(3) Type of ES.  
(4) Distance separating the PES from the ES.
3. In the development, manufacture, testing, maintenance, storage, handling, and loading and unloading of vehicles and aircraft of ammunition and explosives.
4. They all are mass-detonating explosives.
5. IHE weapons depend on the other explosives that they are stored with to give them a class/division.
6. AFMAN 91-201, *Explosives Safety Standards*, and TO 11N-20-7, *Nuclear Safety Criteria*.
7. Chemical and physical properties; design characteristics; type of inner and outer packaging; quantity-distance class/division; net explosives weight; rate of deterioration; sensitivity to initiation; and effects of deflagration (burning), explosion, or detonation.

## 209

1. To protect a building, its occupants, and contents from the thermal, mechanical, and electrical effects of lightning.
2. Those used for manufacturing, processing, handling or storing explosives, ammunition, explosive ingredients, flammable gases or liquids, and other hazardous materials, except as specifically exempted by AFMAN 91-201.
3. NFPA 780, *Lightning Protection Code* and AFI 32-1065, *Grounding Systems*.
4. Every 24 months. BCE or the host nation.
5. A sketch of the grounding and lightning protection system showing test points, date action or test was taken; name of person taking action; Inspector's name; general condition of air terminals, conductors, and other components, general condition of corrosion protection measures, security of attachment for conductors and components, resistance measurements of the various parts of the ground terminal system, variations from the requirements of AFI 32-1065, any corrections made, and date of repairs.
6. For at least six inspection cycles.

**Do 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. When you have completed all unit review exercises, transfer your answers to the Field-Scoring Answer Sheet.

**Do not return your answer sheet to the Air Force Career Development Academy (AFCDA).**

1. (201) The four nuclear safety standards are stated in Air Force Instruction (AFI)
  - a. 91-101.
  - b. 91-102.
  - c. 91-203.
  - d. 91-304.
2. (201) Which is *not* a nuclear safety standard?
  - a. Positive measures to assure adequate security.
  - b. Positive measures to report minor weapons safety mishaps.
  - c. Positive measures to prevent weapons from accidentally producing a nuclear yield.
  - d. Positive measures to prevent deliberate arming, launching, firing, or releasing of nuclear weapons.
3. (201) The four nuclear safety problem areas are
  - a. accidents, incidents, mechanical safety, and planned events.
  - b. accidents and incidents, deliberate actions, inadvertent actions, and security.
  - c. human error, accidents and incidents, psychotics and saboteurs, and unplanned events.
  - d. fiscal budget challenges, low manning issues, expertise declination, and new treaty initiatives.
4. (201) Weapons system safety rules are categorized as
  - a. emergency and routine.
  - b. immediate and normal.
  - c. general and specific.
  - d. priority and low.
5. (202) Which agency is responsible for managing the internet-based Master Nuclear Certification List (MNCL)?
  - a. HQ Air Force Safety Center.
  - b. HQ Global Strike Command.
  - c. Air Force Nuclear Weapons Center.
  - d. HQ Air Force Material Command.
6. (202) What provides an itemized list of all equipment and software authorized for use with nuclear weapons?
  - a. Master Test, Diagnostic, and Measurement Equipment List.
  - b. D04 Master Equipment Account List.
  - c. Master Equipment/Software List.
  - d. Master Nuclear Certification List.
7. (202) Air Force policy requires all modifications to nuclear design certified items be identified to the
  - a. Air Logistics Center (ALC) item manager.
  - b. Air Force Nuclear Weapons Center (AFNWC).
  - c. Major command (MAJCOM) safety office only.
  - d. Base safety office only.



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8. (202) For authorized pallet jacks, the nuclear load is limited to what percentage of the rated load?
    - a. 90 percent.
    - b. 80 percent.
    - c. 75 percent.
    - d. 50 percent.
  9. (203) Which of these classifications *does not require* automatic declassification actions?
    - a. Not Releasable to Foreign Nationals (NOFORN).
    - b. Secret Formally Restricted Data (FRD).
    - c. National Security Information (NSI).
    - d. Secret FRD co-mingled with NSI.
  10. (203) How often are security classification guides reviewed for accuracy and currency?
    - a. Annually.
    - b. Bi-annually.
    - c. Every five years.
    - d. Only when changes occur.
  11. (203) Which column of the security classification guide is used to identify dissemination control markings or special handling caveats?
    - a. Notes.
    - b. Remarks.
    - c. Classification.
    - d. Information revealing.
  12. (204) What document is used to identify those personnel authorized to accept custodial responsibility and perform certain actions associated with weapon storage areas (WSA)?
    - a. Entry Authorization List (EAL).
    - b. Master Restricted Area Badge List (MRABL).
    - c. Access, Approval, and Authority List (AAAL).
    - d. Weapon Storage Access and Authorization List (WSAAL).
  13. (204) Which document is used to identify interim changes to the authorization list controlling access to nuclear munitions?
    - a. Memorandum for Record.
    - b. Official memorandum.
    - c. Modification letters.
    - d. Change letters.
  14. (204) Your shop has only one work shift. The primary set of keys has been used daily. The spare keys have not been used all week. Which of the following is the *minimum* requirement for inventorying the keys?
    - a. Inventory both sets daily.
    - b. Inventory both sets at the end of the week.
    - c. Inventory both sets daily and at the end of the week.
    - d. Inventory the primary set daily and the spare set at the end of the week.
  15. (205) What form do we use to document all issues, turn-ins, and inventories of module sets?
    - a. AFCOMSEC Form 16, Key Log.
    - b. AFCOMSEC Form 23, Key Register.
    - c. AF Form 2427, Lock and Key Control Register.
    - d. AF Form 2432, Key Issue Log.

16. (205) How many spring fingers can be missing in a 90-degree segment of a code storage module connector circumference??
  - a. 2.
  - b. 3.
  - c. 4.
  - d. None.
17. (206) How often is the appointment letter designating a primary communication security (COMSEC) Responsible Officer (CRO) updated?
  - a. At least annually or as changes occur.
  - b. Only when the primary CRO changes.
  - c. When requested by the unit commander.
  - d. At least semiannually or as changes occur.
18. (206) Which is *not* a specific communications security (COMSEC) action you must report?
  - a. Loss of control.
  - b. Authorized absence.
  - c. Recovery by salvage.
  - d. Unauthorized viewing.
19. (207) Which is *not* generated during nuclear weapons maintenance operations?
  - a. Resource Conservation and Recovery Act (RCRA) materials waste.
  - b. Potential mixed waste.
  - c. Heavy water waste.
  - d. 91b waste.
20. (207) Which of the following do you use to package and store potential contaminated waste and potential mixed waste?
  - a. Plastic bags and 30- to 55-gallon drums.
  - b. Crepe paper and 30- to 55-gallon drums.
  - c. Plastic bags and 100-gallon drums.
  - d. Crepe paper and 100-gallon drums.
21. (208) Which location do we *not* use when determining a location to store explosives using separation criteria?
  - a. Locations containing other explosives and propellants.
  - b. Aircraft parking areas.
  - c. Uninhabited buildings.
  - d. Inhabited buildings.
22. (208) In the Department of Defense (DOD) Hazard Classification System, Class 1—Explosives is further divided into divisions based on the
  - a. physical size of the explosive.
  - b. explosive content of the weapon.
  - c. hazard and its potential for injury or damage.
  - d. shelf life and chemical makeup of the explosive.
23. (208) When insensitive high explosive (IHE) weapons are stored with other IHE weapons, what class and/or division is assigned?
  - a. 1.1.
  - b. 1.2.
  - c. 1.3.
  - d. 1.4.

24. (208) Which are two characteristics by which explosives are grouped for compatibility?
- a. Age of explosive and relative weight.
  - b. Type of storage container and move ability.
  - c. Sensitivity to initiation and rate of deterioration.
  - d. Specific gravity and chemical composition of explosive.
25. (209) What is the sole purpose of a lightning protection system (LPS)?
- a. To protect buildings, their occupants, and contents from the effects of lightning.
  - b. To dissipate lightning strikes safely into the air.
  - c. To recharge lightning capable batteries.
  - d. To keep an electrical charge.
26. (209) We perform a visual inspection on a lightning protection system (LPS) in an explosives area every
- a. 3 months.
  - b. 6 months.
  - c. 12 months.
  - d. 24 months.
27. (209) A continuity check from equipment to static ground bus bar is required in a hazardous explosives area every
- a. 3 months.
  - b. 6 months.
  - c. 12 months.
  - d. 24 months.

**Please read the unit menu for unit 2 and continue ➔**

## Student Notes

## Unit 2. Reports, Records, and Forms

<b>2–1. Initiating and Processing Deficiency, Unsatisfactory, and Safety Reports .....</b>	<b>2–1</b>
210. Deficiency reporting .....	2–1
211. Using DIAMONDS to report unsatisfactory reports .....	2–8
212. Mishap and/or safety deficiency reporting .....	2–11
<b>2–2. Using Forms and Maintaining Publications.....</b>	<b>2–17</b>
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**W**ITHOUT ACCURATE RECORDS, you could possibly use an unserviceable item, thus causing an accident, or you could use something that was not properly modified, thereby making it incompatible with the overall weapon system. Reports give the upper echelon an accurate picture of a unit's war capability. They are also used to generate logistic (supply) support for your unit and to identify deficiencies in materials developed and bought for the Air Force. Without paperwork, our mission capability could be impaired or could result in complete failure. In this unit, we discuss historical records and reports for equipment items and weapons. You are introduced to deficiency, mishap and/or safety, and unsatisfactory reports and learn how to submit them.

### 2–1. Initiating and Processing Deficiency, Unsatisfactory, and Safety Reports

Mission accomplishment is directly related to the status (or serviceability) of weapon systems and support equipment. It would be impossible for anyone to maintain an accurate picture of a unit's ability to meet its mission without the aid of a necessary evil—paperwork! You create all paperwork for one major purpose—to inform. In order to keep people informed at all levels, we have records and reports.

#### 210. Deficiency reporting

The Air Force is a big business. Its physical assets are in the trillions of dollars, ranging from the everyday common paper stapler to the B2 bomber. Most of the assets of the Air Force are procured from private industry; it is not uncommon for some of these items to have defects. If defective items are not identified and corrected, it could be costly to the Air Force and ultimately to the American taxpayer. In some cases, uncorrected deficiencies can have devastating consequences, such as failure of a mission or loss of life.

#### Nuclear weapons deficiency reporting

Deficiencies associated with nuclear weapons, nuclear weapon-related items, associated equipment and/or software or technical orders and/or publication must be reported.

Use procedures in Technical Order (TO) 11N–5–1, *Unsatisfactory Reports (UR)*, to report a deficiency on Department of Energy (DOE)-designed nuclear weapon or related component, DOE-designed equipment and/or software or a Joint Nuclear Weapons Publication System (JNWPS) technical order discrepancy and/or deficiency.

Use procedures in Air Force Manual (AFMAN) 91–221, *Weapon Safety Investigations and Reports*, to report a safety related accident, incident or deficiency (Broken Arrow, Bent Spear or Dull Sword) on items covered in the USAF MNCL web site, TO 21M–LGM30F–12–1, *Minuteman Nuclear Surety Procedures*. Examples include but are not limited to general-purpose vehicles, intercontinental ballistic missile (ICBM)-related equipment, nuclear certified aircraft software, and so forth.

Use procedures in TO 00-35D-54, *USAF Deficiency Reporting, Investigation and Resolution*, to report deficiencies on DOD-designed items. In certain instances, it may be necessary to submit multiple reports on one deficiency. For example submit reports according to:

- TO 11N-5-1 and AFMAN 91-221 for a weapon involved in a mishap such as a vehicle accident, lightning, or stray voltage from a motor generator, and so forth.
- AFMAN 91-221 and TO 00-35D-54 for a nuclear certified vehicle still under warranty with burnt wire insulation. Chipped ablative material would also require you to submit a report using these two references.
- TO 11N-5-1 and TO 00-35D-54 for a rejected warhead and reentry system (RS) components deluged with water, a warhead and/or weapon damage due to hoist failure, steering that fails on a newly manufactured and/or certified forklift causing vehicle and weapon damage.

When assistance is required and the problem does not fit into one of the above categories use procedures in TO 00-25-107, *Maintenance Assistance*. Use requests from TO 00-25-107 for problems with maintenance procedures or production that are beyond the capability of the maintaining command. Maintenance assistance may take the form of emergency maintenance support, technical assistance, or a combination of both. All requests for depot level assistance must be coordinated through the Maintenance Group and Quality Assurance (QA) office.

#### **Maintenance assistance**

The Air Force Materiel Command (AFMC) air logistics centers (ALC) are assigned geographic areas of responsibilities for certain requirements. The geographic ALC will assist operating activities within its area in accomplishing work requirements that are not listed as a system manager/item manager (SM/IM) responsibility. Operating activities will forward requests for maintenance assistance for these work requirements direct to their geographic ALC.

#### **Technical assistance**

Technical assistance is provided by AFMC depot engineers and equipment specialists to resolve problems with field-level maintenance and operations of systems and commodities. If technical assistance results in a waiver or deferment of a specific maintenance action, the engineer will provide the authorization in writing, along with any associated limits and parameters. The authorization package will remain in aircraft, missile, or commodity maintenance and historical records until the waived or deferred maintenance action is completed.

#### **Organizational and intermediate (O&I) level maintenance**

O and I maintenance tasks which are beyond the maintaining commands capability to accomplish. This includes temporary augmentation of Avionics or other intermediate level maintenance shops to preclude or overcome high "not reparable this station" (NRTS) rates on selected items. This may require a combination of technical assistance and skilled technician augmentation.

#### **Unprogrammed depot level maintenance**

Depot level maintenance, which was not forecast, consists of such areas as catastrophic damage to missile weapon systems, crash damage to aircraft, and abnormal wear and tear of equipment.

#### **Procedures for requesting assistance**

Technical assistance requests will be forwarded directly to the SM/IM ALC by message, e-mail, telefax, or telephone (use of telephone is for emergency situations) unless otherwise directed by the maintaining command. O and I level maintenance requests will be forwarded to the appropriate maintaining command in the format outlined in TO 00-25-107. The maintaining command will certify that all reasonable alternatives for accomplishing the work have been exhausted and it is beyond the command's capability.

Unprogrammed depot level maintenance requests will be submitted by the requesting activity through its major command (MAJCOM) to the SM/IM. Maintenance assistance will be provided to operating units on new equipment in accordance with the provisions of TO 00-25-107. If assistance is required to resolve design defects or engineering problems on new equipment, requests should be directed to the system program office for the new equipment.

#### *Format for requesting maintenance assistance*

The requesting activity will furnish a comprehensive description of the maintenance requirement in the following format:

- Detailed description of discrepancy and maintenance requirement (to include left/right, forward/aft, upper/lower, inboard/outboard, dimensions (length/width/depth), plus applicable TO, figure, and index and part number and stock number.)

**NOTE:** Provide all information concerning aircraft transfers, planned deployments, program depot maintenance, upcoming major phase inspections, etc.

- Technical assistance requested.
- Organizational and intermediate level maintenance.
- Unprogrammed depot level maintenance.
- For all requests list Mission, Design, Series (to include aircraft serial number) or Type, Model, Series of the equipment involved (include the serial number for serialized items). In addition, for non-end items of equipment, also list the national stock number (NSN) and nomenclature.
- Number of end items involved.
- Beginning date and estimated length of time for which assistance is required and if overtime or multiple shifts are required.
- Air Force specialty code (AFSC) or skills, special tools, equipment, materiel and number of personnel required.
- The base or specific facility at which the work is to be accomplished and the name, rank, phone number and office symbol of the point of contact (POC) or organization to be notified upon arrival of the team.
- Availability of adequate quarters, messing, and transportation at the base or facility at which work is to be accomplished.
- Applicable security requirements (e.g., degree of clearance and escort requirements).
- Two person policy (no lone zone) applicability.
- Personnel Reliability Program (PRP) applicability.
- Name and phone number of the ALC engineer, equipment specialist, or production management specialist previously contacted for assistance on this maintenance requirement.

#### *Response time and required action*

The SM/IM will reply to all telephone emergency requests within four hours after receipt and inform the requester of the intended course of action. The SM/IM will formally confirm receipt of all routine requests for maintenance assistance and notify all addressees of the intended course of action within four duty days after a repair disposition or decision is developed and major command certification is received. Transfer of the equipment from its assigned utilization code to an appropriate work status code will be accomplished upon receipt of acceptance of the assistance request in accordance with the applicable AFI.

The SM/IM will determine the appropriate source of support; that is, manager ALC, the nearest ALC to the work, contract, interservice or other depot capability, and direct accomplishment of the work.



Each SM/IM ALC is responsible for providing expeditious assistance to maintaining commands. Regardless of the activity accomplishing the maintenance the SM/IM ALC is responsible for insuring expeditious completion.

### **Reporting**

Upon arrival of the depot field team at the operating location the depot team chief will contact the on-site project officer who will initiate an arrival message addressed to the MAJCOM receiving assistance and the SM/IM ALC. The message will include the number of team personnel on-site, date and time of arrival, and any other information relative to the depot field team status. On-site work progress reporting will be accomplished according to the negotiated agreement or as imposed on the team chief by the ALC. When the team departs, the activity project officer will initiate a departure message addressed to the MAJCOM receiving assistance and the SM/IM ALC advising the date and time of departure.

### **Deficiency reporting using TO 00-35D-54**

Deficiency reporting (DR), investigating, and resolution processes promote the ability to *identify and correct* deficiencies before they impact mission capability. Successful implementation drives resolution decisions, tempered by total ownership cost, to correct, mitigate, and/or accept risk of, conditions impacting operational safety, suitability, and effectiveness (OSS&E). Success is based upon two premises:

1. The user, operator, or maintainer reports deficiencies on their assigned systems.
2. The program manager establishes a proactive process to analyze data and act accordingly to implement solutions.

Specific objectives include:

- Identify and resolve test & evaluation, product quality, and materiel deficiencies throughout a product or system lifecycle.
- Commence DR and resolution as early as possible during systems acquisition and throughout the government test and evaluation so systems improve faster with the least cost.
- Integrate deficiency analysis and resolution processes within quality, systems engineering, and overall lifecycle management plans to identify root cause and prevent or mitigate recurrence.
- Obtain cost credit and/or contractual remedy for procurement related quality deficiencies resulting from poor workmanship, nonconformance to applicable specifications, drawings, standards, processes or other technical requirements.
- Provide historical collection of deficiency data to share knowledge to authorized activities responsible for design, development, safety, purchasing, production, supply, maintenance, contract administration, and other functions.

The purpose of the DR program is to make sure deficiency data on hardware, mission-critical computer systems, and any other government-acquired equipment is available to the Air Force. This system makes sure deficiency information is routed to the activity responsible for the development, procurement, or other management functions so they can take action to correct and prevent maintenance, materiel, design, and quality deficiencies.

### **TO 00-35D-54 deficiency types**

Some of the types of USAF report designations include product quality deficiency reports (PQDR), Materiel deficiency reports (MDR), and test and evaluation deficiencies (T&E DR). Let's explore each in more detail.

### *Product quality deficiency report*

PQDRs resulting from an initial failure, defect, or nonconforming condition discovered on a new, newly repaired, or overhauled product when that product is placed in service. PQDRs include the reporting of failures that occur on contractually prescribed warranted items within the warranty period. These may also include failures that result after the item was placed in service that are suspected as latent defects or quality escapes resulting from poor workmanship, nonconformance to applicable specifications, drawings, standards, processes or other technical requirements.

### *Materiel deficiency report*

The MDR is used to report an unacceptable condition such as a component and/or item failure, or recommendation for an enhancement that impacts the operational safety, suitability, and/or effectiveness of a system, subsystem or component. It may include aging system issues or trends, improvement recommendations or request for investigation to determine the root cause or condition that induced the failure. A MDR may include trending observations made and/or recommendations for inclusion as an agenda item in improvement working groups or forums.

### *Test and evaluation deficiencies*

T&E DR are reports of deficiency identified during test and evaluation. These include, but are not limited to those deficiencies that are the result of incompatibility or failures as measured against required capabilities, applicable specifications, procedures, or test equipment and recommendations for enhancements to improve OSS&E.

### *Deficiency categorization and prioritization*

The starting point for any deficiency report is you, the originator. The originator may be any individual who identifies conditions that limit or restrict an item or system from fulfilling its intended purpose. The originator discovers the deficiency, identifies its impact, and initiates reporting and exhibit processes as established within their organization or group. You must use this program to keep our equipment always fully mission capable. The deficiency category and associated risk priority is used to capture the severity of the condition by relative importance and the urgency of response. There are two categories of deficiency reports—Category (CAT) I and Category II. Anytime you discover one of the above deficiencies, you must submit a deficiency report. Quality Assurance (QA), the Safety noncommissioned officer (NCO), or the product improvement section can assist you in filling out this report. The severity of the deficiency dictates the category of the report. Once you discover a defect in a piece of equipment, classify the report. Submit a CAT I or II DR for any one of the reasons shown in the following chart:

Category I Deficiency Report	
<i>Submit a CAT I DR and assign the corresponding priority when a condition: (Note 1).</i>	
Priority (Note2)	Impact
1A	If uncorrected, may cause death, severe injury, or severe occupational illness and no workaround is known; or,
1B	If uncorrected, may cause major loss or damage to equipment or a system and no workaround is known; or,
1C	Prevents the accomplishment of an essential capability or critically restricts OSS&E, including required interaction with other mission critical platforms or systems; and no acceptable workaround is known.
1D	Adversely affects an essential capability or negatively impacts operational safety, suitability, or effectiveness and no acceptable workarounds are known.
1E	Adversely affects technical, cost or schedule risks to the project or to life cycle support of the system, or, results in a production line stoppage and no acceptable workaround is known.

Category II Deficiency Report	
When the condition does not meet the safety or mission impact criteria of a Category I report, submit a Category II DR with the corresponding priority when the condition: (Note 1).	
Priority (Note 2)	Impact
2A	Adversely affects an essential capability or negatively impacts operational safety, suitability, or effectiveness and adequate performance is achieved through significant compensation or acceptable workaround.
2B	Adversely affects technical, cost, or schedule risks to the project or to life cycle support of the system, but an acceptable workaround is known.
2C	Does not affect an essential capability but may result in user and/or operator inconvenience or annoyance. Adequate performance is achieved through minimal compensation.
2D	Results in inconvenience or annoyance for development or maintenance personnel, but does not prevent the accomplishment of the task. Adequate performance is achieved through minimal compensation.
2E	Any other effect, that is, enhancements having little or no impact to OSS&E under current requirements.
<b>NOTES:</b> 1. Careful consideration should be given in assigning the category and corresponding priority recommendation to accurately define the deficiencies impact. 2. Priority 1A – 1C are considered <i>emergency conditions</i> ; Priority 1D – 2B are considered <i>urgent conditions</i> ; and Priority 2C – 2E are considered <i>routine conditions</i> .	

### Originator responsibilities

Once you identify the deficiency, you must forward a draft report to the local originating point (normally, QA). You must submit the report within 24 hours for a CAT I DR and within three workdays for a CAT II DR. When you find a reportable deficiency on an item, tag and secure the exhibit according to TO 00-35D-54 and local procedures. Fill out two copies of the DD Form 1575, Suspended Tag-Material (fig. 2-1). One copy of the DD Form 1575 will be physically attached to the exhibit and the other copy will be forwarded to the originating point with the deficiency report documentation. Check the NSN of the deficient item against the MNCL web site. If the item is listed, the PQDR may be reportable under AFMAN 91-221.

FSN, PART NO. AND ITEM DESCRIPTION 1730-00-928-7201 65C35569-1 Roller Assy, Bomb Support		SUSPENDED TAG-MATERIEL NEXT INSPECTION DUE 7LG/LGQD	
SERIAL NUMBER/LOT NO. 7021914		UNIT OF ISSUE EA	
CONTRACT OR PURCHASE F41608-86-M-E161		QUANTITY 1	
REASON OR AUTHORITY FB4661960178 7WG		INSPECTOR'S NAME OR STAMP AND DATE Robin C Murphy 12 MAR 02	
CONDITION CODE Q			

DD FORM 1575, 1 OCT 66  
 REPLACES AF FORM 500, WHICH MAY BE USED IN THE USAF  
 51035566014

Figure 2-1. Sample DD Form 1575.

As the originator or discoverer of the defective item, you must fill out a DD Form 1575 (fig. 2-1). In the CONDITION CODE block, enter a "Q" (or "J" for nuclear ordnance or conventional munitions items). Secure it in a controlled area (preferably locked) to prevent alteration or loss of the exhibit. If adequate storage is not available, the maintenance control function stores the exhibit. For nuclear ordnance or conventional munitions, turn in the item to Munitions Operations. Pay attention to the instructions in TO 00-35D-54 if the exhibit must be packaged for storage or shipment.

### Originating point

The originating point (normally QA) has overall management responsibility and serves as the focal point for all PQDRs submitted by your organization. It certifies that the report is correct and accurate; that is, correctly typed, categorized, and routed. It also assigns the report control number (RCN). The originating point will ensure no attempts are made to repair the exhibit unless authorized by the appropriate engineering or equipment specialist authority. If the repair is within the normal capability of the organization originating the DR and if a critical need exists, a repair request should be considered. Once repair is attempted, the item no longer qualifies as an exhibit.

### Method of reporting

Prepare the appropriate PQDR or MDR using the Deficiency Report Entry and Mail Submitter (DREAMS) format, Standard Form (SF) 368, Product Quality Deficiency Report, or equivalent worksheet and provide a detailed problem summary that clearly substantiates the report with the criteria for the type deficiency. Make sure the deficiency reports or supporting information that contain privileged, classified, or sensitive information are provided according to applicable information security guidelines established in conjunction with the end-item or weapon system program office.

Send by mail any additional supporting material you cannot send by message (such as photographs). Mark each item with the RCN to make sure it gets to the right office.

### Exhibit processing

Usually, the only way to decide the cause of a deficiency is to have an examination of the defective item (exhibit) by an investigating authority. The cause of the deficiency may never be determined if the exhibit is improperly handled, stored, or misrouted. It is important that you know how to handle and process a materiel deficiency exhibit to make sure corrective action is possible. Certain responsibilities have been assigned to the holding activity to make sure that the exhibit reaches its intended destination.

The origination point fills out blocks 1 through 10 of DD Form 2332, Product Quality Deficiency Report Exhibit (fig. 2-2), according to TO 00-35D-54 and attaches the form to the exhibit.

PRODUCT QUALITY DEFICIENCY REPORT EXHIBIT			
1. REPORT CONTROL NUMBER 7WG FB4661960178		2. DATE (YYMMDD) 020315	
3. ORIGINATING ACTIVITY 7LG/LGQD		4. PART NO. 1730-00-928-7201	
5. SERIAL NO. 65C35569-1		6. ITEM DESCRIPTION ROLLER Assy, Bomb Support	
7. REMARKS (Continue on reverse, if necessary)		8. NAME (Last, First, Middle Initial) MURPHY, Robin C	
9. PHONE (Include Area Code) 461-4242		10. PHONE (Include Area Code) 461-4242	

DD Form 2332, JUL 89 Previous edition if obsolete

PRODUCT QUALITY DEFICIENCY REPORT EXHIBIT	
11. DATE EXHIBIT RELEASED (YYMMDD)	12. EXHIBIT RELEASED TO
13. REMARKS (Continued)  NOTE: SUPPLY WILL FILL OUT REVERSE SIDE WHEN EXHIBIT IS SHIPPED OUT.	

DD Form 2332 Reverse, JUL 89 U.S. GPO: 1990-374-877 S1035566015

Figure 2-2. Sample DD Form 2332.

The originating point should check for disposition instructions daily; weekly as a minimum. If no disposition instructions are received within 30 days, contact the action point to determine the status. If disposition instructions are not received within 15 days after follow-up the exhibit may be processed according to its condition. After receiving disposition instructions, ship the exhibit within two calendar days for a CAT I exhibit and within five working days for a CAT II exhibit. Remember, when holding a nuclear ordnance or conventional munitions exhibit that is too dangerous to keep, photograph the item and dispose of it according to applicable service directives.

### **211. Using DIAMONDS to report unsatisfactory reports**

The vast majority of reports you submit are unsatisfactory reports (UR). TO 11N-5-1 provides policy and procedures for processing URs that relate to DOE designed nuclear weapons and to nuclear weapons related support equipment, related software or JNWPS manuals.

The Defense Integration and Management of Nuclear Services (DIAMONDS) is used to submit URs. There are two main types of URs:

1. Priority UR—A UR relating to conditions affecting safety or security and having a negative operational impact, posing a potential work stoppage, or being hazardous to the environment.
2. Routine UR—A UR relating to conditions that do not meet the criteria for priority reporting.

#### **Reportable conditions**

An Unsatisfactory Report form must be completed for every incident that qualifies as a reportable occurrence and defined by TO 11N-5-1. Reportable incidents are described as performance failure of any DOE designed nuclear weapon related item, associated software or requests for clarification and/or revision of related Nuclear Weapons Publications. Information URs may also be generated so that DOE can monitor failure trends that could result in future system modification and/or redesign. Each report covers only one type of discrepancy. You do not have to report defects that are the result of fair wear and tear, and where replacement items or repair procedures are available.

#### **Reporting unsatisfactory reports**

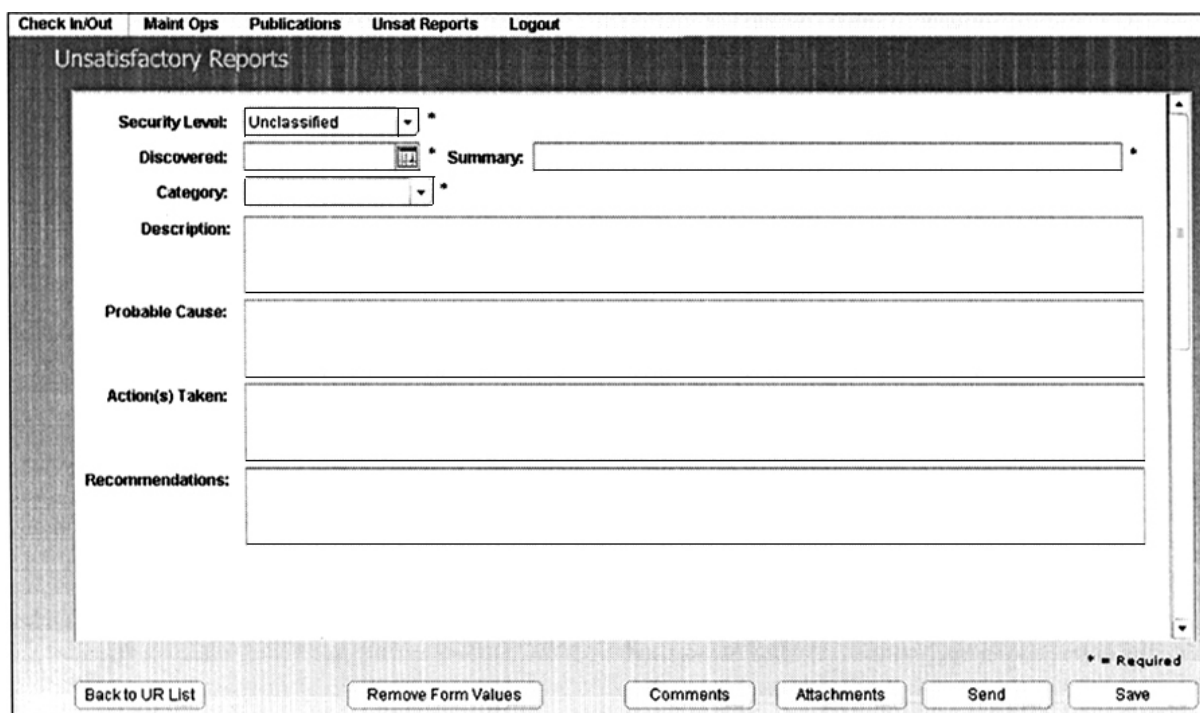
When a reportable condition is identified, gather specific details of the deficiency. It is imperative that you are exacting, concise, and complete in the details of the deficiency so the agency responsible for the corrective actions can make the proper recommendation. In addition, submit photographs, drawings and supporting data. An appropriately annotated copy of the applicable technical order (TO) figure or drawing, (if TO figure is not shown) may be submitted. Be as specific as possible when describing the defect because the Service Center, DOE, Defense Threat Reduction Agency (DTRA), and Sandia National Laboratories (SNL) have to read and evaluate the information. Field activities are to submit URs and photographs within three duty days of discovery of the defect. URs are sent to the Service Center for tracking; then are forwarded to DTRA. DTRA assigns a UR number; then forwards the report to SNL for evaluation. Some MAJCOMs may have additional guidance and instructions. UR exhibits are held by the unit until final disposition is received.

#### **Creating an unsatisfactory report**

In DIAMONDS the unsatisfactory reports functionality provides the user with a method of creating, answering and managing URs.

In order to create a new unsatisfactory report, the user must be given the “Create” privilege in the Administration module of DIAMONDS. From the *Unsatisfactory Reports* Main Menu, select *Reports*; the *Reports* screen initially displays any URs that have been received by the user for review or action. Click the Create New Report button and the create UR screen displays, the initial screen and the screen to enter the category specific information are seen in figures 2-3 and 2-4.



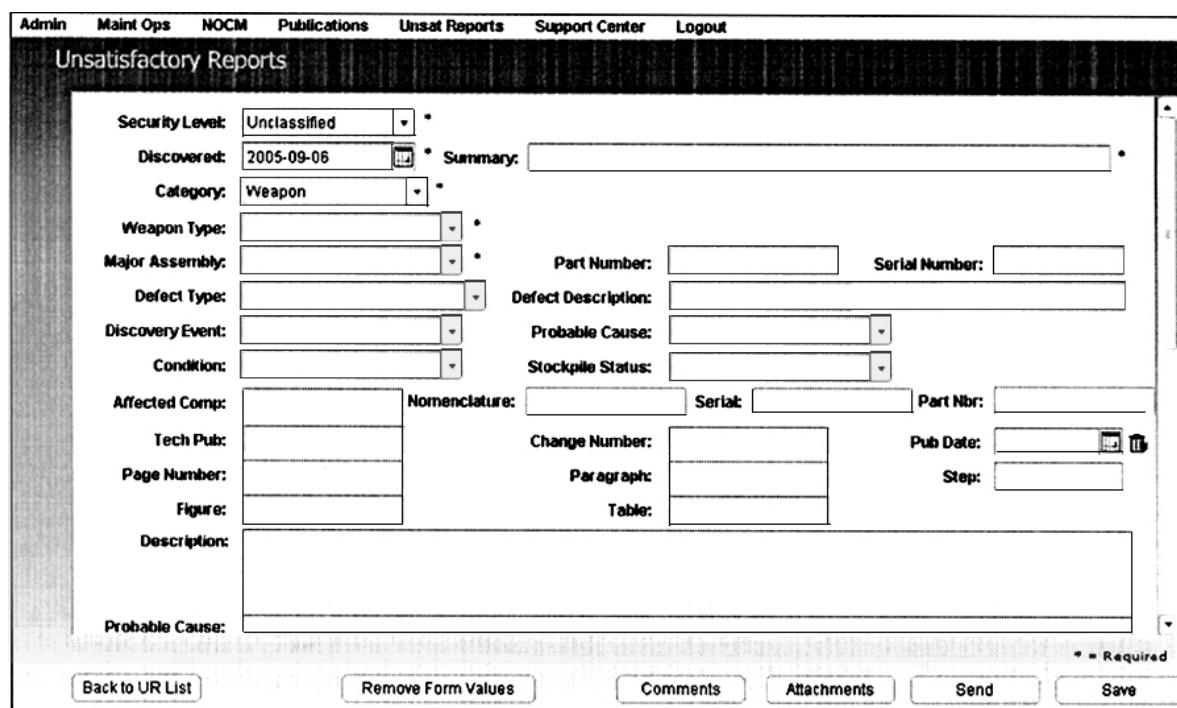


The screenshot shows the 'Unsatisfactory Reports' form in a web application. The top navigation bar includes 'Check In/Out', 'Maint Ops', 'Publications', 'Unsat Reports', and 'Logout'. The form title is 'Unsatisfactory Reports'. The form fields are as follows:

- Security Level:** A dropdown menu with 'Unclassified' selected. A red asterisk indicates it is required.
- Discovered:** A date field with a calendar icon, currently showing '2005-09-06'. A red asterisk indicates it is required.
- Summary:** A single-line text input field. A red asterisk indicates it is required.
- Category:** A dropdown menu. A red asterisk indicates it is required.
- Description:** A large multi-line text input field.
- Probable Cause:** A single-line text input field.
- Action(s) Taken:** A single-line text input field.
- Recommendations:** A large multi-line text input field.

At the bottom right, a legend states '\* = Required'. At the bottom, there are five buttons: 'Back to UR List', 'Remove Form Values', 'Comments', 'Attachments', and 'Send'. A 'Save' button is also present at the bottom right.

Figure 2-3. Initial UR screen display.



The screenshot shows the 'Unsatisfactory Reports' form with more fields populated. The top navigation bar includes 'Admin', 'Maint Ops', 'NOCM', 'Publications', 'Unsat Reports', 'Support Center', and 'Logout'. The form title is 'Unsatisfactory Reports'. The form fields are as follows:

- Security Level:** A dropdown menu with 'Unclassified' selected. A red asterisk indicates it is required.
- Discovered:** A date field with a calendar icon, currently showing '2005-09-06'. A red asterisk indicates it is required.
- Summary:** A single-line text input field. A red asterisk indicates it is required.
- Category:** A dropdown menu with 'Weapon' selected. A red asterisk indicates it is required.
- Weapon Type:** A dropdown menu. A red asterisk indicates it is required.
- Major Assembly:** A dropdown menu. A red asterisk indicates it is required.
- Defect Type:** A dropdown menu.
- Defect Description:** A single-line text input field.
- Discovery Event:** A dropdown menu.
- Probable Cause:** A single-line text input field.
- Condition:** A dropdown menu.
- Stockpile Status:** A dropdown menu.
- Affected Comp:** A single-line text input field.
- Nomenclature:** A single-line text input field.
- Serial:** A single-line text input field.
- Part Nbr:** A single-line text input field.
- Tech Pub:** A single-line text input field.
- Change Number:** A single-line text input field.
- Pub Date:** A date field with a calendar icon and a document icon.
- Page Number:** A single-line text input field.
- Paragraph:** A single-line text input field.
- Step:** A single-line text input field.
- Figure:** A single-line text input field.
- Table:** A single-line text input field.
- Description:** A large multi-line text input field.
- Probable Cause:** A single-line text input field.

At the bottom right, a legend states '\* = Required'. At the bottom, there are five buttons: 'Back to UR List', 'Remove Form Values', 'Comments', 'Attachments', and 'Send'. A 'Save' button is also present at the bottom right.

Figure 2-4. UR screen display for categories.

### First section

When creating a new UR there are several controls to enter data into. The steps follow the screen control positions from left to right, top to bottom. The Security Level, Discovered, Summary, and Category, is information applicable to all URs and is required. Select the security level: Unclassified, Confidential, or Secret. Select the Caveat, if applicable. The Caveat selection is required if the

security level is Confidential or Secret. Select the Date Discovered. Click the Calendar button next to the text box. Enter the UR Summary; this is a brief, but informative description of the defect.

### *Second section*

In the second part of the UR, information is entered that is specific to the different UR categories. There are seven categories to choose from when creating an unsatisfactory report.

1. *Handling Gear*—Equipment used to handle weapons.
2. *Joint Test Assembly*—War reserve weapon components configured for use in a joint flight test program.
3. *Tech Pub*—Technical references used on the particular weapon.
4. *Test Gear*—Equipment used to test weapons.
5. *Trainer*—Weapons designated for training.
6. *Use Control*—Equipment and software for use control, including permissive action link (PAL) procedures.
7. *Weapon*—Bombs, warheads, and components.

Select the appropriate category for the UR you are creating (Handling Gear, Joint Test Assembly, Use Control, Weapon, etc.). Once the category is selected you fill in the fields for that particular category. The example we use covers the Weapon Category.

After the *Weapon Category* has been selected, select the *Weapon Type* and *Major Assembly* from drop-down list; these are also required fields. Next, enter the *Part Number* and *Serial Number*. Select the *Defect Type* from drop-down list and then enter or select the *Defect Description*: it will default to a text box or a select box depending on the chosen Defect Type. Continue entering information into the *Discovery Event*, *Probable Cause*, *Condition* (Repairable, Serviceable, Unserviceable, or Not Applicable), and *Stockpile Status* (Active, Inactive, Retired, or Unknown, from their drop down lists). If the UR is for a component, enter the *Affected Component Type*, *Nomenclature*, *Serial Number*, and *Part Number* in the appropriate blocks. Select the *Tech Pub* that relates to the defect and enter the appropriate information from the technical publication.

### *Third section*

In the third part of the UR general information is entered that includes the description, probable cause, action taken, recommendations, control number, site ID, urgency, and contact information. Enter a concise and complete description of the failure or unsatisfactory condition. Describe the operation being performed. In many cases, it would be helpful to describe the environmental conditions or any other related details experienced when the condition was discovered. Whenever the defective item is a replacement of an limited life component (LLC) component, include the make, model, serial number, and expiration date of the major assembly that the LLC kit was scheduled to support; only if applicable and available. Enter any additional comments here as well.

Enter an expansion of the above selected probable cause, if known, based on a preliminary investigation. Include any deficiency in the installation, operation, or maintenance of the equipment that may have contributed to the reported defect or malfunction of the unsatisfactory materiel.

If applicable, enter a short summary of the correction action(s) taken; if none, so state. In the case of LLC exchange actions, indicate whether LLC operations will be delayed pending UR resolution. Do not use submission of UR as action taken.

If appropriate, submit recommendations for corrective action. List any questions where additional information is desired.

The *Control Number* is automatically generated and *Site ID* is automatically prefilled. Click the appropriate *Urgency* radio button: Priority or Routine and enter the *Justification*, if applicable. The



Justification explanation is required if the Urgency is “Priority.” The Point of Contact defaults to the user that is logged in. Select a different POC, if applicable.

Appropriate files may be attached to the UR, highlighting details of the reportable event; including digital photos of the defective or malfunctioning item or part. The *Short Description of File* is a text box where a “brief file name” or descriptive *Title* may be included.

If you are creating the UR from a maintenance bay laptop, the “Send” functionality makes the UR available for review by other individuals as selected. These individuals can then access the UR after the laptop has been checked in (uploaded to Site Server). Someone with the “Send” privilege can then send the UR to the Service Center from the Site Server.

If the UR creator is creating the UR from a Site, from a Service Center, from DTRA, or from DOE, (unless the creator has the “Send” privilege), the UR must first be reviewed by someone at the creator’s local level who has the “Send” privilege, in order to send the UR to another level.

Unsatisfactory Reports that are generated in a maintenance unit are reviewed by the service center that services the unit. The service center may return an answer on a report, but generally forwards it to DTRA for further review. DTRA may return an answer, but generally forwards the report to DOE. DOE answers are forwarded back down the same chain.

## **212. Mishap and/or safety deficiency reporting**

AFI 91–204, *Safety Investigations and Reports*, describes a mishap is an unplanned occurrence, or series of occurrences, that results in damage or injury to DOD property; occupational illness to DOD military or civilian personnel; injury to DOD military personnel on- or off-duty; injury to on-duty DOD civilian personnel; damage to public or private property, or injury or illness to nonDOD personnel caused by Air Force operations, and meets Class A, B, C, or D mishap reporting criteria.

Four safety manuals supplement AFI 91–204 and provide detailed guidance to discipline specific mishaps. However, we focus mainly on AFMAN 91–221. It provides additional guidance for investigating and reporting nuclear, guided missile, explosives and chemical agents, and directed energy mishaps.

Safety investigations and reports are conducted and written solely to prevent future mishaps. An important part of the nuclear safety program is identifying and reporting nuclear mishap and/or safety deficiencies. Nuclear accidents, incidents, and deficiencies are reported using the flag-words NUCFLASH, Broken Arrow, Empty Quiver, Bent Spear, or Dull Sword.

### **Responsibilities**

Your Weapon Safety Section has most of the responsibility at the squadron level. Furnish them with all the required information. The MAJCOM with command responsibility for the unit that had the mishap is responsible for making sure that the accident and/or incident is investigated, unless the Air Force Safety Center (AFSEC) assumes this responsibility.

### **Reporting nuclear accidents and incidents**

The objectives for reporting nuclear, guided missile, explosives and chemical agents, and directed energy safety deficiencies are to prevent accidents and incidents, to minimize their effects if they should occur, and to reduce the occurrence of safety deficiencies. AFI 91–204 along with AFMAN 91–221 are the governing regulations for reporting nuclear accidents, incidents, and deficiencies. Message reports are used for all nuclear mishaps.

### **OPREP–3**

The operational reporting (OPREP)–3 report is used to quickly notify the upper chain of command that an extremely serious nuclear mishap (NUCFLASH, Broken Arrow, Empty Quiver, or Bent Spear) has occurred. The information is transmitted immediately by way of telephone and then

followed up by an initial electronic message within one hour. AFI 10-206, *Operational Reporting*, prescribes the reporting requirements and format for OPREP-3 reports.

The closest command post to the location where an event/incident has occurred having knowledge of that event/incident will submit the OPREP-3 reports.

INITIAL reports must be timely and concise, and contain as much information as immediately available within established time parameters. Because rapid reporting is imperative, do not delay an initial report just to obtain additional information. Use follow-up reports (FOLUP) reports to provide additional information when it becomes available. FOLUP reports are essential to keep commanders informed of developing situations and to provide additional details as they are learned.

FOLUP and FINAL reports will contain enough information from the previous report(s) to aid the recipient. When it is determined that situations are no longer developing, units will send the appropriate voice and record report and add the phrase, "No further information available this is a final report" to close INITIAL and FOLUP reports.

### ***Reporting Dull Swords***

A Dull Sword (DS) is a safety deficiency not included in the accident or incident categories, but meeting certain criteria. It may be necessary for Weapon Safety to get photographs of the deficiency. Weapon Safety or its equivalent submits one-time or preliminary reports (computer-generated message) within 15 calendar days of the discovery of the deficiency. If the DS involves a weapon in nonoperational status or requires possible action or evaluation by the design agency, you must submit the report within three workdays. For a possible code compromise, send a preliminary message within 24 hours with "Immediate" priority precedence. Submit a supplemental report as required if you submit a preliminary report. You must submit final reports within 90 days after submittal of a preliminary report.

Besides the reportable conditions listed above and those already covered in the 5-level career development courses (CDC), the following criteria are also reasons to report a Dull Sword:

- Malfunction, failure, or anomaly involving the command and control system resulting in indications (suspected, false, or actual) of critical function (release, launch, or arming) activation.
- Malfunction, failure, or anomaly during operations or testing, that did, or could, result in a safety or coded device to arm or is left in an unsafe condition (e.g., safety control switch, safe and arm devices).
- Malfunction, failure, or anomaly that results in suspected or unconfirmed radioactive contamination.
- Nuclear surety violations, where there is the potential to tamper with or damage the weapon or weapon system.
- Loss, theft, seizure, or destruction of a training weapon.

**NOTE:** For defects or failures involving a training weapon (such as TYPE 3A/5A), submit an unsatisfactory report according to TO 11N-5-1.

- Malfunctions or failures to an intrusion detection systems monitoring equipment and software and/or any malfunctions or failures trends of the intrusion detection system occurring at a nuclear weapon operational, maintenance, or storage facility.

**NOTE:** Does not include false or nuisance alarms.

- Use of uncertified equipment and/or hardware or software on a nuclear weapon or weapon system that requires nuclear safety design certification.
- When directed by MAJCOM or AFSEC, and any problem or situation, in the commander's judgment, that affects nuclear safety.

- Dull Swords are very similar in content and form to unsatisfactory reports.

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

1. What type of deficiencies must be reported?

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5. Match the definitions and explanations in column A with the deficiency types in column B. Items in column B are used only once.

*Column A*

*Column B*

- |   |   |
|---|---|
| <p>___ (1) A deficiency caused by errors in workmanship or nonconformance to technical specifications.</p> <p>___ (2) Deficiencies that are the result of incompatibility or failures as measured against required capabilities, applicable specifications, procedures, or test equipment.</p> <p>___ (3) An unacceptable condition such as a component and/or item failure, or recommendation for an enhancement that impacts the operational safety, suitability, and/or effectiveness of a system, subsystem or component.</p> | <p>a. Test and evaluation deficiencies.</p> <p>b. Materiel deficiency.</p> <p>c. Product quality deficiency report.</p> |
|---|---|
6. What dictates the category of report you must submit?
7. A CAT I deficiency report that if uncorrected, may cause death, severe injury, or severe occupational illness and no workaround is known, is assigned what corresponding priority?
8. From the time you discover a defect, how soon must you submit a draft to the originating point for a CAT I DR? For a CAT II DR?
9. Who is responsible for initiating a DD Form 1575, Suspended Tag–Materiel?
10. What code is entered in the CONDITION CODE block of a DD Form 1575?
11. Who normally secures the deficiency exhibits for Air Force organizations?
12. What does the originating point certify?
13. How do you submit related data that you cannot transmit by message?
14. Within how many days must you ship a CAT I exhibit after receiving disposition instructions?
15. How do you handle nuclear ordnance or conventional munitions that are too dangerous to retain?

**211. Using DIAMONDS to report unsatisfactory reports**

1. What type of report would you submit that is related to DOE designed nuclear weapons, and to nuclear weapons related support equipment, related software or JNWPS manuals?

2. What are the two main types of URs?
3. What is a priority UR?
4. Do you report defects that are the result of fair wear and tear, and where replacement items or repair procedures are available?
5. When a reportable condition is identified, why is it imperative that you are exacting, concise, and complete in the details of the deficiency report?
6. Who tracks and forwards unsatisfactory reports to DTRA and SNL?
7. When creating an unsatisfactory report in DIAMONDS, how many different UR categories are there to choose from?
8. In the third part of the DIAMONDS generated UR what type of information is entered?
9. In many cases what is helpful to describe in the UR?
10. If entering a short summary is applicable when submitting a UR, what sort of information do you provide?
11. When creating an unsatisfactory report in DIAMONDS how is the control number generated?
12. If you are creating the UR from a maintenance bay laptop, what does the “Send” functionality allow?
13. After the unit sends a unsatisfactory report who reviews it and returns an answer?

## **212. Mishap and/or safety deficiency reporting**

1. How does AFI 91-204 define a mishap?

2. Which of the four safety manuals provides guidance for investigating and reporting nuclear, guided missile, explosives and chemical agents, and directed energy mishaps?
3. Why are safety investigations and reports conducted and written?
4. What is the objective for reporting nuclear safety deficiencies?
5. Which type of message report is the first one sent advising of an extremely serious mishap?
6. How soon after the notification by telephone of an OPREP-3 report, is a follow up initial electronic message sent?
7. What is a Dull Sword?
8. Weapon Safety or its equivalent submits one-time or preliminary reports (computer-generated message) within how many days of the discovery of the deficiency?
9. If the Dull Sword involves a weapon in nonoperational status or requires possible action or evaluation by the design agency, you must submit the report within how many workdays?
10. What are the Dull Sword procedures for a possible code compromise?
11. When must you submit final Dull Sword reports?
12. What type of report is submitted for nuclear surety violations, where there is the potential to tamper with or damage the weapon or weapon system?
13. When would a report *not* be required on nuclear certified support equipment?

14. How are Dull Sword reports similar to unsatisfactory reports?
15. How are materiel deficiencies and/or failures (e.g., dents, scratches, scuffs, chips, rips, tears, cuts, splits, etc.) which are not safety related reported?

## 2-2. Using Forms and Maintaining Publications

To meet mission requirements, equipment must be serviceable and safe to operate and it must be in the proper configuration. Managers must know the status of their equipment—whether it is in service, in need of repair, or whether it requires inspection. There must also be some method of recording deficiencies discovered and work performed. This lesson covers the equipment historical records that meet these needs.

### 213. Using equipment forms

This lesson prescribes general requirements and procedures for equipment forms documentation. It specifies general documentation requirements which may be either: hard copy, computer produced hard copy, or Air Force approved electronic databases. TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures* provides weapon system and equipment maintenance inspection and documentation guidance for the AFTO Forms 95, *Significant Historical Data*, and 244, *Industrial/Support Equipment Record*.

#### Air Force Technical Order Form 95

The AFTO Form 95 is a document for maintaining a permanent history of significant maintenance actions on end items of equipment as determined by the single manager. Additionally, the lead command or maintenance group commander (MXG/CC) may prescribe additional uses of the AFTO Form 95. The following instances are considered historical events and require documentation:

- Time compliance technical order (TCTO) compliance.
- Time change item.
- Data on damage to fracture critical structure including fatigue-related damage, the location and extent of the damage, repairs accomplished, repair authority, repairing activity, and date of repair.
- Data on severe corrosion, its location, extent, and treatment accomplished or required.
- Circumstances regarding mishaps, the extent of damage, and repairs accomplished.

Initiate an AFTO Form 95 on any nuclear support equipment when any of the above conditions are encountered. An AFTO Form 95 contains the following blocks:

- Block 1, “Mission Design Series/Type, Model, and Series”, enter the mission, design, series (MDS) type designator of the equipment. Enter the part number assigned to the item.
- Block 2, “Manufacture.” Enter the name of the manufacture.
- Block 3, “Serial number.” When assigned, enter the serial number.
- Block 4, “Acceptance date.” Enter date the equipment was accepted by the Air Force. If unknown, enter “unknown”.
- Column A, “Date.” Enter date the maintenance action or inspection is accomplished.



- Column B, “Remarks.” Enter the applicable information using as many lines as necessary to document the significant data. As a minimum, make sure remarks include any condition that could have bearing on future maintenance of the equipment.
- Column C, “Organization.” Enter the organization making the entry unless the AFTO Form 95 was inspected as part of its annual review. Then, the individual performing the review will enter his/her name instead of the organization. Figure 2–5 is a Sample AFTO Form 95.

SIGNIFICANT HISTORICAL DATA			PAGE 1 OF PAGES 1
1. MISSION DESIGN SERIES/TYPE, MODEL AND SERIES/PART NUMBER	2. MANUFACTURER	3. SERIAL NUMBER	4. ACCEPTANCE DATE
MUNITIONS HANDLING TRAILER MHU-141M	MOBILITY SYSTEMS INC.	174087DD80661	20100116
DATE A	REMARKS B	ORGANIZATION C	
20100216	Acceptance Inspection C/W. No defects.	898 MUNS/KAFB NM	
20100422	Brake fluid changed from Dot 3 to silicone.	898 MUNS/KAFB NM	
20100909	180 Day P.E. C/W	898 MUNS/KAFB NM	
20110327	Annual Review C/W	BENJAMIN NOYCE	
20110412	Performed a one-time inspection IAW MSG# RO50055Z MAR 05 to verify brake fluid was correct MIL SPEC.	898 MUNS/KAFB NM	
20120315	Annual Review C/W	CALEB CUMMINS	
20130311	Annual Review C/W	DOMINICK S. MAGLIARO II	

Figure 2–5. Sample AFTO Form 95.

### Air Force Technical Order Form 244

When maintenance responsibilities are divided among two or more work centers, the owning work center will ensure applicable forms are correctly initiated and maintained. The using individual is responsible for documenting the status and condition of the equipment as indicated on the AFTO Form 244. As a nuclear weapons craftsman, your job will be to ensure the form is correctly utilized and maintained since the condition of the equipment is dependent on the accuracy of the form.

Since we’ve already covered the specific breakdown for all five parts of the AFTO Form 244 in the journeyman CDCs, therefore we’ll discuss the various symbols, their use, and clearing these symbols from the AFTO Form 244 as seen in figures 2–6 and 2–7.

### Red X

A Red X indicates that the equipment is considered *unsafe* and *unserviceable* and cannot be used until the unsatisfactory condition is corrected and/or the symbol is cleared. No one is authorized to direct a missile launch or equipment to be used until the Red X is properly cleared in accordance with the applicable technical data. The only exception to this rule is if the equipment needs to be operated as

necessary to troubleshoot or repair the discrepancy. The following conditions warrant a Red X on the AFTO Form 244, but are not all inclusive:

- When support equipment is considered unsafe or unserviceable to include when it was discovered during a scheduled inspection.
- Upon receipt of an immediate action TCTO or commercial service bulletin equivalent. This includes after an expiration of a TCTO or commercial service bulletin equivalent compliance period.
- When work is started on urgent action and safety TCTOs or commercial service bulletin equivalent.
- Inspections not completed by the next scheduled major inspection are upgraded to a Red X. The only exception to this rule is for munitions material handling equipment (MMHE) and support equipment listed in the MNCL. They must be completed no later than the maximum interval specified in the item TO.

### *Red Dash*

The presence of the Red Dash symbol indicates the condition of the equipment is unknown and a more serious condition may exist. The following conditions warrant a Red Dash on the AFTO Form 244, but are not all inclusive:

- When an accessory replacement or operational check is due.
- When an equipment inspection is due in accordance with the item TO or equipment manual. The Red Dash must be upgraded to Red X if the scheduled inspection cannot be completed before the next scheduled major inspection.
- When portions of an inspection are not accomplished due to lack of parts, test equipment, and so forth, unless prohibited by other TOs.

### *Red Diagonal*

The Red Diagonal indicates that a discrepancy exist on the equipment but is not sufficiently urgent or dangerous to warrant its discontinued use. The Red Diagonal is a red, straight line from the lower left to the upper right corner of the SYMBOL block. The following conditions warrant a Red Diagonal on the AFTO Form 244, but are not all inclusive:

- Upon receipt of an urgent action or Category I, routine action safety modification TCTO, or commercial equivalent.
- Anytime equipment is contaminated by chemical, biological, or radiological agents. As a minimum, the discrepancy will state "Equipment has been contaminated with (type of contamination) on (date and time) at (base or station). Mission oriented protective posture (MOPP) 4 protection required within 10 feet of aircraft or equipment."

AFTO FORM 244, 20130529 PREVIOUS EDITIONS ARE OBSOLETE

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AFTO FORM 244, 20130529

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### *Clearing red symbol entries*

Individuals who signs off red symbols must be qualified and/or certified for the task and be knowledgeable of the TO requirements. As a note, a minimum signature consists of the first name initial, last name, and employee number. The following applies to each of the symbols:

#### *Red X*

For Red X conditions, the inspector enters their last name initial in black over the symbol in the SYMBOL block provided another member performed the work to correct the deficiency and enters their minimum signature in the CORRECT BY block. Any work accomplished by the inspector requires an inspection by another inspector. When an equipment has a Red X because of an overdue inspection, the Red X is cleared by an inspector who enters a statement in the CORRECTIVE ACTION block indicating the required inspection was accomplished and enters his or her minimum signature in the INSPECTED BY and initial (with last name initial) over the Red X in the SYMBOL block.

#### *Red Dash*

Red Dash discrepancies are signed off by the individual who accomplishes the inspection and/or corrective action by entering their last name initial in black over the symbol in the SYMBOL block and their minimum signature in the INSPECTED BY block.

#### *Red Diagonal*

Red Diagonal discrepancies are signed off by the individual who accomplishes the corrective action by entering their last name initial in black over the symbol in the SYMBOL block and their minimum signature in the CORRECTED BY block.

### *Closing out AFTO Form 244*

The AFTO Form 244 is closed out and a new form initiated when additional recording space is required. On the new form, transcribe entries in block 1 through block 6 from the old form and enter the current date in block 7 prior to the TO. Carry forward all inspection due dates in part 3 and open discrepancies in part 5 from the old form. When carrying the DISCOVERED BY block forward, print the name and employee number of the individual who originally discovered the discrepancy. On the old form, enter the current date in block 7 following the TO. Enter CF to signify information was *carried forward* to the new form followed by the transcriber's first and last name initial in the DATE COMPL block of part 3. If there were any open discrepancies, enter CF and the transcriber enters their minimum signature in the CORRECTIVE ACTION block for each open discrepancy carried forward.

### **DD Form 1500 series, condition status tags**

These tags and labels are printed in various colors to show equipment and materiel condition or status at a glance. Attach the tags to the equipment by string, wire, or gummed backing. TO 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System* provides the following table listing the condition tags, their purpose, and condition codes.

<b>Condition Tags, Their Purpose, And The Condition Codes</b>			
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
<b>If the item is</b>	<b>and the item is</b>	<b>Then prepare</b>	<b>and assign condition code</b>
Serviceable	New, used, repaired or reconditioned materiel which is serviceable and issuable to all customers without limitation or restrictions. Includes materiel with more than 6 months	DD FORM 1574/1574-1 Serviceable Tag Material (Yellow)	A Issuable without Qualification

<b>Condition Tags, Their Purpose, And The Condition Codes</b>			
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
	shelf life remaining.		
Serviceable	New, used, repaired or reconditioned materiel which is serviceable and issuable for its intended purpose but which is issuable with restricted from issue to specific units, activities or geographical areas by reason of its limited usefulness or short service life expectancy. Includes materiel with three through six months shelf life remaining.	DD FORM 1574/1574-1 (Yellow)	B Issuable without Qualification
Serviceable	New, used, repaired or reconditioned materiel which is serviceable and issuable to selected customers, but which must be issued before Condition A and B materiel to avoid loss as usable assets. Includes materiel with less than three3 months shelf life remaining.	DD FORM 1574/1574-1 (Yellow)	C Priority Use
Serviceable	Serviceable materiel which requires test, alteration, modification, conversion or disassembly. This does not include items which must be inspected or tested immediately prior to issue, or Type II shelf life material with expired time.	DD FORM 1576/1576-1 Test/Modification Tag Material (Blue)	D Test/Modification
Unserviceable	Materiel which involves only limited expense or effort to restore to serviceable condition and which is accomplished in the storage activity where the stock is located.	DD FORM 1577-2/1577-3 Unserviceable (Reparable) Tag Material (Green)	E Limited Restoration
Unserviceable	Economically reparable materiel which requires repair, overhaul or reconditioning. Includes reparable items which are radioactively contaminated.	DD FORM 1577-2/1577-3 (Green)	F Reparable
Unserviceable	Materiel requiring additional parts or components to complete the end item prior to use.	DD FORM 1577-2/1577-3 (Green)	G Incomplete
Unserviceable	Materiel which has been determined to be unserviceable and is uneconomical to repair or condemnation has been direct by a TCTO. Includes Type I shelf life material with expired time.	DD FORM 1577/1577-1 Unserviceable (Condemned) Tag Material (Red)	H Condemned
Suspended in Supply Stock	Materiel in stock which has been suspended from issue pending condition classification analysis, where the true condition is not known. Includes Type II shelf life material with expired time.	DD FORM 1575/1575-1 Suspended Tag Material (Brown)	J In stock
Suspended	Materiel returned from customers or users and awaiting condition classification. AFMC activities may use this code for disassembled DR exhibits IAW TO 00-35D-54.	DD FORM 1575/1575-1 (Brown)	K Returned
Suspended	Materiel identified in inventory control record but which has been turned over to a maintenance facility or contractor for repair.	DD FORM 1575/1575-1 (Brown)	M In Work
Unserviceable	Material determined to be unserviceable, uneconomically reparable as a result of physical inspection, tear down or engineering	DD FORM 1577/1577-1 (Red)	P Reclamation

Condition Tags, Their Purpose, And The Condition Codes			
A	B	C	D
	decision, but the item contains serviceable components or assemblies to be reclaimed.		
Suspended	DR exhibits returned by customers/users as directed by the item manager/system manager due to technical deficiencies reported by a DR. The exhibit requires technical or engineering analysis to determine cause of failure. This code is for intra-Air Force use only.	DD FORM 1575/1575-1 (Brown)	Q Returned
Suspended	Materiel reclaimed by inventory control points/item managers from activities that do not have the capability to determine material condition (e.g., skills, manpower or test equipment). Actual condition, serviceable or unserviceable, is determined at the repair facility and reported to the inventory control point/item manager before issue or repair. This code is for intra-Air Force use only.	DD FORM 1575/1575-1 (Brown)	R Reclaimed

## 214. Technical manual improvement system

Technical orders provide clear and concise instructions for safe and reliable operation, inspection and maintenance of centrally acquired and managed Air Force systems and commodities. You need to be using up-to-date and technically accurate technical data and for this reason it is important that you submit changes to technical data that you find to be incorrect.

### Recommending changes to technical orders

Official TO updates are the only valid authority for correcting a technical deficiency and implementing approved recommended changes. You submit recommendations for TO improvements, new maintenance instructions or procedures, correction of errors, or omissions of a technical nature using recommended changes according to TO 00-5-1. Submit one recommended change per discrepancy since each recommended change must be evaluated separately. For work stoppages, request technical assistance according to TO 00-25-107 or TO 00-25-108, *Communications-Electronics (C-E) Depot Support*.

Changes to nuclear weapons must be submitted on AFTO Form 22, *Technical Manual (TM) Change Recommendation and Reply* by way of e-mail attachment through coordination channels to the TO manager.

### Submitting recommended changes

Submit a recommended change against a single discrepancy. When a recommended change affects more than one TO and the TOs are managed at different program manager (PM) or supply chain manager (SCM) locations, initiate a recommended change for each affected TO. The routing of routine and urgent recommended changes is initiator, supervisor, product improvement manager (PIM), major and/or lead command control point (CCP) and technical content manager (TCM), while emergency recommended changes are sent directly to the TCM by the PIM. When submitting recommended changes, identify the TO publication number, basic date, change number, and change date. Also identify the item within the TO (paragraph, figure, table or task identifier) requiring improvement or correction. Additionally, enter the recommended change type, "improvement" or "correction" and the recommendation priority, "Emergency", "Urgent", or "Routine". When submitting an AFTO Form 22, the initiator attaches all necessary supporting documents. Route the recommended change to either the first reviewer or TCM as dictated by the recommendation priority and any special coordination and information copy considerations.

A recommended change identified as an “Improvement” type of change, will result in an addition or significant change to a process or procedure allowing a function to be performed better, safer, faster or cheaper. A “Correction” merely fixes a minor error or omission in the TO, such as:

- Merely calling attention to a word omission or typographical or printing errors that would normally be corrected during scheduled reviews and do not cause misinterpretation.
- Illustration errors that do not detract from the performance of a procedure.
- Updating a TO to reflect the correct or new name and/or number of an Air Force instruction, manual, handbook, or pamphlet.
- Identifying other nontechnical errors in a TO.
- Recommending minor word changes or corrections to technical data that clarify or expand existing instructions. However, they are not essential for the adequate performance of the functions required for mission accomplishment, unless the initiator specifically describes the problems to be prevented and/or gives examples of prior problems.

### **Recommendation priorities**

The initiator must determine the recommendation priority when creating the recommended change on the AFTO Form 22. The recommendation priority is based on the likelihood that adverse consequences will occur and degree of adverse impact if the change is not implemented within a given timeline. The recommendation priority determines the recommended change transmission method, routing and the timeline for implementing, downgrading or disapproving the recommended change. There are three recommendation priorities:

1. Emergency.
2. Urgent.
3. Routine.

### **Emergency**

Emergency recommendations require immediate action on a TO deficiency which, if not corrected, **WOULD** result in a fatality or serious injury to people, extensive damage or destruction of equipment or property, or inability to achieve or maintain operational posture (MISSION ESSENTIAL), including field-level work stoppage.

Emergency recommendations are transmitted as a “High” precedence simple mail transfer protocol (SMTP) e-mail, directly to the organization having management responsibility for the TO with an information copy to the designated CCPs. Requirements for other information copies are specified in TO 00-5-1. Use the same message precedence for the information addressees only if all addressees require the message with the same urgency. The e-mail message subject is “EMERGENCY AFTO Form 22.” Attach a copy of the AFTO Form 22. A receipt notification is required.

An emergency recommendation requires the TCM to issue an interim TCTO (ITCTO) (TO 00-5-15), interim supplement or rapid action change (RAC) within 48 hours (72 hours for work stoppage) after receipt, or requires the TCM to disapprove or downgrade the recommendation within the same time frame. Emergency recommendations can only be downgraded with the concurrence of the lead command CCP.

### **Urgent**

Urgent recommendations require action on a TO deficiency which, if not corrected, **COULD** cause one or more of the following: personnel injury; damage to equipment or property; reduce operational efficiency, and/or jeopardize the safety or success of mission accomplishment. Submit recommended changes that could result in over \$25,000 or 1000 man-hours annual savings to the Air Force as urgent. All technical TCTO deficiencies are submitted as urgent. Identification of replacements for Environmental Protection Agency (EPA) hazardous materials (HAZMAT) and ozone depleting



substances (ODS) are submitted as urgent. Urgent recommendations are transmitted as a “Normal” precedence SMTP e-mail. An urgent recommendation requires the TCM coordinates with the TO management office, to publish and distribute a TO update within 40 calendar days after receipt of the recommended change at the ALC (using activities must allow for mail and technical order distribution office (TODO) redistribution time), or disapprove and/or downgrade the recommendation within 15 calendar days. Urgent recommendations can only be downgraded with the concurrence of the lead command CCP.

### **Routine**

Routine recommendations require action on TO deficiencies that do not fall into emergency or urgent categories. A routine recommendation requires the TCM to respond within 45 calendar days after receipt at the ALC. Routine recommendations should normally be published and distributed in a TO update within 365 days after receipt of the recommended change. If the recommended change was submitted using the AFTO Form 22, copies of the response are sent to the initiator and activities identified in Blocks 1, 2 and 3 using the AFTO Form 22. TCMs review approved and deferred routine recommended changes (RC) every 90 days following the disposition date to determine if the RCs priority should be upgraded because of accumulated RCs, engineering changes to the system, mishap findings, etc. The TCM coordinates the proposed RC priority upgrade with the TO manager and the lead command CCP and, if approved, publish and distribute a TO update by the methods and within the timelines associated with the upgraded priority.

### **Preparation and submission**

A technician of any grade or rank can submit an improvement report. The AFTO Form 22 report comes close to being a personal report from the worker to those who can correct the deficiency. To provide control of deficiency reports and to prevent their indiscriminate use, the initiator’s supervisor and the product improvement manager or equivalent must sign the report. QA often acts as the PIM. The supervisor makes sure the report is accurate and approves its submission. QA reviews and validates the report.

Detailed instructions for preparing and submitting AFTO Form 22s are in TO 00-5-1. Read the entire section and follow the instructions step-by-step when you prepare a report, particularly your first report. After that, preparing a report is a simple matter. Munitions maintenance squadrons or detachments can be in a variety of geographical locations and must follow the additional local ground rules for preparing and submitting this form. MAJCOMs are normally the first step in the process. If you are the initiator of an approved improvement-type recommended change the AFTO Form 22 can be included in the Innovative Development through Employee Awareness (IDEA) Program and may receive monetary awards.

If you complete an AFTO Form 22 that contains classified data, mark, transmit, and handle classified recommended changes according to DOD 5200.1-R, Volume 2, *DOD Information Security Program: Marking of Classified Information*/AFI 31-401, *Information Security Program Management*. Mark the recommended change containing classified data with the security classification of the actual page of the recommended change. Enter classification authority and downgrading instructions in Block 19 of the AFTO Form 22. Identify *unclassified* recommendations on *classified* TOs. Recommended changes on limited distribution TOs contain the same distribution code as the TO, and are submitted attached to signed and encrypted SMTP e-mail. Do not report security violations involving TOs using an AFTO Form 22, instead, report violations according to DOD 5200.1-R and AFI 31-401.

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## **Self-Test Questions**

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

### **213. Using equipment forms**

1. Why is the AFTO Form 95 used?

2. Is corrosion documented on the AFTO Form 95 and if so, what is documented?
3. When writing in the Remarks section of the AFTO Form 95, as a minimum what should be documented?
4. If maintenance responsibilities are divided among two or more work centers, who ensures forms are correctly initiated and maintained?
5. When can equipment with a Red X condition be operated or used?
6. What should you do upon receipt of an immediate action commercial service bulletin in regards to support equipment with an AFTO Form 244?
7. By when are inspections completed for support equipment listed in the MNCL?
8. When is a Red Dash condition upgraded to a Red X condition?
9. How are Red Diagonals drawn in the SYMBOL block?
10. What type of *action* warrants a Red Diagonal on equipment?
11. What does a minimum signature consist of in regards to AFTO Form 244?
12. What circumstance allows one individual to properly clear Red X conditions?
13. Who can clear Red Dash discrepancies?
14. How is a Red Diagonal cleared?

15. How are open discrepancies transcribed to the new AFTO Form 244?
16. Why are different colors used on condition tags and labels?
17. What condition tag and code is assigned to a reconditioned material that is serviceable and issuable but has only four months of shelf-life remaining?
18. If three identical items have a DD Form 1574-1 attached but each tag has different condition codes: A, B, and C; which of these must be issued to the customer first?
19. If an item has a DD Form 1577 and assigned a condition code H, what does this mean?

**214. Technical manual improvement system**

1. Official TO updates are the only valid authority for what purpose?
2. Technical assistance requests are submitted according to what TO?
3. How must changes to nuclear weapons publications be submitted?
4. When submitting a recommended change what must be identified?
5. What type of change will result when a recommended change to a TO is identified as an "Improvement" type of change?
6. What does a TO recommended change identifier of a "Correction" type fix?
7. Who determine the recommendation priority when creating the recommended change on the AFTO Form 22?

8. When would you need to submit an emergency TO deficiency recommendation change?
9. When is an urgent TO deficiency recommended change required?
10. When should routine TO recommendations normally be published?
11. What is the grade or rank restriction of who can submit an improvement report?
12. Which TO includes detailed instructions for preparing and submitting AFTO Form 22s?

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### Answers to Self-Test Questions

#### 210

1. Deficiencies associated with nuclear weapons, nuclear weapon-related items, associated equipment and/or software or technical orders/ and/or publications.
2. TO 11N-5-1, *Unsatisfactory Reports*.
3. AFMAN 91-221, *Weapon Safety Investigations and Reports*.
4. To make sure deficiency data on hardware, mission-critical computer systems, and any other government-acquired equipment is available to the Air Force.
5. (1) c.  
(2) a.  
(3) b.
6. The severity of the deficiency.
7. 1A.
8. Within 24 hours. Within three workdays.
9. The discoverer of the defective item or the originator.
10. "Q" (or "J" for nuclear ordnance or conventional munitions items).
11. The discoverer (originator).
12. The report is correctly typed, categorized, and routed.
13. By mail and identified with the report control number.
14. Two calendar days.
15. Photograph the item and dispose of it according to applicable service directives.

#### 211

1. An unsatisfactory report.
2. Priority and routine.
3. A UR relating to conditions affecting safety or security, having a negative operational impact, posing a potential work stoppage, or being hazardous to the environment.
4. No.
5. So the agency responsible for the corrective actions can make the proper recommendation.

6. The service center.
7. Seven.
8. General information that includes the description, probable cause, action taken, recommendations, control number, site ID, urgency, and contact information.
9. The environmental conditions or any other related details experienced.
10. The correction action(s) taken; if none, so state. In the case of LLC exchange actions, indicate whether LLC operations will be delayed pending UR resolution. Do not use submission of UR as action taken. If appropriate, submit recommendations for corrective actions.
11. Automatically.
12. It makes the UR available for review by other individuals as selected.
13. The service center may return an answer on a report, but generally forwards it to DTRA for further review. DTRA may return an answer, but generally forwards the report to DOE. DOE answers are forwarded back down the same chain.

## 212

1. An unplanned occurrence, or series of occurrences, that results in damage or injury to DOD property; occupational illness to DOD military or civilian personnel; injury to DOD military personnel on- or off-duty; injury to on-duty DOD civilian personnel; damage to public or private property, or injury or illness to non-DOD personnel caused by Air Force operations, and meets Class A, B, C, or D mishap reporting criteria.
2. AFMAN 91-221, Weapons Safety Investigations and Reports.
3. Solely to prevent future mishaps.
4. To prevent accidents and incidents, to minimize their effects if they should occur, and to reduce the occurrence of safety deficiencies.
5. OPREP-3 report.
6. Within one hour.
7. A safety deficiency not included in the accident or incident categories, but meeting certain criteria.
8. 15 calendar days.
9. Three workdays.
10. A preliminary message must be sent within 24 hours with an "immediate" priority precedence. Update with a status report and submit a final report.
11. Within 90 calendar days after submittal of a preliminary report.
12. Dull Sword.
13. Minor problems such as dents, flat tires, corrosion, or electrical accessory malfunctions and failures resulting from fair wear and tear.
14. Content and form.
15. As applicable with TOs 00-35D-54, USAF Materiel Deficiency Reporting and Investigating System, 36-1-42, Technical Manual – Policies Governing Warranty Procedures for Air Force Vehicles, or 11N-5-1, Unsatisfactory Reports.

## 213

1. To provide documentation for maintaining a permanent history of significant maintenance actions on end items of equipment.
2. Severe corrosion; data must include its location, extent, and treatment accomplished or required.
3. Include any condition that could have bearing on future maintenance of the equipment.
4. The owning work center.
5. If the equipment needs to be operated in order to troubleshoot or repair the discrepancy.
6. Red X the applicable equipment.
7. Completed no later than the maximum interval specified in the item TO.
8. If the scheduled inspection cannot be completed before the next scheduled major inspection.

9. Straight line from the lower left to the upper right corner in red.
10. Receipt of urgent action or Category I, routine action safety modification TCTO, or commercial equivalent.
11. First name initial, last name, and employee number.
12. Equipment with an overdue inspection.
13. The individual who accomplishes the inspection and/or corrective action.
14. By entering last name initial in black over the symbol in the SYMBOL block and minimum signature in the CORRECTED BY block.
15. Carry forward open discrepancies in part 5 from the old form but when carrying forward the DISCOVERED BY block, print the name and employee number of the individual who originally discovered the discrepancy. On the old form, enter CF next to the open discrepancy and enter minimum signature in the CORRECTIVE ACTION block.
16. Show equipment and material condition or status at a glance.
17. Attach a DD Form 1574/1574-1 tag with a condition code B.
18. Item with condition code C is issued first.
19. Material which has been determined to be unserviceable and is uneconomical to repair or condemnation has been directed by a TCTO. Includes Type I shelf life material with expired time.

## 214

1. Correcting a technical deficiency and implementing approved recommended changes.
2. TO 00-25-107, *Maintenance Assistance*.
3. On AFTO Form 22 by way of e-mail attachment through coordination channels to the TO manager.
4. The TO publication number, basic date, change number and change date. Also identify the item within the TO (paragraph, figure, table or task identifier) requiring improvement or correction. Enter the recommended change type, "improvement" or "correction" and the recommendation priority, "Emergency", "Urgent", or "Routine".
5. An addition or significant change to a process or procedure allowing a function to be performed better, safer, faster or cheaper.
6. Minor error or omission in the TO such as: word omission or typographical or printing errors, illustration errors that do not detract from the performance of a procedure, updating a TO to reflect the correct or new name and/or number, identifying other nontechnical errors, minor word changes to clarify or expand existing instructions.
7. The initiator.
8. When a TO deficiency which, if not corrected, **WOULD** result in a fatality or serious injury to people, extensive damage or destruction of equipment or property, or inability to achieve or maintain operational posture (MISSION ESSENTIAL), including field-level work stoppage.
9. Deficiencies which, if not corrected, **COULD** cause one or more of the following: personnel injury; damage to equipment or property; reduce operational efficiency, and/or jeopardize the safety or success of mission accomplishment. Submit recommended changes that could result in over \$25,000 or 1000 man-hours annual savings to the Air Force as urgent.
10. In a TO update within 365 days after receipt of the recommended change.
11. None. Any grade or rank can submit a report.
12. TO 00-5-1.

**Do 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. When you have completed all unit review exercises, transfer your answers to the Field-Scoring Answer Sheet.

**Do not return your answer sheet to the Air Force Career Development Academy (AFCDA).**

28. (210) What type of deficiency is caused by poor workmanship?
  - a. Product quality deficiency.
  - b. Accident deficiency.
  - c. Materiel deficiency.
  - d. Software deficiency.
29. (210) Who normally is the originating point and has overall management responsibility for *all* deficiency reports (DRs) submitted by your organization?
  - a. Supervisor.
  - b. Munitions Supply.
  - c. Munitions Control.
  - d. Quality Assurance.
30. (211) Deficiencies in Department of Energy (DOE) designed items, such as nuclear weapons, would be reported as
  - a. OPREP-3 reports.
  - b. Bent Spear reports.
  - c. Broken Arrow reports.
  - d. Unsatisfactory reports.
31. (211) In the Defense Integration and Management of Nuclear Data Services (DIAMONDS) system how many different categories are there to choose from when creating an unsatisfactory report (UR)?
  - a. 5.
  - b. 6.
  - c. 7.
  - d. 8.
32. (212) The one-time or preliminary Dull Sword reporting time period is within
  - a. 1 day.
  - b. 2 days.
  - c. 15 calendar days.
  - d. 30 calendar days.
33. (213) During annual reviews of the AFTO Form 95, the individual performing the review will annotate column C to reflect this review by entering his or her
  - a. name.
  - b. organization.
  - c. office symbol.
  - d. minimum signature.
34. (213) What condition warrants a Red Dash on the AFTO Form 244?
  - a. When an operational check is due for scheduled maintenance.
  - b. When support equipment is considered unsafe and unserviceable.
  - c. Inspections that are not completed by the next scheduled major inspection.
  - d. Upon receipt of a routine action safety modification TCTO or commercial equivalent.



35. (213) The green-colored DD Forms 1577-2 and 1577-3, Condition Status Tags, show that an item or part is
- a. for modification.
  - b. condemned.
  - c. repairable.
  - d. for issue.
36. (214) What form is used to submit changes to nuclear weapons publications?
- a. AFTO Form 223.
  - b. AFTO Form 22.
  - c. AFTO 110.
  - d. AFTO 221.
37. (214) Who must recommend the priority when creating the recommended change on the AFTO Form 22, Technical Manual (TM) Change Recommendation and Reply?
- a. Initiator.
  - b. Supervisor.
  - c. Quality Assurance.
  - d. Program Manager.
38. (214) What type of recommended action on a technical order (TO) deficiency, which if not corrected, *could* cause personnel injury or damage to equipment?
- a. Emergency.
  - b. Urgent.
  - c. Routine.
  - d. Normal.
39. (214) What is the grade or rank restriction of the technician submitting a technical order (TO) improvement report?
- a. MSgt-TSgt.
  - b. TSgt-SSgt.
  - c. SSgt-SrA.
  - d. Any grade or rank.

**Please read the unit menu for unit 3 and continue ➔**

## Unit 3. Weapons Accounting, Shipment, and Use Control

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216. Preparing and processing shipping documents .....	3–3
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**I**N THIS UNIT we cover some of the responsibilities of the management and accountability of nuclear weapons. Shipping nuclear materiel is also a tasking you will encounter as part of your job that we will cover. You will use the Defense Integration and Management of Nuclear Data Services (DIAMONDS) to process reports along with other documents that are covered in this unit. Special test equipment used for specific operations confirms the correct assembly or verifies the status of a weapon. Other equipment electronically locks or unlocks coded switches, called permissive action link (PAL) systems. These systems came from the need to prevent unauthorized arming of nuclear weapons and will also be covered in this unit.

### 3–1. Nuclear Accountability and Reporting

As you have probably figured out by now, we don't do anything to nuclear weapons, nuclear components, or nuclear ordnance controlled materiel (NOCM) without thorough documentation and timely notification to various agencies. Accurate accounting and reporting are standard operating procedures (SOP) that must be followed, just like the two-person concept or compliance with technical orders (TO). Reports provide information concerning stockpile condition, inventory quantities and/or balances, serial numbers, weapon and code changes, locations, expended special nuclear materiel, components, and container asset status, etc. As we cover some of the frequently submitted reports, you'll understand why this information is important to agencies in the Department of Defense (DOD) and Department of Energy (DOE).

#### 215. Administrative

A critical function within the Nuclear Accountability and Reporting Section (NARS) is the management and administration required by the Munitions Accountable Supply Officer (MASO) and the NARS personnel. We discuss these in general terms due to each unit's different requirements and situation. However, we can't stress enough that each subject covered is an intricate part of a properly functioning NARS section.

Every nuclear account is identified by a unique stock record account number (SRAN). An SRAN includes a prefix (usually FK for nuclear or FV for conventional that identifies the type of account as

a munitions account), and a four-digit numeric account number that identifies the base or wing (tenant units who have accounts) where the account is assigned.

A single individual is appointed as a MASO for each SRAN and must meet certain requirements such as grade, Air Force specialty code (AFSC), security clearance, training, experience, and Personnel reliability program (PRP) certification. If a different individual is appointed for each account (nuclear or conventional), then that individual is responsible for all items accounted for under the SRAN and type of account for which they are the accountable officer; they are not held responsible for items on the other individual's account.

The MASO is responsible for the accuracy of accountable records (manual or automated) generated within his/her area of responsibility; therefore, only authorized individuals maintain and post transactions on behalf of the accountable officer. The accountable officer is also responsible for identifying and initiating corrective action for inaccurate accountable transaction upon discovery.

### **Accountable documents**

Accountable documents consist of the following:

- Stock records reflecting transaction dates, document (voucher) numbers, consignors, consignees, balance increases, decreases or adjustments, and current balance on hand. This includes DIAMONDS stock records (electronic format) and manually posted stock records using add-a-card and add-a-line procedures.
- AF Form 1764, Major Assembly/Component Status Change Report, (or DIAMONDS equivalent), associated status change report (SCR) control log and recurring reports including Weapons Status Reports (WSR) and Quality Assurance Service Test Status Reports (QSR).
- Documents associated to documents registers to include: shipment and receipt documents (with attached courier receipts, issue and turn-in, stock change vouchers (SCV), inventory adjustment vouchers (IAV), and memorandum for record [MFR]) documenting the correction of accounts.
- Manual nuclear weapons configuration records (build up sheets) used to reflect association of nuclear weapons and components with a reentry vehicle (RV), reentry system (RS), or multiple carriage launch gear.
- Custody receipt documents and Certificates of Transfer of Accountability.

Each accountable document is assigned a distinct number to identify it. Accountable documents are numbered consecutively using document control registers or control logs, in a manner that permits easy identification of lost or missing documents. The MASO is responsible for ensuring the accuracy of document registers and control logs and making sure all documents are maintained on file, as required. In addition, the MASO must implement procedures to ensure accountable documentation is legible, accurate, and auditable. For hard copy discrepancies that cannot be corrected, the MASO (or designated personnel) must line through and initial next to the discrepancy.

Items are accounted for using either the consumption or custody accounting procedures: *consumption* items are low cost, nonreparable, and nonsensitive items (e.g., small hardware, gaskets, nuts, bolts, screws, washers, grease, etc.) are considered expendable. These items are considered "consumed" and are dropped from accountable records when issued to maintenance personnel. *Custody* items that are reparable (e.g. containers, bolsters, and all DOE spares repairable listing items) are continually accounted for until we can return them to the vendor, or properly disposed of them according to authorized disposition instructions and pertinent disposal directives.

### **Nuclear account stock records**

Account stock records reflect current and historical balances of items on the account. Balances change as a result of transactions posted to the account. The MASO is responsible for the accuracy of all

stock record balances. Primarily, base and military spares are accounted for by part number but may also be accounted for by the national stock number (NSN). A complete set of stock records consists of a separate stock record for each part number or NSN where transactions have been posted. The stock record is either automated or a manual card for items not accounted for as part of an automated system. Maintain stock records with current balances in active files and stock records with a current zero balance, but showing historical transaction and balances, are maintained in inactive files for 24-months. Balances are recorded as serviceable or unserviceable and often referred to as “warehouse balances” since these items are stored in the warehouse or are in MASO custody.

### **Unit spares authorization listing**

The unit spares authorization list (USAL) is a listing of base and military spares and expendable items authorized as unit stock. The Air Force Nuclear Weapons Center (AFNWC) Logistics Division establishes authorized levels of base spares by approving the USAL and coordinating any discrepancies between the USAL and the Base and Military Spares Server (BMSS) web site. In addition, the MASO coordinates local review of USAL and other stock levels with the applicable work center requiring the base spares or military spares on the first of every April annually. As a note, inventories are performed as part of the USAL process and should not be accomplished prior to 31 March. The units provide the spares authorization letter annually, or as personnel changes occur, with a copy sent to MAJCOM and to the Kansas City Plant (KCP). This letter will list personnel authorized to order and receive spares and DOE-designed special equipment.

Units may request to change their USAL at any time. The unit forwards the requested change along with a justification to the MAJCOM. Once MAJCOM receives the request, they validate the request and forward it to the National Nuclear Security Administration (NNSA) for approval. The NNSA notifies the MAJCOM of its concurrence or nonconcurrence with the requested change. If NNSA approves the change, then KCP updates the BMSS to update the unit’s USAL account. But if NNSA disapproves the request, then the change request is resolved between the NNSA and the MAJCOM.

## **216. Preparing and processing shipping documents**

This lesson describes some of the key shipping documents you use on a day-to-day basis and how you should prepare and process them.

Information contained in TO 11N-45-51 series, TO 11N-100 series, and AFI 11-299, *Nuclear Airlift Operations*, provides procedures for all shipments of nuclear weapons materiel by military air or by DOE truck, trailer, or air. Also included are specific and general transportation procedures and courier responsibilities, and documentation and custody transfer requirements. As a general guideline, do not reaccomplish shipping documents unless the shipment is delayed 10 days or more. When shipments are delayed less than 10 days, shipping personnel are authorized to make pen and ink changes to the shipping document to indicate the correct shipping date.

### **Department of Defense Form 1348-1A**

The DD Form 1348-1A, DOD Single Line Item Release/Receipt Document, is the source document (shipping document) governing shipment and transfer actions. Use this form for all shipments. Include standard entries on DD Form 1348-1A or automated product. Enter the following for classified items:

- Enter “classified item” and the applicable item number in Item Nomenclature (item X).
- Enter the serial number in Remarks (items AA, BB, etc.).
- Include only one shipping document for the basic assembly, bomb, or warhead. Include the part number and serial number of all associated components (except limited life components [LLC] and parachutes) in Remarks (items DD and FF) and continue on the reverse side if necessary.

You find the item numbers and unit cube in the tables of TO 11N-45-51A, *Transportation of Nuclear Weapons Materiel* and the line numbers in TO 11N-20-11, *General Guidance and Materiel Hazard Information for Nuclear Weapons, Components and Non Nuclear Weapon Designations*. TO 11N-100-4, *Custody, Accountability, and Control of Nuclear Weapons and Nuclear Materiel*, and TO 11N-100-2, *Supply Management of Limited Life Components (LLCs)*, contain procedures and distribution information for preparation of DD Forms 1348-1A for war reserve major assemblies, components, and test items. TO 11N-100-2 gives you instructions and procedures for shipment of LLCs and kits. Technical order (TO) 11N-100-3150, *Joint Reporting Structure, Nuclear Weapons Reports*, gives the minimum required entries for reportable items and for LLC shipments.

For military spares (MS) and base spares (BS) items, prepare the DD Form 1348-1A according to instructions in AFI 21-203, *Nuclear Accountability Procedures*. Use the information in the following table from AFI 21-203 to prepare the DD Form 1348-1A:

Entries on the DD Form 1348-1A		
Column/Block	Description	Entry
1-3	Document Identification	"SHP."
4-7		Blank.
8-22	NIIN	DOE Part Number.
23-24	Unit of Issue	Self Explanatory.
25 - 29	Quantity	Self Explanatory.
30-44	Document Number	Assigned from off-base register.
45-50	Supplemental Address	Ship To SRAN.
51-59		Blank.
60-61	Priority	"05."
62-70		Blank.
71	Condition	"A" for Serviceable, "F" for Unserviceable.
72-80		Blank.
2	Shipped From	SRAN & Address.
3	Shipped To	Consignee Address (MRA if applicable).
4	Mark For	MRA if applicable.
5	Document Date	Julian date document was created.
11	Unit Pack	Number of packages included on document.
12	Unit Weight	Weight of one package.
13	Unit Cube	Size (cubic feet).
17	Nomenclature	Self explanatory.
18	Type Container(s)	Self-explanatory (i.e., box, envelop, can).
19	Number of Containers	Number of containers for entire document.
20	Total Weight	Weight of all items included on document.
21	Total Cube	Total size of all containers (cubic feet).
22	Received By	Signature of person receiving item.
23	Date Received	Date.
27	Additional Data	Signature and date of NARS person selecting item, unsatisfactory report (UR) number, if applicable, and other explanatory information.

For items shipped through the transportation management office (TMO), TMO, signs the Received By block and returns the document back to NARS.

For items shipped by way of DOE/OTS or Air Mobility Command (AMC) Special Assignment Airlift Mission (SAAM) missions the courier signs the DD Form 1911, Courier Receipt. Place the signed courier receipt in the suspense file in document control along with a copy of the DD Form 1348-1A. Start follow-up action through parent MAJCOM if the original signed document is not received within 30 days after the materiel estimated arrival date for shipments within the continental US (CONUS), or 45 days after the estimated arrival date for overseas shipments.

**NOTE:** Estimate the arrival date based on type of transportation, destination location, and any known mission schedules for the shipment.

Upon receipt of the original signed DD Form 1348-1A from the ultimate consignee, discard the suspense copy of the DD Form 1348-1A and attach the signed courier receipt to the original DD Form 1348-1A. File the original DD Form 1348-1A, with signed courier receipt attached, in Document Control. Post the Date Filed column on the Off-Base register for that document number.

When completing a DD Form 1348-1A for transferring war reserve (WR) nuclear weapons materiel containing source and special (SS) materiel, you must list the following information in addition to the standard entries:

- Each item of SS nuclear materiel (DOE part number and/or type).
- Nomenclature.
- Serial number.
- Quantity.

The statement “SS materiel transferred under Presidential Directive War Reserve category” must also be on the form.

### **217. Time compliance technical orders and retrofit kits**

NARS is primarily responsible for accounting for time compliance technical orders (TCTO) and retrofit kits.

#### **Receiving Time compliance technical orders and retrofit kits**

The AFNWC Logistics Division determines TCTO and retrofit kit requirements. TCTO and retrofit kits are normally *force shipped* to units based on quantities of items that the unit possesses requiring the TCTO or retrofit.

Unless directed to do so by MAJCOM, UR or AFNWC Logistics Division, do not requisition the TCTO or retrofit kits; however, in specific cases you may be directed to do so by the TCTO or retrofit order. TCTO and retrofit kits are issued to maintenance using consumption or custody procedures, as applicable, based on whether the TCTO or retrofit requires return of removed items to the vendor. Kits are maintained and accounted for according to procedures in AFI 21-203. Each week only a sufficient number of kits required to accomplish the scheduled work are issued.

“Training” TCTO, retrofit kits, extended-level attrition and tool kits are issued using consumption and custody procedures, as applicable. Completed TCTOs or retrofits are reported to AFNWC according to TO 11N-40-1, *Field Modernization and Retrofit Orders*. Local procedures need to be established to report the status of the retrofit as required.

#### **Time compliance technical order status**

Munitions Control maintains visual aids reflecting the current status of a TCTO including: TCTO number; number of kits ordered (quantities, document number and date); number of kits received

(quantity and date); number of TCTOs completed and not completed; rescission date; and serial number(s) affected by TCTO.

Plans and scheduling review the TCTO program weekly and discuss TCTO status at the scheduling meeting. They notify the item manager by message or memorandum when all equipment at the base is modified. Kits are disposed of according to item manager's directions.

### **218. Munitions accountable supply officer responsibilities**

The wing commander (or equivalent) has custodial responsibility for assigned weapons, nuclear components, LLCs, and other managed assets; therefore, he or she is the appointing official for the munitions accountable supply officer (MASO).

#### **Responsibilities**

The MASO oversees all aspects of the daily accountability and custody of the unit's nuclear weapons stockpile. The MASO executes the accountable officer and custodian responsibilities identified in TO 11N-100-4 I. The following are additional responsibilities performed by the MASO:

- Submit reports outlined in TO 11N-100-3150 for reportable items.
- Ensure authorization letter for receipt of DOE materials is current.
- Ensure NARS personnel are knowledgeable on all facets of weapons accountability and have access to all required publications.
- Review all aspects of the daily accountability and management of the nuclear weapons stockpile for nuclear accounts at least quarterly.
- Develop a storage plan for the NARS warehouse.
- Develop and publish procedures, at an appropriate level within the wing, covering local conditions and requirements, to ensure all affected personnel are aware of required responsibilities and procedures.
- Control the transfer and movement of, and access to, nuclear weapons and nuclear components.
- Ensure assets have the appropriate charge code changes and are available for shipment as directed in Stockpile Laboratory Test/Stockpile Flight Test (SLT/SFT) warning orders.
- Conduct a self-inspection of the account in conjunction with the NCOIC of NARS within 45 calendar days from the date of transfer of accountability. Ensure results are documented and forwarded to the munitions activity commander.
- Maintain a master copy of the DTRA location inventory listing (LIL) and use the DTRA LIL to reconcile the DIAMONDS database.
- Develop and maintain organizational "Commanders Account Responsibilities" briefing and provide organizational commander briefing as requested.
- Establish and maintain stock levels corresponding to the command allocation document or an approved AF Form 1996, Adjusted Stock Level.
- Establish classified, unclassified, and DIAMONDS organizational e-mail addresses.
- Ensure adequate safeguards and protection for property on his/her accountable record. Determine, justify, and request adequate storage facilities to protect and secure government property.
- Authorizes personnel access and use of keys to nuclear facilities (e.g. maintenance facilities, storage igloos, etc.) by signing the Access Approval Authority Listing (AAAL) and change letters.



- Personally conduct checks to determine accuracy of accountable records and validity of warehouse locations and balances.
- Brief the wing, group, and squadron commanders, within 30 days of receiving the DTRA reconciliation, on the status of nuclear weapons reporting activities for the previous six months.

#### **Storage location planning report**

The MASO establishes custody subaccounts for each duty section for which a custodian is appointed. The office symbol is entered in DIAMONDS “storage area” field for the items issued to each custodian. DIAMONDS will use the actual location for the storage location (i.e. structure 5 or bin 3/row 15/column 15). Additionally, the MASO updates the Storage Location Planning Report at the end of every duty day on which changes occur. Once complete, the MASO provides an updated copy to munitions control unless a DIAMONDS terminal is located in the control center. Notifications are made by maintenance teams to NARS personnel anytime assets were removed or secured to another location.

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### **Self-Test Questions**

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

#### **215. Administrative**

1. What is the difference between a FV and FK munitions account?
2. What are some of the requirements an individual has to meet to become a MASO?
3. Who is the person ultimately responsible for the accuracy of all transactions posted to the nuclear account and the entire stockpile?
4. List the different types of accountable documents that are associated to document registers.
5. How does the MASO make corrections to hard copy discrepancies on accountable records?
6. What are the two ways that base and military spares are accounted?
7. How long are inactive stock records that show historical transactions and balances maintained?
8. How often and when does the MASO coordinate local reviews of the USAL with applicable workcenters?

#### **216. Preparing and processing shipping documents**

1. At what point do you reaccomplish shipping documents due to a delayed shipment?

2. What form serves as the source document governing shipment and transfer actions?
3. What information do you enter on the DD Form 1348-1A for classified items?
4. What TOs provide the item numbers, unit cube, and line number for LLCs?
5. TO 11N-100-4, *Custody, Accountability, and Control of Nuclear Weapons and Nuclear Materiel*, contain what procedures concerning DD Form 1348-1A?
6. What publication provides instructions for preparing the DD Form 1348-1A for MS and BS?
7. What pertinent information would you document in block 27 of the DD Form 1348-1A?
8. When do you start follow-up action if you don't receive signed shipping documents?
9. What steps are performed upon receipt, but prior to filing the original signed DD Form 1348-1A from the ultimate consignee?
10. What statement must be on the DD Form 1348-1A for transferring war reserve nuclear weapons containing SS materiel?

**217. Time compliance technical orders and retrofit kits**

1. How are TCTOs or retrofit kits requisitioned?
2. How are training TCTOs or retrofit kits issued?
3. What TO is used to report the completed TCTO or retrofits?
4. Who maintains visual aids reflecting the current status of a TCTO including TCTO number and number of kits ordered?

**218. Munitions accountable supply officer responsibilities**

1. What does the MASO expect of NARS personnel?

2. How often does the MASO review the accountability and management of nuclear weapons stockpile under his or her nuclear accounts?
3. Who performs the self-inspection with the MASO prior to the transfer of accountability?
4. What does the MASO use to reconcile the DIAMONDS database?
5. What does the MASO use to maintain organizational stock levels?
6. Who authorizes personnel access and use of keys to nuclear facilities by signing the AAAL?
7. What does the MASO brief to the wing, group, and squadron commanders after receiving the DTRA reconciliation report?
8. If munitions control does not have a DIAMONDS terminal, what does the MASO provide?

### **3-2. Logistic Movement of Nuclear Weapons Materiel**

The preferred method of movement for nuclear weapons containing conventional high explosives is by safeguards transporter (SGT). Procedures and responsibilities have been established for peacetime and emergency logistics movement of nuclear cargo. Commanders may deviate from these requirements during emergencies, but must maintain US custody of nuclear weapons and components. During all logistics movements nuclear-certified vehicles, support equipment, and approved procedures will be used.

#### **219. Nuclear ordnance shipping schedule**

The nuclear ordnance shipping schedule (NOSS) is a classified message that provides managers at all levels critical information on upcoming (30-day requirements, 60-, and 90-day forecasts) shipping and receiving schedules for nuclear weapons and critical components. To better understand the NOSS, we discuss the major agencies involved with the NOSS and some of their responsibilities.

#### **Involved organizations**

AFNWC Logistics Division consolidates, coordinates, and deconflicts Air Force NOSSs and DOE airlift requirements with DTRA and DOE. The MAJCOMs funnel everything that may affect upcoming NOSS schedules through AFNWC Logistics Division. This allows clear communication to all affected agencies and keeps conflicts with the shipping schedule to a minimum.

MAJCOMs are the primary logistics agents for weapons assigned to them. They make sure stockpile quantities are in-line with nuclear weapons stockpile memorandum (NWSM) and are available to meet mission requirements at their respective units. They do this through exercising command oversight of their units and coordinating with AFNWC Logistics Division on maintenance of weapons stored at Air Force Materiel Command (AFMC) storage sites (i.e., AFMC MUNSS).

MAJCOMs are logistically responsible for weapons assigned to them according to the NWSM. They direct weapon movements through the NOSS to make sure all weapons assigned to them are at the proper location in adequate quantities. They direct charge code changes either through the NOSS or other means (e.g., Stockpile Lab and Flight Test Warning Orders) to meet NWSM requirements. They request mission tasking orders (MTO) through AFNWC Logistics Division to DTRA, as needed.

MAJCOMS schedule logistic movements of nuclear cargo in their NOSS. They provide a monthly NOSS that must arrive at AFNWC Logistics Division no later than the 7th of each month for airlift and ground requirements for the next month (e.g., February requirements must be submitted by the 7th of January). The NOSS must also state MAJCOM-forecasted weapons shipment requirements for the next 60 and 90 days. LLC shipments may be scheduled in a NOSS.

The following is a sample NOSS:

<b>NOSS INTRODUCTORY REMARKS AND INSTRUCTIONS.</b>	
<b>PART I:</b>	30-DAY FIRM REQUIREMENTS FOR MOVEMENT (Month and Year). Paragraph Number (Note 1) (classification) Mission tracking number (MTN)/ (Note 2). From Location/ From Charge Code (Note 2). To Location/ To Charge Code (Note 2). Quantity/ Weapon Code (Note 2). 11N45-51A Table and Line Number/Serial Number(s) (Note 3). Available Date/ Required NLT Date. Remarks applicable to NOSS paragraph (Note 4).
<b>PART II:</b>	60-DAY FORECAST FOR MOVEMENT (Month and Year). Paragraph Number (Note 1) (classification) MTN/ (Note 2). From Location/ From Charge Code (Note 2). To Location/ To Charge Code (Note 2). Quantity/ Weapon Code (Note 2). 11N45-51A Table and Line Number/Serial Number(s) (Note 3). Available Date/ Required NLT Date. Remarks applicable to NOSS paragraph (Note 4).
<b>PART III:</b>	90-DAY FORECAST FOR MOVEMENT (Month and Year). Paragraph Number (Note 1) (classification) MTN/ (Note 2). From Location/ From Charge Code (Note 2). To Location/ To Charge Code (Note 2). Quantity/ Weapon Code (Note 2). 11N45-51A Table and Line Number. Serial Number(s) (Note 3). Available Date/ Required NLT Date/ Remarks applicable to NOSS paragraph (Note 4).
<b>Notes:</b>	1. Paragraph numbers for Part I are numbered sequentially beginning with 1, 2, and so forth. a. Paragraph numbers for Part II are numbered sequentially beginning with A, B, and so forth. b. Paragraph numbers for Part III are numbered sequentially beginning with AA, BB, and so forth. 2. See TP 100-3150, Joint Reporting Structure; Nuclear Weapons Reports, for MTN, Weapon Code, and Charge Code Formats. 3. Select options. a. "SHIPPER SELECT" indicates the "From" organization may select serial numbers. b. "MAJCOM SELECT" indicates serial numbers will be selected by the MAJCOM

NOSS INTRODUCTORY REMARKS AND INSTRUCTIONS.	
	<p>Logistics agent and specified prior to requirement becoming firm (i.e. this entry cannot be used in 30 day Part I).</p> <p>4. For nonWR Items (i.e., JTAs, Trainers, etc.), specify TO 11N-20-11-line number in paragraph notes.</p>

### Intraservice shipments

Schedule intraservice shipments of denuclearized special test items, inert Type-3 weapons trainers (except Type-3E load trainers), and joint test assemblies (JTA) in the NOSS. Do not schedule shipment of Type-3E load trainers, bomb dummy units (BDU), munitions dummy units (MDU), hand trucks, shipping and storage containers, or bolsters in the NOSS, except as opportune cargo with other scheduled shipments.

Clearly the NOSS is an invaluable tool for unit managers and a high interest item that deserves much attention. Next, we discuss the end product of all the coordinating and planning that went into the NOSS SAAM.

## 220. Unit responsibilities for transport, shipping, and receiving nuclear cargo

Units make sure all persons involved with logistics movement know their specific responsibilities, including those relative to the safety and security of the nuclear cargo and what to do in case of an en-route emergency such as accident, incident, or attempted hijacking. Drivers and escorts must have all available information on road conditions, weather, and emergency procedures.

### Planning and scheduling

Units also develop a written plan addressing logistics support according to Air Force Joint Instruction (AFJI) 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materiel*. Outside continental United States (OCONUS) units must develop and coordinate plans according to host-nation support agreements.

### NOSS conflicts

If your unit cannot support a required movement scheduled in the NOSS due to conflicts with other events (i.e., runway closure or increased threat conditions), immediately contact your MAJCOM. Local generations and higher headquarters inspections or exercises are not adequate reasons to cancel or reschedule a movement once it is scheduled in the 30-day NOSS. Organizations requiring logistic movement of Type 3A/B/C trainers or JTAs must forward a request to their MAJCOM. Type 3E trainers may be moved in CONUS by any available means.

### Equipment and support agencies

Units must make sure proper equipment is on hand and available throughout the movement. They also make sure security forces, facilities, and equipment is on hand and used as required by DOD Manual 5210.41M, *Physical Security of Nuclear Weapons*, AFMAN 31-108, *Nuclear Weapon Security Manual*, and the theater directives, as well as check logistics movement plans and procedures with current intelligence data and local threat analyses to determine if security standards are being met. As soon as a movement is scheduled in the NOSS, units must provide all relevant threat information known before or during the mission.

### Logistic movement briefing and requirements

One of the responsibilities you have for logistic movement of nuclear weapons is to give a briefing before the movement commences.

The transportation agency and/or shipper must brief the courier, guards, handling personnel, and aircrew members and/or drivers concerning the details of the mission. Relief personnel must receive

the same briefing before accepting their responsibilities. Briefings to aircrew members and/or aircrew couriers may be accomplished by way of a precoordinated worksheet or similar product, as long as all required material is covered and updated with any changes that have occurred since the worksheet or similar product was filled out. This method of briefing should include a signed acknowledgement of the subjects covered by the shipper and/or receiver and courier.

Brief *personnel* on the following topics as applicable:

- Mission including the nature, hazard, and general safety requirements for shipping nuclear weapons cargo.
- Identification, classification, quantity, and hazard of the cargo.
- Identification of the authorized recipient of the cargo.
- Two-person rule requirements.
- Chain of command.
- Surface and/or air traffic control procedures, if applicable.
- Procedures for communication with external agencies.
- Restrictions on additional cargo or passengers.
- Emergency procedures.

The following are briefing requirements to the *courier*:

- Identification of items that are Command Disable System (CDS) equipped, and if the CDS has been activated. Verbally confirm with the courier that the courier and at least one additional aircrew member are knowledgeable of performing CDS procedures.
- Refer to TO 60-1, *Explosive Ordnance Disposal Procedures, General Information Applicable to Nuclear Weapons* and appropriate -6 Explosive Ordnance Disposal Publication if the nuclear weapon materiel has been exposed to an abnormal environment.
- TO 20-11A, *Line Number/Hazardous Category Cross Reference List*, and TO 45-51A, *Transportation of Nuclear Weapons Materiel (Supplement), Shipping and Identification Data for Stockpile Major Assemblies*, table reference for each item shipped.
- Nuclear materiel items without a TO 20-11, *General Guidance and Materiel Hazard Information for Nuclear Weapons, Components and Nonnuclear Weapon Designations*, line number.
- Any other applicable special instructions.

### **221. Safe Haven requirements**

The DOE transportation safeguards system consists of specially trained, equipped, and supervised federal agents, specialized transport equipment, and a nationwide communications system. This lesson briefly describes the interface between the DOE system and the DOD, and describes a few of the responsibilities for both departments.

“Safe Haven” as it applies to transportation of nuclear materiel is described as follows:

DOE convoys, en route, may seek Safe Haven sanctuary at any CONUS military installation according to an approved agreement between DOE and DOD. Safe Haven is a temporary sanctuary of a DOE convoy due to an unscheduled or emergency event. A special request for SAAM or Safe Haven is not necessary for early arrival of a scheduled shipment, due to an unscheduled or emergency event.

To make sure of the safety and security of a shipment en route, the Office of Secure Transportation (OST) Director, a person acting on their behalf, the OST duty officer, or the concerned convoy

commander may decide to seek Safe Haven at a military installation. Reasons for seeking Safe Haven include, but are not limited to:

- Civil disorder.
- Potential threat(s) to the security of the shipment.
- Natural disasters.
- Adverse weather or road conditions.
- Convoy vehicle equipment breakdowns that cause extensive schedule delays.

When a decision is made to seek Safe Haven for a DOE convoy, DOE provides all pertinent information to the installation involved, directly or through the DOD Joint Nuclear Accident Coordinating Center (JNACC) at DTRA. Normally, notification to the installation commander comes from DOE through JNACC to DTRA. Any questions or requests for clarification of information can be resolved through direct coordination between the installation and JNACC which can be reached by DSN or commercial telephone any time day or night.

The following are the specifics of the concept of the Safe Haven agreement between the DOE and DOD:

- Available DOD facilities are to provide support to the authorized DOE convoy as necessary. The mission, operational situation, and capabilities of the installation determines the extent of support provided
- DOE requests Safe Haven only under conditions where the safety or security of a shipment is jeopardized, and removes the shipment from the installation as soon as possible after the emergency is over. The appropriate provisions of the Joint Agreement in Response to Accidents Involving Radioactive Materiel are applicable in the event of an accident involving radioactive materiel during Safe Haven temporary storage.

#### **Department of energy responsibilities**

The DOE and DOD have responsibilities under the Safe Haven agreement. The following are DOE's Safe Haven responsibilities:

- DOE reaccepts responsibility for the security and custody of the shipment.
- DOE notifies the installation commander (directly or through JNACC) of the need for Safe Haven and provides the estimated time of arrival (ETA), the name of the convoy commander, the identification of federal agents, the classification and nature of the cargo, and whether or not state police or highway patrol are escorting the shipment.
- When the convoy commander arrives at the Safe Haven installation, the convoy commander provides a description of the nature of the cargo (e.g., radioactive materials and/or high explosives) and any special security procedures required. The cargo description includes the specific classification of the cargo and either the DOD line number and quantity or the United Nations (UN) identification number and quantity.
- DOE advises the installation commander of pertinent safety precautions including any special firefighting procedures.
- DOE assists the installation commander in the event of an accident involving radioactive materiel.
- DOE provides reimbursement for any DOD expenses incurred as a result of a Safe Haven.
- DOE complies with local installation directives unless compliance could jeopardize the safety or security of the shipment.



**Depart of Defense responsibilities**

DOD also has responsibilities for implementing Safe Haven. In this situation the following are areas of responsibility of the installation commander:

- Provide a suitable temporary holding area for DOE shipments.
- Assume temporary responsibility for the security of the shipment if DOE federal agents are incapacitated.
- Assume primary command responsibility and exercise control of emergency operations in the event of an accident involving radioactive materiel.
- Provide security, firefighting, explosive ordnance disposal, communications, and logistic support as necessary.

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**Self-Test Questions**

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

**219. Nuclear ordnance shipping schedule**

1. What is the NOSS?
2. Who consolidates, coordinates, and deconflicts Air Force NOSSs and DOE airlift requirements with DTRA and DOE?
3. Who are the primary logistics agents for weapons assigned to them?
4. When must MAJCOM NOSSs arrive at AFNWC Logistics Division?
5. List the items that are *not* scheduled in the NOSS?

**220. Unit responsibilities for transport, shipping, and receiving nuclear cargo**

1. List the items that all persons involved with logistics movement should know?
2. Units develop a written plan addressing logistics support according to what instruction?
3. If a unit cannot support a required movement scheduled in the NOSS due to conflicts with other events (i.e., runway closure or increased threat conditions), who must they notify?
4. What is *not* a reason to cancel or reschedule a movement once it is scheduled in the 30-day NOSS?

5. When a movement is scheduled in the NOSS, what must units provide?
6. Who must brief the courier, guards, handling personnel, and aircrew members and/or drivers concerning the details of a logistic movement?
7. For logistic movements of nuclear weapons, how may briefings to aircrew members and/or aircrew couriers be accomplished?
8. When briefings to aircrew members and/or aircrew couriers are accomplished by way of a precoordinated worksheet or similar product what should be included?
9. What are some of the topics that are briefed to people for logistic movements of nuclear weapons?

#### **221. Safe Haven requirements**

1. What is Safe Haven?
2. Is an early arrival of a scheduled shipment, due to an unscheduled or emergency event considered a Safe Haven?
3. What are some reasons for seeking Safe Haven?
4. When DOE requests Safe Haven, how soon after the emergency is over will DOE remove the shipment from the installation?
5. What are some of the responsibilities DOD has during a Safe Haven?

### **3-3. Using the Defense Integration and Management of Nuclear Data Services**

Defense Threat Reduction Agency (DTRA) is the executive agent to the Joint Staff for management of the DOD nuclear weapons stockpile database. This database maintains accurate stockpile information capable of producing a snapshot of the entire stockpile for any given time. Although this database is not used to promulgate policy, it is used to manage the stockpile and to monitor service compliance with presidential, AFNWC and Nuclear Weapons Center Standing and Safety Committee (NWCSSC) stockpile policy.

## 222. Processing weapon and container records and reports

You must maintain nuclear weapons, components, and WR shipping containers must in a constant state of readiness. The Weapon Status Report and the Container Asset Report provide information for managers at all levels for tracking the status of the WR stockpile. Other reports keep upper level managers in the DOD and DOE informed about the status of various training tests and special nuclear materiel test items. AFI 21-204, *Nuclear Weapons Maintenance Procedures*, explains the procedures for submitting these reports. To understand the many facets of NARS, we briefly discuss DIAMONDS, the heart of the operation.

### DIAMONDS system

DIAMONDS is a joint AF and DTRA system automating nuclear maintenance and accountability activities. By entering information into the DIAMONDS database, users update and produce the required reports or transactions. DIAMONDS is an auditable system and replaces many current paper process or accountable documents.

It is a web-based program that combines numerous existing programs, all from one computer. DIAMONDS combines the following products and/or processes:

- Publications (currently JNWPS).
- Unsatisfactory reporting.
- Unit level stockpile accounting and reporting.
- Stockpile tracking and reporting.
- Logistics.
- Mishap reporting (Dull Sword, Broken Arrow, etc.).
- Maintenance bay and/or facility data entry and distribution inspection record cards (IRC), Weapon Information Report (WIR), and so forth.
- Decision support and forecasting.

DIAMONDS provides a user friendly, single web based entry system that enhances all users' day-to-day job performance, from maintenance technicians to headquarters' staffs. The system provides a common online portal to required information, within a secret environment. Connections between locations are established by way of commercial lines, a virtual private network (VPN) is then created to isolate DIAMONDS system traffic. Data is exchanged by way of a National Security Agency (NSA) approved cryptographic device.

The nuclear community referenced by DIAMONDS is defined in the following terms:

- Site and/or unit – military installation serves as a nuclear storage facility.
- Central location – serves as a collection point for all information that requires coordination above the site level.

Site-specific data is stored on a server physically located at each facility. Each site may only access data relevant to that site.

Access to data at the central location within DIAMONDS is granted on a need to know basis. A system administrator is appointed in writing by the operations officer/maintenance superintendent (MX/SUPT). The administrator's responsibilities include, but are not limited to:

- Enrolling individuals into DIAMONDS.
- Pointy of contact (POC) for contacting DTRA with system errors.

### **DIAMONDS manager**

Users of this function do not require any verification of information input into the accountable system. Because of this, responsibility is limited to no more than five users, section chiefs or above, the MASO, and select people assigned to NARS (as deemed by the MASO).

### **Verifying officials**

This function allows individuals to verify information input into DIAMONDS by others. Since the system does not allow an individual to verify their own work, the verifying official can also be assigned other user roles and responsibilities.

### **Users**

Users are individuals who are authorized to input data into the DIAMONDS system based on the roles and responsibilities assigned by their shop chief.

### **Weapon Information Report**

A WIR provides Sandia and/or DOE with Record of Assembly (ROA) information on specified S (Sandia) materiel. S materiel is defined as major assembly items or product entities which Department of Energy, Sandia National Laboratories have control. This information is needed to maintain records of component association to support stockpile quality studies. Actions that require a WIR are changes in association with any S materiel or any serial and/or manufacturing-numbered weapon components associated with S materiel. TO 11N-35-50, *Instructions for Completion of Nuclear Weapon Information Reports* gives instructions for filling out WIRs. It also lists some items that do not require reporting. You *do not* report the following items unless you are directed to do so by the specific-weapon publication:

- LLCs.
- Strike enable plugs, pullout cables, lift lugs, stabilizer bands, spin-rocket port covers, and fins of a weapon that may have several alternates. For weapon assembly, these items may be associated with the weapon or disassociated from it and stored in bags, base spares, or other locations.
- The same serial and/or manufacturing-numbered component that you added and removed or removed and added.
- ALT 900-series removed or replaced components.

Use DIAMONDS where available as the primary means for the preparation, processing, storing, and transmittal of ROA information. TO 11N-35-50 gives a sample of a blank WIR form that may be reproduced locally. If information is not available or applicable for a particular area, leave it blank. Never disassemble an item merely to get a number.

When selecting WIR in DIAMONDS the “Maint Ops” drop down is used to create new WIRs, and to select and modify WIRs that have not been put in the queue for transfer to the service center. There are three functional options for WIRs; *Create/Modify*, *To be Transferred*, and *Transferred*.

The following procedures and examples are only related to the WIR process at the Laptop and Site levels.

### **Create/Modify**

The Create/Modify tab (fig. 3-1) opens a screen that is divided into three sections, (WIR Header, WIR Components and WIR Remarks). The user is permitted to change the current information displayed in each section by clicking any of the function buttons (New, Edit, Delete) on the right of each section. As a user, you may add New WIR information to the WIR Header, Edit current information or Delete current information. Pop-up boxes with relevant weapon information are displayed to assist you in creating or modifying current data. This also applies to weapon information related to Components and Remarks. You are prompted to select a specific weapon before taking any

Create and/or Modify action on a WIR. The table below provides the procedures to create a new WIR and select a weapon.

New WIR — Select a Weapon	
Step	Procedure
1	Select WIR from Maint Ops drop down menu.
2	Select New button on right screen.
3	Select Weapon Information from drop down boxes.
4	A Select Weapon pop-up window prompts you to select Weapon Designator, Part Number and Serial Number. This prefills the screen with Header information.
5	You may click Save or Cancel after making the selections in the drop down boxes provided. Click Save to bring weapon information into Create/Modify table.
6	Saving the information brings you back to the main WIR screen with the weapon information populated.

Figure 3-1. WIR – Select Weapon Information.

### Edit WIR

In the WIR Header section the Edit function on the right side of the screen, this permits you to modify a current a record. The Edit options include: Weapon Designator, Part Number, Serial Number and WIR Date. You may Save or Cancel the edited information. A WIR Date also provides a time-stamp for this WIR transaction. Saving the information brings you back to the main WIR screen with the weapon information populated. You can delete weapon information also. Highlight the appropriate WIR line of information in the Header section and select the Delete button on the right side of the screen. This will remove WIR information from the database. You may cancel the Delete weapon information action if you don't want to proceed.

### **Add/Edit WIR Component**

Frequently Component parts are “swapped out.” A record must be created of the removal of the currently installed part and the addition of the new replacement part. As the user, you have the option of selecting Add or Remove functionality for Component parts. In the WIR Component section, select the New button; the Add New WIR Component popup window pops-up. Select the Add or Remove button and enter the WIR component information (Unit, Part Number, Rework Number and Mfg No/Ser No). Select Save to complete the action or Cancel to cancel the data input action.

You can also edit WIR component information to modify and/or correct an error in a line of the WIR Component record. Highlight the appropriate WIR Component line in the record and select the Edit button on the right side of the screen. Correct the WIR component information and click the Save button to bring the specific weapon information into the table.

Some of the other functions that can be performed are: delete WIR Components, add/edit/delete WIR Remarks, transfer, stop transfer, view and print WIR record. Next we will cover inspection record cards.

### **SF Form 5700, Inspection Record Cards or electronic IRC**

Since the Electronic Inspection Record Card (EIRC) contains significant historical data, the accuracy of the information is extremely important. Use DIAMONDS to select the standardized EIRC entry for the operation being performed. If selections do not fully describe the operation being performed, use the EIRC Amplification area to accurately describe the operation or defect. EIRCs in DIAMONDS are classified Secret Formerly Restricted Data (SFRD) according to existing classification guides. DIAMONDS automatically generates an electronic signature (e-signature) for the individual signed into DIAMONDS by way of the individual’s user name and password.

#### **Description**

The EIRC is made up of two sections: HEADING and OPERATION. The form is designed to furnish the following types of information:

- Identification of the major assembly (HEADING section).
- A record of weapon assemblies, inspections, modifications, configuration changes, or operations required by joint technical publications, as applicable to DOE materiel (OPERATION PERFORMED column).
- A record of the number of functional tests performed on certain components that must be replaced or reworked at designated usage intervals.

#### **Heading section**

The heading portion of the form shows the production nomenclature designation (B61, B83, etc.) and the modification (MOD) number, the serial number, the alteration (ALT) number(s) applied to the major assembly, and the DOE part number. Drop or rework numbers are added to the part number, as applicable. DIAMONDS automatically corrects or updates the entries in the heading blocks at the top of the form, as necessary, to reflect changes.

#### **Operation section**

The following sections must be completed in the operation section of the ERIC.

#### **Heading (HDG) and/or Change (CHG) column**

When an operation is performed in DIAMONDS that would involve a change to the heading information, DIAMONDS automatically annotates an “X” in the HDG CHG column and updates the heading blocks at the top of the form. DIAMONDS automatically generates and enters the current date in the DATE column.

### *Operation performed column*

In the OPERATION PERFORMED column, annotate entries for all historically significant inspection or operational events specified in the assembly, test, storage, maintenance, and modernization manuals. Historically significant events include, but are not limited to, verification inspection, receipt inspection, modification, alterations, LLC exchanges, PAL code changes or status changes, configuration changes, and Code Management System operations. Use the standardized EIRC entries, which may be followed by adding any pertinent remarks or additional comments in the IRC amplification area. Non-standard entries may be entered using the DIAMONDS feature for adding other IRC entries. Use as much space as necessary to properly describe the operation and/or inspection. This feature should not be used to bypass the standardized entries.

### *Technician and verifier columns*

DIAMONDS displays the electronic signatures of the individual performing and the individual verifying the operation or inspection. In some cases, based on assigned user privileges, the technician and the verifier may be the same individual.

### *Correction of entries*

DIAMONDS supports “lining through” in the print preview screen only for entries that have been corrected. The screen background will appear dark grey and preceded by the word “line-out». If the EIRC is printed, the corrected entries will be lined through. Correction of a new EIRC entry may be accomplished on a laptop by deletion and re-accomplishment of the original DIAMONDS operation or by the edit of the entry during the “verification” process. Correction of standing entries on the EIRC cannot be accomplished on a laptop.

Before correcting long-standing entries that are obviously in error, believed to be in error, or made by other DOD organizations, the recording activity forwards the contemplated correction and receives authority to make the correction through channels for submitting URs. After approval of the UR the entry may be corrected. The user must be identified as having the EIRC monitor privilege (assigned during DIAMONDS enrollment), and then access the EIRC from a work station or site server computer. Highlight the incorrect entry and select Correct IRC Entry. Make a new entry correcting the original entry that was in error and cite the date of the original entry and the DTRA UR number authorizing the correction.

Previous entries not described in current terminology are acceptable and need not be corrected if the intent of the entry is obvious. Erroneous or missing entries that do not affect current weapon status (i.e., receipt inspection, preparation for strike, preparation for storage, etc.) do not require correction or insertion if a later entry supersedes or encompasses the error or omission. Except for obvious errors, the processing of entries by a DOE production facility should not be the subject of UR action. Because the nature and scope of operations at a DOE facility differ from those in the field, certain entries required may not be present after a weapon is returned from a DOE facility. All DOE facilities must annotate appropriate materiel records to document the operation performed on the component or system; however, no fixed or standard phraseology is required. The entry Final Inspection by Production Agency is typical only after initial assembly or manufacture. DIAMONDS automatically records the e-signature of the technician and/or IRC monitor who corrects EIRC entries and will display it in the MONITOR column of the EIRC.

### *Defective conditions*

Include a specific reason in the OPERATION PERFORMED column of the EIRC whenever a major assembly is rejected. Clearly identify the extent of the damage on rejected components, describing the location of the damage and size (e.g., 1.25” long x .375” wide x .009” deep) and make an entry to reflect NON-OPERATIONAL status of the weapon. A separate entry must be made for each reportable defect.



### ***Modifications and alterations***

Make an entry for a modification or an alteration when specified in the Retrofit Order (RO). Annotate individual entries, to indicate modification and subsequent inspection when an inspection is performed concurrently with the modification. Some entries may require the technician to manually type in the RO number being performed. Enter TP XXX-XXX (MOD X) PERFORMED, in the OPERATION PERFORMED column of the IRC when a numbered MOD is performed. If an ALT is performed, enter TP XXX-xxx (ALT XXX), PERFORMED or TP XXX-XXX (ALT XXX) REMOVED, as appropriate. In all cases involving ALTS, DIAMONDS automatically updates the heading blocks at the top of the form.

Do not make an entry on the EIRC for retrofit actions performed solely on the H-equipment directly associated with a weapon, major assembly, or component.

### **AF Form 1764, Status Change Reports**

The forms and reports you complete on the weapon systems at your base provide historical data for numerous agencies throughout the Air Force and the DOE. The data is used to maintain accountability of components and units, perform quality studies, and provide the history of a weapon from the production agency until retirement. You must report certain operations and transactions that affect a major assembly or component on the Major Assembly/Component Status Change Report, commonly call an SCR. If you are using DIAMONDS, it generates this form automatically. TO 11N-100-3150 lists the items that you report. Using DIAMONDS, your shop must submit an SCR to Munitions Operations each day a reportable change occurs. The following are some examples of reportable changes:

- Weapon or component receipt, shipment, addition, or deletion.
- Weapon code, alteration code, color code (operational Y or nonoperational R), or charge code changes.
- Weapon association, loss, or destruction.
- Component removal and installation.
- LLC exchange.

When you perform maintenance and make entries in DIAMONDS, these entries or transactions are recorded and held (fig. 3-2). As the user you assemble the transactions held in DIAMONDS into an SCR. After the user completes the initial data entry and selects the transactions to assign to a SCR, a second user would login and using the Maint Ops drop down tab, access the View and/or Verify Transactions command to verify the data entered by selecting the Verify Transaction option in the Menu bar. The verifier views a display window with all transactions available for verification. If the verifier needs to edit or delete the transaction(s), the verifier would select the Edit or Delete button. This SCR is then sent to NARS and is the official report of the work that has been completed in the Maintenance Bay.

<b>Assign Transactions to SCR (Site)</b>	
<b>Step</b>	<b>Procedure</b>
1	Log into DIAMONDS on the site server.
2	Select Maint Ops from the main menu.
3	Select View Transactions, and then Submitted from Maintenance.
4	If the user wishes to edit or delete any transaction data, the User clicks the Edit, or Delete button.
5	Select the transactions to assign to SCR, and then click the Assign Transactions to SCR button.
6	Click the Submit button.

Admin   Maint Ops   NOCM   Publications   Unsaf Reports   Support Center   Logout							
Transactions:   Shop: ALL   Select All   Assign Transactions to SCR							
Verify	Transaction	Item Type	Serial	Initial User	Verify User	Shop	Assign SCR
<input checked="" type="checkbox"/>	PAL Code Change	X51-4	444410	QAADMST0	QAADMST0	Bomb Base	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Prep	B61-4	100032	QAADMST0	QAADMST0	Bomb Base	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Prep	B83-1	100161	QAADMST0	QAADMST0	Bomb Base	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Prep	X51-4	444410	QAADMST0	QAADMST0	Bomb Base	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Prep	X83-1	007	QAADMST0	QAADMST0	Bomb Base	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Shipment	B61-4	100032	QAADMST0	QAADMST0	Bomb Base	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Receipt	B83-1	666999	QAADMST0	QAADMST0	Depot	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Receipt	X51-4	702400	QAADMST0	QAADMST0	Depot	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Receipt	W80-1	987456	QAADMST0	QAADMST0	Depot	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Custody Transfer	B83-1	20186	QAADMST0	QAADMST0	Depot	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Receipt	B83-1	669966	QAADMST0	QAADMST0	Depot	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Weapon Shipment	B61-4	100041	QAADMST0	QAADMST0	Depot	<input type="checkbox"/>

Assign Transactions to SCR	
Control Number:	05-189
Preparer Name:	William, Talley Super
Preparer Grade:	Super
Date:	25-JUL-2005
Time:	0000

Submit   Cancel

Figure 3-2. Examples: Assign Transactions to SCR (Site).

When LLCs are removed and installed, you must report the serial number of associated and unassociated LLCs. Accuracy is extremely important when completing the SCR.

The MASO develops and publishes local procedures (including relational activity between Nuclear Maintenance, Munitions Control, and Munitions Operations) to make sure of proper status change reporting and weapon status reporting. When you receive shipments of weapons and certain other items, you perform verification and/or receipt inspection and submit an SCR. You must prepare reports involving receipts on the date of the receipt. Reports involving shipments are also prepare on the date you transfer the items to the carrier for shipment.

### Verification of components

You do not open all the H1616 container upon receipt. The verification of component serial numbers occurs only during unpacking before use. Both Munitions Operations and your maintenance shop use serial numbers on the documentation and containers to report receipt. If a discrepancy is found between the shipping documentation and the container, contact MAJCOM immediately and submit UR according to TO 11N-5-1, *Unsatisfactory Reports*. The manufacturer pack dates are on the LIL, component part numbers are in the item TO, and both are on the H1616 container tag.

### Preparing, using, and certifying manual nuclear weapons configuration records

An SCR is also required for custody transfers. Prepare an SCR for the buildup of pylons and launchers to reflect the association of warhead serial numbers and air-launched missiles with the pylon or launcher and bomb serial numbers with clip-in assemblies. When building up pylons and launchers, prepare a manual nuclear weapons configuration records (or build-up sheets) to reflect the association of warhead serial numbers to air launched missiles and the built up missiles or bombs with the pylon or launcher. The maintenance team chief responsible for final assembly must prepare and sign the buildup sheet, and a knowledgeable senior NCO or officer must physically verify the serial numbers and configuration and certify doing so by signing the buildup sheet. The team chief and certifying individual must both initial beside any changes to the sheet.

### 223. Processing status asset and quality reports

Several other types of reports account for stockpile status, shipping and storage containers that are available and accurate accountability of SS nuclear materiel.

#### Weapon Status Report

We must maintain nuclear weapons and their components in a constant state of readiness. The WSR provides stockpile status information to the Joint Staff (JS), DTRA, HQ USAF, the National Military Command System, the National Command Authorities, and the services.

Upon request, the DIAMONDS system creates a WSR for accountable transactions verified during the day. You assemble transactions from the reportable maintenance that has been recorded in DIAMONDS into an SCR. Your shop must submit an SCR to NARS each day a reportable change occurs. Major Assembly/Component Status Change Report serves as the source of information for making WSRs. We cannot stress enough the need for accuracy when completing the SCR, especially because it is used to prepare the WSR.

A WSR must be submitted daily when reportable changes to a weapon have taken place in the previous 24 hours with 100 percent accuracy. If no changes occur, no report is required. Munitions Operations (the NARS monitor) prepares and submits the WSR as outlined in TP100-3150. To produce a new WSR, NARS uses the Produce Current WSR screen in DIAMONDS to generate a WSR for accountable transactions that occur each day. Submit a WSR any time a change occurs to a nuclear weapon or component in one of the following categories:

- Balance.
- Operational unit identification code (OUIC) weapons are supporting.
- Weapon code or charge code.
- Shipment or receipt.
- ALT code.
- Component installation, removal, or component code.
- Color code.
- Weapon deletion (expended or destroyed).
- Component addition or deletion.
- Location addition (new storage site) or location deletion (permanent closing of storage site).

#### Container Asset Report

Another report generated by DIAMONDS is the Container Asset Report (CAR). DOE has a limited number of shipping and storage containers available to stockpile managers. This report is critical to making sure enough shipping and storage containers are serviceable and on hand at each location containing WR. This report allows stockpile managers to anticipate shortages at Base X and fill them from Base Y. All DOD activities that have custody or receive, stock, store, issue, or use WR shipping containers owned by DOE are required to submit a CAR semiannually. This report applies to all base spare containers both associated and unassociated WR shipping containers, bomb hand trucks, and other DOE items used to ship major assemblies. TO 11N-100-4 lists the reportable items. Some shipping containers require additional H-equipment to be considered serviceable. These additional H-equipment items are identified in the notes under the table in TO 11N-100-4 and should be available on a one-for-one basis. Figure 3-3 shows excerpts of reportable items from TO 11N-100-4. Report each container as unserviceable if the additional item is not available. Identify shortages in the Remarks column and order H-item replacements through normal supply channels.

### INVENTORY OF WR CONTAINERS

1	H794	B53	1190-00-734-3541	320190-00
	H794		1190-00-728-3851	320190-01
2	H805		8140-00-731-1189	320201-00
3	H809		8140-00-731-1199	320205-00
4	H810		8140-00-731-1190	320206-00
5	H1095	B83	1190-00-987-2699	320464-00
			1190-01-380-8117	320464-01
6	H1125A	B61	1190-01-361-3371	413173-00
	H1242		1190-00-051-2661	320602-00
	H1242		1190-00-404-6827	320602-01
7	H1671 <sup>1</sup>	B61-11/ALT349	1190-01-486-3473	413914-00
8	H1138A	W56	1190-00-496-9453	320586-00
	H1138A		1190-00-866-3384	320586-01
9	H1224A <sup>2</sup>	W62/W78	8140-01-063-0040	316847-00
	H1223B <sup>3</sup>		8140-01-062-5453	316848-00
	H1224A <sup>3</sup>		8140-01-081-8893	316847-01
	H1224A <sup>3</sup>		8140-01-414-1597	316847-02
	H1224A <sup>4</sup>		1190-01-507-7927	459278-00
10	H1333B	W76	8140-01-273-2881	410606-00
	H1333B		8140-01-517-5034	410606-01
Note: Specified containers require the following additional items of H equipment before the basic container may be considered serviceable as designed (see paragraph Paragraphs 7–6.2 for specific instructions. Each H1473 requires H1476, H1476A, H1477, H1474, and H1475 to be serviceable.				

1. Each H1671 requires H1242

2. This is a H1224A assembly without a H1223B insert. Each H1224A requires H1223B.

3. This is the H1223B insret. The H1224A requires the H1223B.

4. This is an H1224A assembly with H1223B insert (P/N 459278-00). Both must be in serviceable condition to be reported in this configuration.

**Figure 3-3. Excerpts from TO 11N-100-4.**

TO 11N-100-4 gives information on how to complete this report. AFI 21-203 gives additional CAR information. The CAR includes all associated and unassociated WR shipping containers for items listed in TO 11N-100-4, including quantities of base spare (BS) assets. DOD units prepare their container asset report in conjunction with the Semiannual Inventory Report (SIR) as of the last working day of February and August. Prepare the report using the format provided in 11N-100-4 or

by using the CAR format contained in DIAMONDS. You can use DIAMONDS to send CARs as long as all required recipients are notified.

### **Quality Assurance Service Test Status Report**

Prepare and submit Quality Assurance Service Test (QAST) Status Report (QSR) for other major assemblies (OMA) as outlined in TP 100-3150, using DIAMONDS. OMAs are similar to WR weapons in physical characteristics, but are not used for training, testing or evaluation purposes. Test and Training Items (TTI) are specially designed to test weapons, weapons materiel, or operations involving the testing of weapons or weapons materiel. The purpose of this report is to make sure of accurate accountability between DOD and DOE of SS nuclear materiel. Requirements for inventory and reconciliation of SS materiel between DOD and DOE are covered in TO 11N-100-4. Units are required to do a semiannual reconciliation of SS account items and forward the results to DTRA. Source and special nuclear materiel is defined as essential substances used in the production of nuclear components for nuclear weapons as outlined in the Atomic Energy Act of 1954.

The QSR report is similar in format to the WSR. Reporting requirements apply to all OMAs that may or may not contain SS materiel. Reporting is by end item type (using a modified weapon code), and serial number. If a reporting activity can verify an item either does or does not contain reportable quantities of SS materiel, they report the item as such using the appropriate letter in the fourth position of the OMA code (see TP 100-3150 for codes). This verification is accomplished by reviewing the DOE/NRC Form 741 delivered to the service when the item is originally delivered. The DOE/Nuclear Regulatory Commission (NRC) Form 741, Nuclear Materiel Transaction Report, indicates which SS materiel items are contained within the OMA.

If a reporting activity cannot verify whether or not an item contains reportable quantities of SS materiel, they must report the item using the Unknown identifier in the fourth position of the OMA code. DTRA then determines whether the item does or does not contain reportable quantities of SS materiel through coordination with DOE. Once an item is verified and properly entered into the DTRA database, you don't need to verify the presence or lack of SS materiel again.

For OMAs shipped between Air Force activities, make sure the receiving activity is an info addressee on the shipper's QSR. The receiving activity then uses the OMA item code from the shipper's QSR to verify the presence or lack of SS materiel.

### **Location Inventory Listing**

NARS personnel are the point of contact for the Location Inventory Listing and maintain a master copy. This report contains unit stockpile information extracted from the Nuclear Management Information System (NUMIS) database at DTRA. DTRA/CSNOA prepares the LIL monthly and publishes it on the DIAMONDS Support Center. The purpose of the report is to provide monthly reconciliation of unit records contained in DIAMONDS and stockpile information contained in NUMIS. It also provides the unit a management tool for scheduling maintenance, and managing maintenance activities. To make sure of the ability to reconcile the LIL each month, NARS personnel must post changes to the master copy of the LIL as they are reported by way of WSR. The LIL may be posted using a hard copy or electronically using the MS-Word® version distributed by DTRA

### ***Posting the LIL***

Posting copies of the LIL in other duty sections is optional. If other sections post their LIL, they should post portions of the LIL applicable to their duty section in a manner similar to that required of NARS personnel. This type of standardization between NARS and maintenance aids in the accountability of nuclear weapons and/or components.

### ***Posting changes***

At a minimum the following are examples of actions that require updating the LIL and must be posted by NARS personnel:

- Weapon shipment and receipts, changes to weapon codes, charge code changes, and alpha alt code changes in Part I.
- Changes to unassociated LLCs in Part II.
- Changes to installed LLC serial numbers, component codes, and due dates in Part III.
- Changes to in-hand (IH) and or on-hand (OH) status and changes to OUICs in Part IV.

### *Posting changes electronically*

Procedures for posting changes to the electronic versions of the LIL are covered in AFI 21-204 and are as follows:

- Use a fixed font and turn on track the changes.
- For additions (i.e., new weapon, or LLC received or removed) enter the information on a new line, using spaces to align appropriate entries with the corresponding information and column headings for the line above.
- For deletions (i.e., weapon, or LLC shipped or installed), delete the entire line.
- For changes, delete the old information (serial number, due date, IH or OH, charge code, etc.) on the original line and enter the new information on a new line below, using spaces to properly align the entry with the old information on the line above.

### *Reconciliation*

Monthly LIL reconciliation must occur within five duty days of receipt; NARS personnel reconcile the new LIL against changes made on the old LIL. Transactions reported after the effective date of the LIL, but before its receipt, are carried forward. Once the LIL is reconciled, the NARS individual who performed the reconciliation signs and dates the cover page of the report. If the LIL is posted electronically, perform this annotation in Microsoft Word®.

There is also a semiannual LIL reconciliation. NARS personnel verify the accuracy of the master copy of the LIL against information contained on the completed blind inventory worksheets.

## **224. Additional inventories and reports**

The inventory process involves the physical counting of property, comparing this count to record balances, identifying and correcting any discrepancies, and reporting the results of the inventory.

Your role in the inventory process depends on the type of inventory being performed and your shop's designated responsibilities. The MASO at each unit develops local operating instructions to make sure of compliance with TP 100-3150 and AFI 21-204, both outlining specific inventory procedures and reporting requirements. There are two main types of stockpile inventories:

1. Semiannual Inventory Report (SIR).
2. Stockpile Emergency Verification (SEV).

### **Semiannual Inventory Report**

The SIR is an independent inventory that reports the status, location, and configuration of the national nuclear weapon stockpile (including any trainers with SS materiel) by serial number and quantity for each location. Once initiated, the semiannual inventory takes precedence over all maintenance activities. Situations may arise during the inventory that dictates the need for reportable maintenance. Final approval and/or disapproval for mission essential maintenance rest with the MX/SUPT. The SIR provides a visual inventory and reconciles the unit's accountable records with the National Nuclear Weapons Stockpile Data Base maintained by DTRA. Two commissioned officers perform the SIR. One the ( MASO) is appointed as the inventory officer and the other as the verifying officer. The commander appoints the verifying officer in writing; this individual must be a disinterested party assigned to a different unit. The SIR requires a visual inventory of each weapon and unassociated component by serial number.



During semiannual inventories you do not reopen items stored in containers previously opened, inspected, and sealed by the accountable unit provided the information obtained from the exterior of the container and the seal and/or serial number list maintained by the MASO match. Any irresolvable discrepancies between the information on the exterior of the container and the seal and/or serial number listings require opening the container for verification. AFI 21-204 gives specific seal procedures.

### ***Blind inventory procedures***

Perform the SIR using “blind inventory” procedures to increase the probability that the stockpile and unit accountable records agree. A blind inventory is conducted without prepared lists of stockpile totals or serial numbers. A blind inventory worksheet is a locally developed worksheet used to record item identification, locations, quantities, configuration and serial numbers (if applicable) of items being inventoried. At the beginning of the inventory, the worksheet is blank except for a part number, and column headings for location, quantity, serial number, or other information to be recorded during the inventory. No specific identifying information pertaining to the items being inventoried is included on the worksheet until the items are visually verified (hence the term blind inventory).

As the inventory is conducted, information pertaining to the specific items found during the inventory is added to the worksheet as each item is visually verified. Write the serial numbers, location, and quantity of reportable items on the worksheet during the visual verification. Afterwards, compare the visual results with unit inventory records.

### ***Saddlebag inventory***

Immediately before or during the semiannual inventory, maintenance people take an inventory of saddlebags and accessory items identified in the inspection section of applicable TOs. Shortages must be thoroughly researched to determine causes and to locate missing items. Submit requisitions to replace items that can't be found and establish controls to prevent the recurrence of shortages. A missing accessory does *not* affect the operational status of a weapon *unless* the weapon *cannot* be used to support current mission requirements. Send a letter certifying saddlebag inventory to the MASO within five workdays of the inventory. The MASO keeps this letter on file until they receive the next inventory certification.

### ***SIR record verification***

After the blind inventory is complete, and before transmission of the SIR message, verify quantities, part numbers, serial numbers, color codes, and ALT configurations on the following documents as applicable:

- Blind inventory worksheets.
- Inventory count cards.
- Printed copy of SIR message.
- The LIL (as currently annotated).
- Weapons Custody Listing (if MASO is not also the Weapons custodian).
- Balances on Stock Records.

Submission of the SIR verifies that both the SIR and saddlebag inventories were performed. This is the *only requirement* for reporting accessory items. Conduct SIR inventories as of the last day of the inventory month. If assigned to Munitions Operations as a NARS monitor, you use DIAMONDS to prepare a SIR. Prepare and submit it as outlined in TP 100-3150.

### ***SIR reconciliation***

After the SIR is transmitted, DTRA/CSNOA reconciles each unit's SIR report against the DTRA NUMIS database. If SIR errors exist, DTRA notifies the unit through the parent MAJCOM. The unit resolves the discrepancy and submits a corrected report according to TP 100-3150. If no errors exist,

or once any errors have been corrected, DTRA transmits a SIR reconciliation message. This message confirms to the unit and the parent MAJCOM that the unit's records agree with the NUMIS database as of the SIR date.

### **Stockpile emergency verification**

The Joint Staff (JS) may direct a SEV following a threat assessment. The SEV is the major information source for the President, SECDEF, and the JS for verifying the DOD nuclear weapon stockpile is in the possession of authorized DOD agents. It is a rapid inventory process used to promptly confirm that all (or specified portions) of the DOD nuclear stockpile weapons are in DOD custody or that a discrepancy exists. The SEV requires a physical weapon count compared with accountable records, followed by physical serial number verification, and reconciliation with the Weapons custody list (WCL) provided by DTRA. The WCL is an extract from the Stockpile Database showing a unit's nuclear assets by serial number. Containerized weapons within the scope of the SEV must be opened to verify contents regardless of whether or not they were previously sealed by the unit.

The JS initiates and terminates SEV and SEV tests. They send a FLASH or IMMEDIATE message containing SEV parameters through the National Military Command Center (NMCC) to DTRA, combatant commanders (CINC), and services. SEVs may be limited to specific locations or types of weapons. Once notified of the SEV parameters, DTRA prepares and transmits the WCLs. Upon direction of a SEV, each responsible unit begins Phase I, immediately followed by Phase II. Speed and accuracy are extremely important. Opening and closing structures are a joint effort within the flight to expedite the count by munitions operations personnel.

#### ***Phase I***

The SEV notification message states whether your unit must perform a physical verification or records check verification.

#### ***Records check verification***

For records check verification, compare weapon serial numbers from your unit accountable records against the WCL provided from DTRA. No physical verification actions are required. No Phase I actions or reports are required (only Phase II reporting is required).

#### ***Physical verification***

This is a physical count of all nuclear weapons (without any disassembly or removal from containers) compared with unit accountability records. When performing a physical count, submit a report when Phase I actions are completed. If Phase I actions are not complete within four hours after SEV initiation, submit an interim report and provide an update status every two hours until completion. Send reports by any secure means available.

#### ***Phase II***

Immediately start Phase II after Phase I is completed. Phase II consists of a physical *serial number* verification of weapons with accountable records and with the WCL provided by DTRA. Permanently etched or stamped weapons serial numbers will be used when performing verifications except as noted in TP 100-3150. Transmit Phase II SEV reports to the applicable Service Logistic Agent. If Phase II actions are not completed within eight hours after SEV initiation, submit an interim report and update the status every four hours until complete.

The JS initiates and terminates the semiannual SEV tests using standard SEV procedures. The only difference is the phrase "Stockpile Emergency Verification Test" or "SEV Test" is substituted for "Stockpile Emergency Verification," and the sentence "This is a test of the Stockpile Emergency Verification System" begins and ends both voice and recorded messages.



TP 100-3150 gives instructions for completing and addressing SEV reports. The DIAMONDS system is used to generate the Phase II Completion Report, Phase II Discrepancy Report, and the After Action Report. If your accountable records disagree with the WCL, submit a SEV Discrepancy Report. The After Action Report is separate from the Phase II Completion Report; submit it within two working days after termination of the SEV.

### **Other NARS inventories**

Let's take a look at the requirements for inventories and audits of nuclear accounts. Periodic inventories make sure account balances and item configurations are accurately reflected on the account. Verification by an independent inventory-verifying officer is required by DOD regulations for TP 100-3150 reportable items.

### ***Change of MASO inventory***

Each time a new MASO is assigned, the gaining and losing MASOs conduct a joint 100 percent inventory as of the effective date of the transfer of accountability. Complete a Certificate of Transfer of Accountability according to TO 11N-100-4. Include both Base Document Register and Requisition and Shipping Document Register numbers on the certificate.

**NOTE:** You can also use semiannual inventories to suffice for the requirement for a change of MASO provided both gaining and losing MASOs participate in the inventory along with the disinterested officer and provided no transactions affecting stock record balances occur between the effective date of the inventory and the effective date of the transfer of accountability.

For inventories that are not conducted in conjunction with a SIR, use the same procedures as a semiannual inventory with the following exceptions:

- Do not appoint a disinterested verifying officer. The gaining MASO is the inventory officer and the losing MASO is the verifying officer.
- Do not submit a SIR, and do not prepare an Inventory Verification Certificate.
- A saddlebag inventory is not required.
- Except for TO 11N-100-3150 reportable items, do not inventory items on custody accounts.

### ***Monthly spot checks***

Each month, except for SIR months, select for inventory at least 10 percent of the part numbers with current warehouse balances on the account. This inventory does not apply to TO 11N-100-3150 reportable items or items issued to custodians. Inventory by quantity and location, and reconcile against account stock records for those part numbers. Resolve any discrepancies and report any irresolvable discrepancies to the weapons activity commander to initiate a Report of Survey or other appropriate action.

### ***Special inventories***

The most common special inventory is the SEV, which we discussed earlier. Command authorities or the MASO may direct other special inventories as needed to determine accountability or status of items as required.

### ***Inventory documentation***

Prepare DIAMONDS generated inventory count cards (or prepare manually using AF Form 85A, Inventory Count Card) for TO 11N-100-3150 reportable items (except trainers, which are accounted for in Standard Base Supply System/Air Force Equipment Management System [SBSS/AFEMS]), and for each part number with a warehouse balance on the account. Do not prepare inventory count cards for items on custody accounts of reparable item custodians. Prepare a separate card for serviceable and unserviceable items of the same part number. If the information on any card is classified, then classify the card according to the applicable classification guide.

For TP 100–3150 reporting purposes only, inventory trainers containing DOE SS nuclear materiel during the SIR. They are not on the nuclear account and do not require inventory count cards or other stock record accounting documentation not associated with the SIR.

The following table lists the documentation required for each type of inventory:

Documentation required for each type of inventory					
Actions Required	SIR	MASO Change	Custodian Change	Monthly 10 Percent Inventory	Special (See Notes)
Blind inventory worksheets	X	X	X		X
Verified and initialed inventory count cards	X	X			
Appointment letter for inventory verifying officer	X				
Appointment orders for the Inventory Verifying Officer to audit the account	X				
SIR message and Certificate of Inventory prepared according to TP 100–3150	X				
Saddle bag inventory letter, if applicable	X				
Audit Certificate	X				
SIR Reconciliation Message	X				
DIAMONDS backup database from the date of the inventory	X	X			
Spare SE Custody Listing	X		X	X	
<b>NOTE:</b> For SEV, see TP 100–3150.					

As you can see, NARS is a mentally taxing job due to the amount of attention to detail that goes into preparing, managing, and accounting for the nuclear accounts and documents thusly generated.

### Self-Test Questions

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

#### 222. Processing weapon and container records and reports

1. List the existing programs that DIAMONDS combines.
2. How is a DIAMONDS system administrator appointed?
3. How is the information reported on a WIR used?
4. What actions require a WIR?

5. Which TO gives instructions for filling out WIRs?
6. When filling out a WIR, if information is not available or applicable for a particular area what do you do?
7. What will assist you in creating or modifying current WIR data in DIAMONDS?
8. What are you prompted to select before taking any Create and/or Modify actions on a WIR?
9. When do you use the EIRC amplification area in DIAMONDS?
10. What is the classification of EIRCs?
11. How many sections make up the EIRC?
12. On the EIRC, name the items the heading portion shows.
13. When an operation is performed in DIAMONDS that would involve a change to the heading information, what does DIAMONDS do to the EIRC?
14. What do you annotate in the OPERATION PERFORMED column of the EIRC?
15. Does DIAMONDS support lining through entries?
16. Can the correction of standing entries on the EIRC be accomplished on the laptop?
17. What must the recording activity do before correcting long-standing entries that are obviously in error, believed to be in error, or made by other DOD organizations?

18. For EIRC, how are erroneous or missing entries corrected that do not affect the current weapon status?
19. How are signatures recorded of the technician and/or IRC monitor who corrects EIRC entries?
20. How do you update the heading block when ALTS are performed?
21. When do you submit an SCR?
22. List four examples of SCR reportable changes.
23. When is a SCR prepared that involves shipment?
24. For components packaged in the H1616 container, how do you perform the receipt and verification inspection?
25. What two signatures are required on a buildup sheet for final assembly?

**223. Processing status asset and quality reports**

1. Who uses the information provided by WSRs?
2. What serves as a source document for preparing the WSR?
3. When must you submit a WSR?
4. List some reasons to submit a WSR when a change occurs to a nuclear weapon or component.
5. Who must submit a CAR?

6. If shipping containers require additional H-equipment items, how should they be made available?
7. Where do you find information to complete the CAR?
8. What items do you include in the CAR?
9. When do you prepare the CAR?
10. What is an OMA?
11. When are units required to do a reconciliation of SS materiel with DTRA?
12. What is the definition of SS materiel?
13. What form do we use to indicate the SS materiel items contained within an OMA?
14. What is the purpose of the LIL?
15. List some examples of actions that require updating the LIL.
16. When do you reconcile the LIL?

#### **224. Additional inventories and reports**

1. What determines your role in the inventory process?
2. What are the two types of stockpile inventories?

3. What is the SIR?
4. Who performs the SIR and what does the SIR provide?
5. What items are not opened during semiannual inventories?
6. Explain how the SIR uses “blind inventory” procedures.
7. When do you perform the inventory of saddlebags and accessories?
8. When does a missing accessory affect the operational status of a weapon?
9. How long is the saddlebag inventory letter kept on file?
10. How do you prepare and submit the SIR?
11. What is the purpose of the SEV?
12. What three areas does the SEV check?
13. What is the WCL?
14. How does the JS initiate a SEV?
15. What actions are required for records check verification?

16. What happens if Phase I physical verification actions are not completed within four hours after SEV initiation?
17. When does Phase II start?
18. What verification procedures do you perform during Phase II?
19. How can you tell the difference between an actual SEV and a SEV test?
20. When do you submit the After Action Report?
21. Who conducts a change of MASO inventory?
22. What is the requirement if a change of MASO inventory is done in combination with a semiannual inventory?
23. A monthly spot inventory consists of what?
24. When do you prepare DIAMONDS generated inventory count cards or prepare them manually using AF IMT 85A, Inventory Count Card?
25. What documentation and/or actions are required for a change of MASO inventory?

### **3-4. Use Control**

Use control (UC) is controlling the unauthorized use or detonation of a nuclear weapon including passive and active protection, and disablement systems. Because we face a technologically advanced enemy, we are very sure that hostile parties have the capability to implant devices in our coding and recoding equipment, especially while those items are stored in unclassified storage locations or handled by uncleared people. Then, during actual recode operations, these implanted devices can record the codes used. Later, after returning equipment to an unclassified storage location, the enemy removes the recording device. In this section, we discuss PAL, verifiable control procedures (VCP), and CDS. We also discuss some specific equipment used to perform PAL operations.

## 225. Control overview

Any information associated with nuclear weapons operations, and especially command and control codes (including PAL codes), is a high priority for espionage efforts. These codes can be recorded from any equipment that is physically connected to the controller (recoder and/or verifier), including the cables, adapters, and power supplies. For these reasons, VCP were developed to protect all associated equipment dealing with the PAL process.

### Equipment identifiers and terms

Identifiers were created because of the vast amount of equipment used in the Air Force. These identifiers associate related equipment items into groups depending on each item's function. Some identifiers for older models of PAL equipment that are still in use are:

- CT – cables.
- T – test equipment.

With software-based PAL equipment replacing the aging digital-dial PAL controllers, it became necessary to establish a new equipment designator category. Software and computer systems did not fit into the test equipment category. The UC equipment category provides control for all new equipment. As modern systems and equipment are employed into the field, further segregation of hardware and software is required. The first two positions in the identification number are alphanumeric with new equipment.

The table below lists some common identifiers:

Equipment Designator Categories	
Code	Description
UC	Controllers, decoders, recoders, and verifiers.
UD	Disablement equipment.
UH	Headquarters equipment.
UL	Use control cables and adapters.
UM	Miscellaneous equipment.
UP	Power supplies, chargers, batteries, converters, and transformers.
US	Use control software.
UT	Simulators and trainers.

To help you understand the UC equipment family, we clarify some terms in the following table:

Use Control Terms	
Term	Definition
Base station	A laptop personal computer (PC) used with Field Code Management System (CMS) that transfers files to and/or from HQ CMS and to and/or from the field processor (FP).
Code activated processor (CAP)	An enhanced cryptographic replacement for the multiple-code coded switch (MCCS). Enhancements over the MCCS include weapon ID and state of health checks.
Code check	An operation that verifies the selected code set into the coded switch of a weapon.



Use Control Terms	
Term	Definition
Command disable (CD) signals	Electrical signals to the CD subsystem, normally in a sustained sequence, that initiate and complete warhead disablement. CD signals may include a unique signal(s) required to enable the CD subsystem for disablement.
Command Disable Subsystem (CDSS)	A nuclear weapon subsystem integral to the physics package and a weapon electrical system (WES) exercised to intentionally disable the weapon.
Command Disable System (CDS)	A system internal to a bomb (with internal control devices) or a system internal to a warhead (but having external control devices) when activated destroys a weapon's ability to achieve a significant nuclear yield.
Command disablement (CD)	The process of intentionally disabling a nuclear weapon by initiating the weapon's CDSS, thus preventing use of the weapon in its intended mode of operation.
Communication module (CM)	A DOE-designed component that executes CM and weapon operations received from the FP.
Disabling (locking)	An operation when the activation of the coded switch in the weapon <i>precludes</i> (prevents) weapon arming.
Enabling (unlocking)	An operation when the activation of the coded switch in the weapon <i>permits</i> weapon arming.
Field processor	A handheld PC that transfers files and data to and/or from the base station and the communications module. It also provides display and selection of field operations.
Inhibited code	A code stored in a multiple-code switch, once used to perform a lock operation or Active Protection System (APS) off operation. Any attempt to perform a lock, unlock, APS off, or recode operation using an inhibited code will be unsuccessful.
Limited try feature	A feature that stops "guessing" the correct code. Some categories of PAL have a feature that prevents future attempts to access the switch after a predetermined number of tries using incorrect codes. Code tries in excess of an established number may result in a delay or lockout.
Multiple-code coded switch (MCCS)	The MCCS is a coded switch that responds to any one of several correct codes.
Multiple-code coded switch encryption translator (MET)	An encryption processor designed for retrofitting older weapons currently equipped with an MCCS. The MCCS remains in the weapon; when used in conjunction with the MET, it provides all of the encryption capabilities of a CAP equipped weapon.
Nonviolent disablement	A nuclear weapons disablement process through the destruction or disassociation of one or more key components, temporarily destroys a weapons ability to be used in its intended mode. Confinement of the effects of disablement is to the weapon case and is not hazardous to nearby people at the time of disablement.
Recoding	The act of changing a code that was previously set into the coded switch of a weapon. This allows the weapon switch to respond when you insert a new code.
Uninhibited code	One of the codes stored in the MCCS. It's used repeatedly during an all codes recode operation.
Weapon status check	The operation you perform to check the locked (disenabled) or unlocked (enabled) status of the weapon coded switch.

### Command Disablement System

The CDS provides a nonviolent alternative to other emergency destruction disablement options by damaging internal critical components and rendering the weapon tactically useless. CDS requires the use of a classified 3-digit code on the preflight panel (fig. 3-4) or the aircraft monitor and control (AMAC) controller, depending on the weapon type.

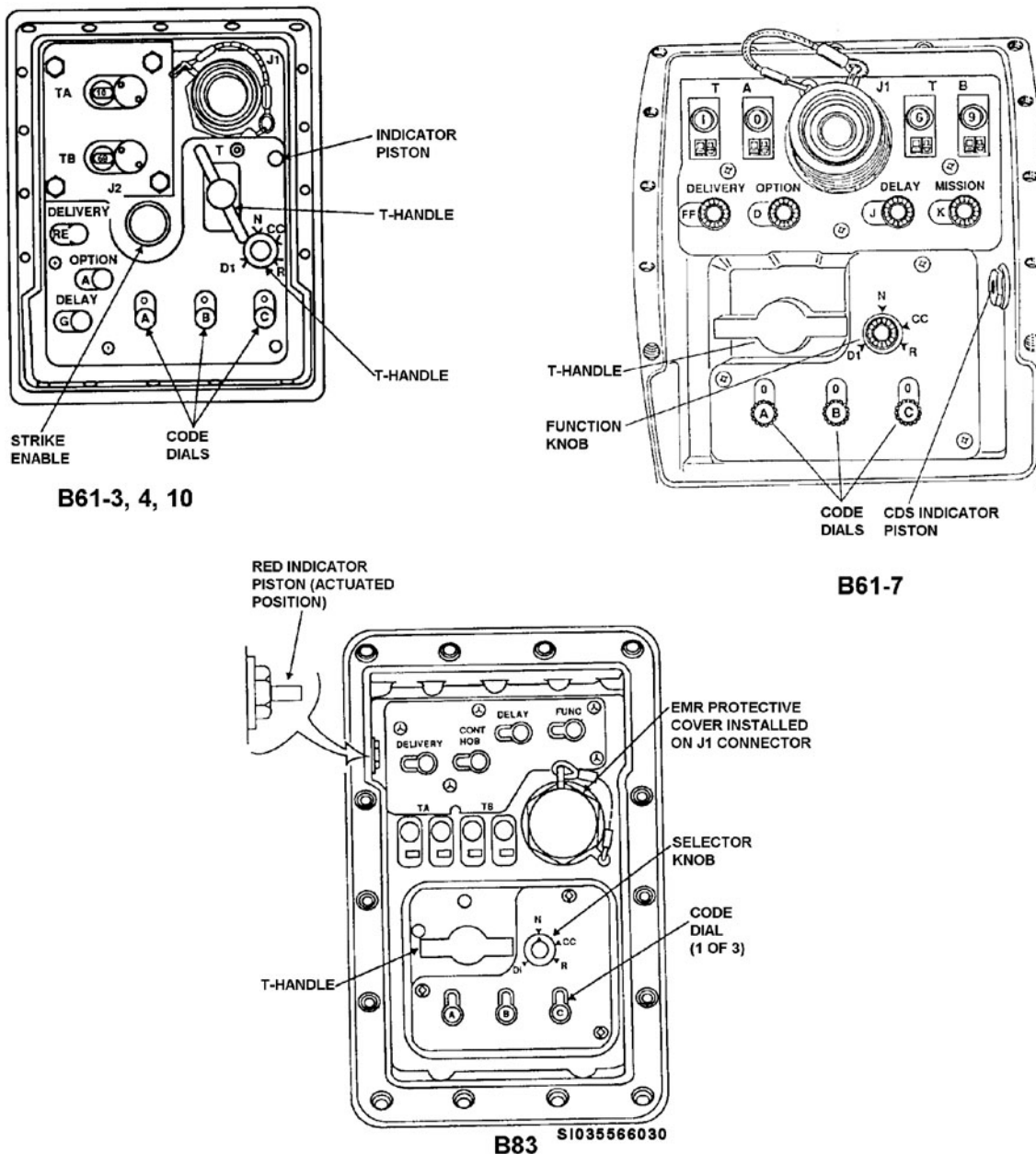


Figure 3-4. Preflight controllers.

We perform CDS procedures on WR weapons *only* when directed to do so by proper authority. The coded switch incorporates three dials for entering the 3-digit code and a function knob for selecting disablement, disablement abort, recode, and code check operations. The function knob determines the operation of the switch.

The following are operational markings:

- N—neutral.
- CC—code check.
- R—recode.
- DI—disable.

Use a normal, smooth rotation when turning the function knob. An excessively quick rotation may damage the CDS controls. The function knob will *not* rotate if an incorrect code is set into the coded switch. The user must reset the code dials to 0-0-0 and enter the correct code before they attempt to turn the function knob. Refer to figure 3-4 as we discuss CDS activation procedures:

1. Open the access door and make sure the function knob is set to N.
2. Check that code dials are set to 0-0-0.
3. Moving from left to right, set the correct code into each code dial (rotating knob clockwise).
4. Rotate the function knob counterclockwise to DI and pull the T-handle from its socket.
5. Observe that the indicator piston extends above the panel surface confirming successful disablement.
6. Close the access door and maintain control of the T-handle.

Weapon disablement is indicated when the red indicator piston protrudes above the face of the preflight panel. On B61s, the red portion of the indicator piston extends approximately 0.2 inch. On B83s, the red portion of the indicator piston extends approximately ¼ inch.

If disablement is not required after rotating the function knob to DI, perform disablement abort procedures. Reset code dials counterclockwise to 0-0-0, redial the correct code, and rotate the function knob to N. Finally, reset the code dials counterclockwise to 0-0-0.

Instructions for the regulation of CDS codes are in MAJCOM specific directives. Prepare CDS codes for shipment according to TO 11N-45-51A and MAJCOM directives. Access to CDS codes for shipment is according to applicable Service and/or DOE procedures. The shipping organizations make sure nuclear weapons have a classified CDS code recoded into the device for shipment. The minimum classification for the code is Confidential Formerly Restricted Data, and the classification applies from the time of its selection until completing the logistic movement. The shipper selects a combination of random numbers for the CDS code. The same CDS code is used for all weapons in a shipment. Knowledge of CDS codes is restricted to the minimum number of people required to produce the codes and recode the weapons. Knowledge of CDS codes by unauthorized people constitutes compromise, and recoding is necessary.

Prepare the CDS code by, writing the CDS code on a 3 × 5 card and place the card in a sealed opaque envelope. Clearly mark this envelope with CONFIDENTIAL FORMERLY RESTRICTED DATA, CDS CODE OPEN ONLY FOR DISABLEMENT OR RECODING. Then, place this envelope in an outer envelope clearly marked CDS CODE. Finally, mark the envelope with the serial numbers of the weapons to which the code applies. The shipping activity receives verbal confirmation from the courier that the courier and at least one additional aircrew member are trained and knowledgeable of performing CDS procedures. The custody transfer of these codes occurs at the same time the courier signs for the weapons. The message traffic or mission tasking order (MTO) must state that a classified CDS code is required for shipment.

### **Verifiable control procedures**

The concepts of VCP enhance the accountability, verification, and control of PAL equipment used in conjunction with weapons coding, recoding, and code verification. It provides units with the capability to deter and detect hostile exploitation of nuclear weapons use control equipment. TO

11N-50-4, *Verifiable Control Procedures (VCP) for Permissive Action Link (PAL) Equipment* gives specific storage and handling procedures. Remember, always refer to the TO for procedures and when questions arise. Here you receive a general overview of handling, storage, and inspection procedures for VCP items.

### ***Tamper detection indicators***

Tamper detection indicators (TDI), approved by the NSA, are used on designated coding equipment to detect attempts to modify, penetrate, bypass, or substitute the equipment. TDIs provide units with the capability to deter and detect hostile exploitation of PAL equipment. The types of TDIs used are holographic seals, screw head coatings, and holographic stickers.

### ***Classes of equipment***

Equipment used in PAL recoding and/or verification operations is divided into four basic categories:

- Class 1—equipment, used in the recode and/or verification operations and may or may not be VCP.
- Class 1A—power supplies used in the recoding and/or verification operations.
- Class 2—equipment not used in recode and/or verification operations.
- Class 3—equipment, used in the recode and/or verification operations and has VCP and requires two-person control.

### ***User and reoccurring inspections***

As a minimum, inventory items and inspect for the integrity of TDIs. Look for signs of obvious tampering according to the appropriate equipment technical publication and procedures in TO 11N-50-4. Perform these inspection procedures after installation or before removal of seals, before each day's use or once annually (whichever comes first), and anytime tampering is suspected or a deviation is noted. The first step of VCP is to verify that PAL equipment does not contain unauthorized modifications, which could result in a compromise of the PAL system. Once you do this, apply TDIs. After TDIs are in place, it is necessary to control the equipment so that any attempt at unauthorized modification is detectable. The NSA, VCP team, normally accomplishes this. They do routine inspections every two-three years depending on the location. They check for anomalies in the equipment and cables using X-ray technology.

The inspection criteria of TDIs are listed in the following table:

<b>TDI Inspection Criteria</b>	
<b>Holographic Seals and Stickers</b>	<b>Screw head Coatings</b>
Type 1 Seal: The seal must contain five identical large VCP logos in the same position.	The screw head coating must fill the VCP bushing completely and cover the head of the screw. Minor exposed areas are permitted as long as complete access to the screwhead is not permitted.
Type 2 Seal: The seal must contain three identical large snake images with three rings behind each snake in the same position. Each ring set contains three orbiting electrons.	The color must be orange, yellow, or marbled yellowish green.
Type 3 Seal: The seal is copper in color and contains three large image locations. Each location floats between a US flag and the head of a snake.	Permit scratches but the body of the coating must be intact with no visible cracks.
The seal must be holographic in nature when	

TDI Inspection Criteria	
Holographic Seals and Stickers	Screw head Coatings
viewed from different angles with a background of small VCP letters.	
The seal must reflect light and be multi-colored.	
The seal must be stamped or etched with a legible serial number.	
The seal must be free of irregularities such as tears and stains that would indicate signs of tampering.	
All edges of the seal must be smooth and securely fastened to the equipment surface.	

The stringent inspection criteria for TDIs help ensure integrity of the VCP program by indicating signs of tampering. These procedures enhance the accountability, verification, and control of PAL equipment.

You must report any tamper-evident bag discrepancies, Class 1 or Class 3 equipment anomalies, loss of control, TDI damage, or evidence of tampering. Class 1A and Class 2 equipment removed from use due to evidence of tampering is also reported. Send a message to NSA, the using activities' head quarters, and other agencies listed in TO 11N-50-4.

#### ***Loss of control inspection***

Perform a loss of control inspection anytime there is a loss of control of equipment. Criteria for this type of inspection are specifically outlined in TO 11N-50-4. Do inspections for Class 1A and Class 2 equipment according to the appropriate equipment TO.

#### ***Removal from the program***

Remove VCP equipment from the program when you find anomalies. The owning unit reports these anomalies through UR channels. Don't use questionable equipment until you receive proper UR response. After you receive a response, you can remove VCP seals and/or stickers.

#### ***Handling requirements***

While this equipment is in your possession, don't let it out of your personal control for any length of time. Do not allow unauthorized people to handle the equipment. If separated from the equipment for any reason, regain control immediately and notify your supervisors.

If evidence shows signs of tampering or a loss of control for any period of time, impound the equipment. Determine the reliability of the equipment and report the incident to the controlling authority. Do not release this equipment to anyone who does not have the proper clearance *and* indoctrination into VCP. Protect cables and adapters with the same care you provide the controller.

#### ***Storage requirements***

The following procedures are established to control PAL equipment when not in operational use:

- A locked alarmed structure, COMSEC vault, or area authorized for open storage of classified material.
- A safe secured with a single three-position (GSA-approved) combination lock.



- A metal cabinet modified with a locking bar and secured with a GSA approved three-position combination lock. The keeper or keepers and staples must be secured to the cabinet by welding, rivets, or peened bolts.

### Permissive action link

PAL electronically prevents the weapon from receiving any arming and fusing signals. PAL is similar to the lock on a car door—opening it does not start the car, it just allows you in the car. Turning the “key” would represent initiating the arming and firing sequence. Likewise, locking the PAL switch is like locking your car. No matter what you do, it still takes the same action to start the car once you are inside. PAL has an electronic coded switch that, when “locked,” prevents the weapon from receiving any arming and fusing signals. The coded switch locks or unlocks only with the correct electronic “combination” (signal) (fig. 3-5). Recoding the switch can change the “combination” or code.

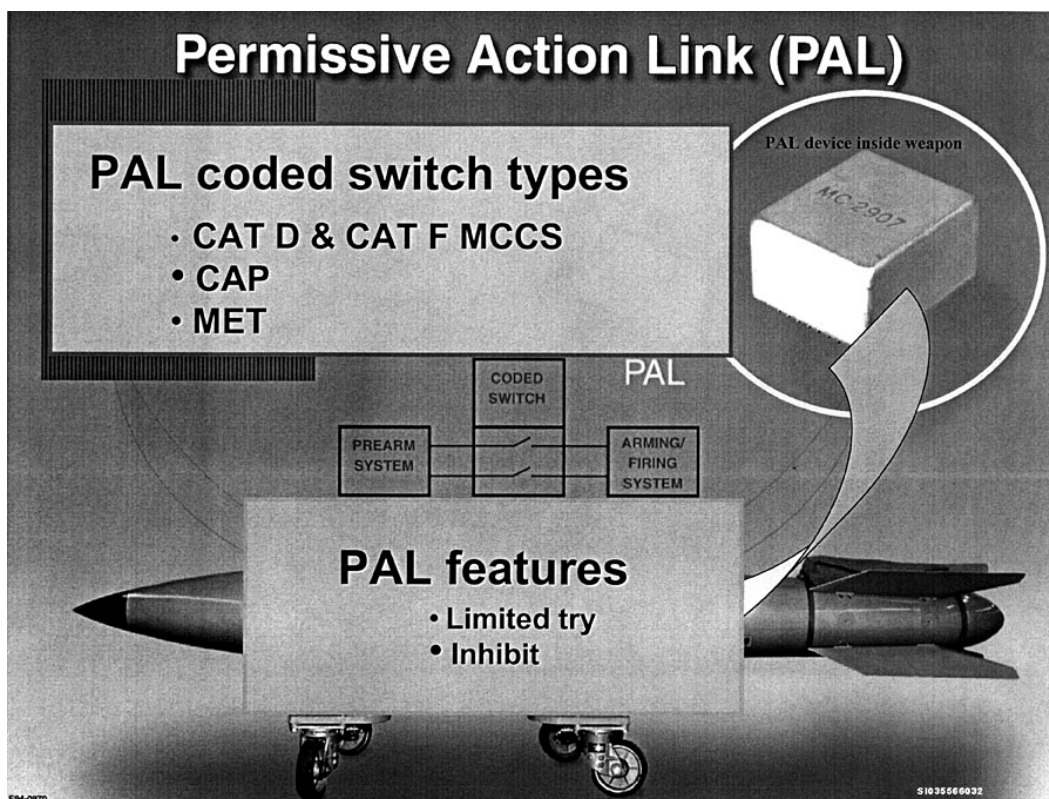


Figure 3-5. Permissive action link.

TO 11N-50-2, *Procedures for the Use and Control of Logistic Codes for PAL Equipped Weapons*, is the basic governing manual for PAL operations. Refer to figure 3-6 for the basic flow process. MAJCOMs have specific guidance that supplements this basic TO.

### Inventories

More than one person inventories PAL material. Inventory PAL material upon receipt and each time the container holding the material is opened. Conduct a monthly inventory for effective material and a quarterly one for reserve editions. Use hand receipts to transfer PAL material between equipment users and custodians.

## The Use Control Plan

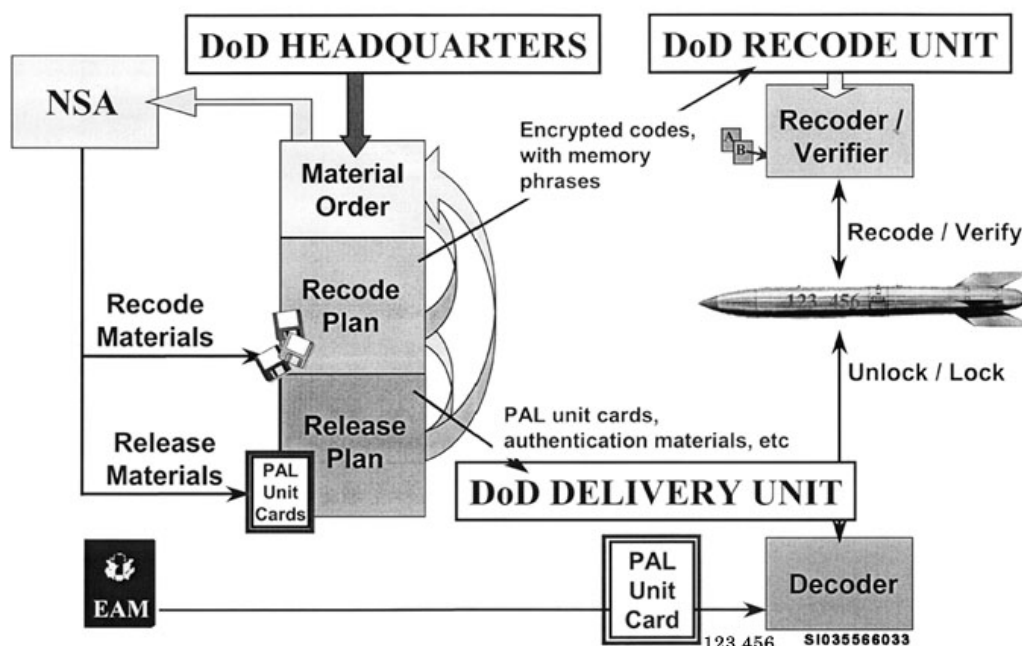


Figure 3-6. PAL Flow process.

### *Electronic inspection record card entries*

The area on PAL code changes or status changes deserves special attention. The performance of any PAL operation on a nuclear weapon requires an EIRC entry. At a minimum the following information is reflected on the EIRC for a RECODES or CODE CHECK:

- Type of Code (e.g., All Code or Single Code).
- Operation (e.g., Recode or Code Check).
- Code Type (e.g., Logistics Code, CLS ID xxxx/xxxx; Depot Code; Hang Code; Operational Code).
- Pal State (e.g., Locked or Unlocked).
- APS State (e.g., APS On, APS Off, APS Test).
- Equipment Used (e.g., T1563; UC1630, etc.).
- Equipment Serial Number.

If you are performing a PAL status check, you do not have to make an EIRC entry unless you get an incorrect indication. The MAJCOM, AFNWC, or DTRA may direct actions that require documentation on the EIRC (such as a strong-link monitor and/or continuity test on the B83 after initial receipt). Remember, when you have to make a PAL entry or any other entry, go to TO 11N-35-7, *Inspection Records* to find the correct entry for the operation performed and the type of code. EIRC entries for CDS-equipped weapons are almost the same as for PAL.

### **226. Code management system**

The Code Management System (CMS) employs encrypted code and key materials generated by NSA, and are comprised of a headquarters component (HQ CMS) and a field component (field CMS). HQ CMS decrypts NSA materials, forms them into encrypted field operations for use in the field, and verifies executed field operations. Field CMS executes HQ-generated field operations and returns verification data to HQ. In this lesson we cover the OCONUS and CONUS field CMS.

### Equipment description

The Field Code Management System (field CMS) hardware and software includes both DOE-designed equipment and DOD-purchased commercial off-the-shelf (COTS) equipment. TOs 11N-UC1620-2, *Operation Instructions, UC1620 with UC1630 Field Code Management System* (for OCONUS); or TO 11N-UC1620A-2, *Operation Instructions, UC1620 with UC1631 Field Code Management System* (for CONUS) covers installation, operations, troubleshooting, and maintenance of the field CMS hardware and software. Applicable manufacturers' manuals contain information for generic operating, troubleshooting, and maintenance for the COTS equipment. Information in the applicable technical manual (TO 11N-UC1620-2 or TO 11N-UC1620A-2) that concerns COTS equipment takes precedence over the manufacturer's manual.

### Outside continental United States field code management system

The OCONUS CMS (fig. 3-7) is a system that provides management of weapons codes and keys. It is divided into headquarters and field functions. HQ CMS functions include planning, material generating, and verification. Field CMS functions include performing weapon code and key operations.

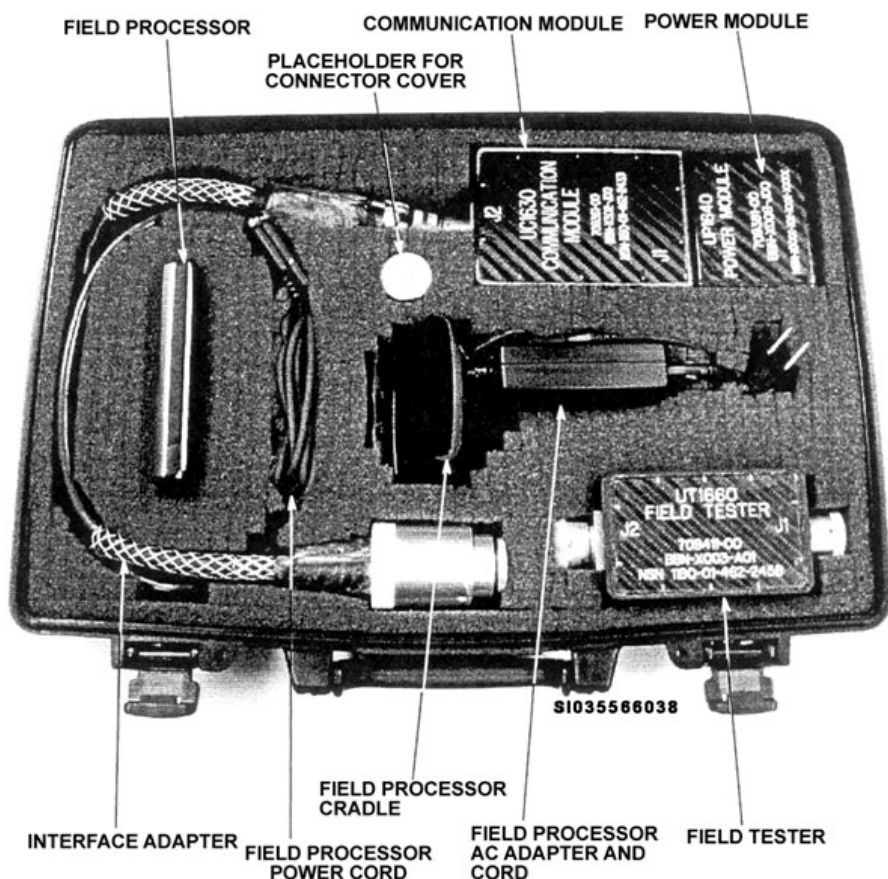


Figure 3-7. OCONUS CMS carrying case and components.

The following are some of the OCONUS field CMS's capabilities:

- Transfers file back and forth to HQ CMS.
- Executes field operations generated by HQ CMS.
- Performs secure recoder operations (encrypted recode and rekey operations) on MCCS Encryption Translator (MET)-equipped weapons.



- Builds data files from weapon recoder operations for verification with HQ CMS.
- Performs decoder operations (unlock and lock) on MET-equipped weapons.
- Performs weapons status checks.

The OCONUS field CMS includes the following components and functions:

- UC1620 field processor provides display and selection of field operations and builds monitor files.
- UC1621 base station transfers files between HQ CMS and field CMS using secure data communications and file transfer and provides file storage.
- UC1630 communication module executes field operations, creates and stores audit records, and responds to status requests.
- UP1640 power module provides power to the UC1630.
- UL1650 interface adapter connects the UC1630 to a weapon or authorized ancillary equipment.
- UT1660 field tester supports functional testing of the UC1630 and UL1650 interface adapter. Additionally, it verifies codes for decoder operations and aids in training.

### CONUS CMS

The CONUS CMS (fig. 3-8) is also divided into headquarters and field functions. HQ CMS functions include planning, material generating, and verification, and transmission of executable files to the field.

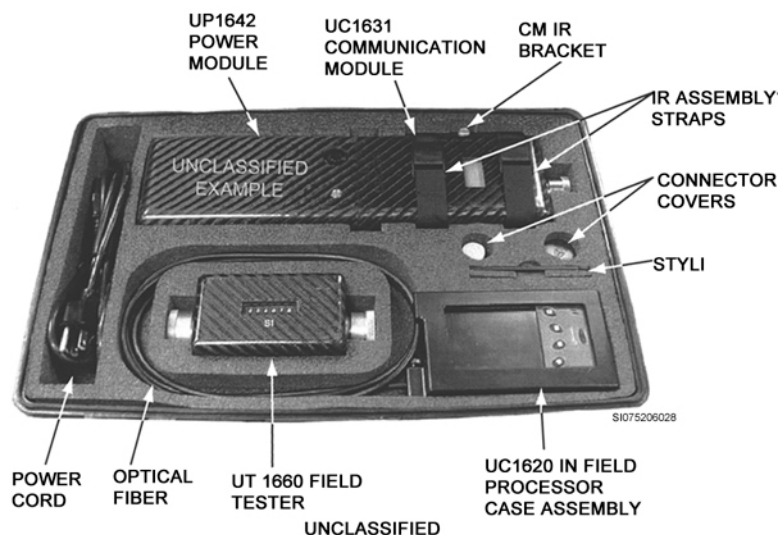


Figure 3-8. CONUS CMS components.

The following is a list of capabilities and functions of the CONUS field CMS:

- Transfers file back and forth to HQ CMS.
- Executes field operations generated by HQ CMS.
- Supports A team and B team authentication procedures to enable weapon and/or code enabling switch (CES) operations.
- Performs recoder operations on PAL-equipped weapons and CESs including:
  - Encryption-capable weapons with CAP or MET coded switches.

- PAL-equipped weapons with non-encryption-capable weapons with MCCS or MCCSS coded switches.
- CES coded switches.
- Builds audit records and monitor files from weapon and/or CES operations for verification with HQ CMS.
- Performs weapon and/or CES and UC1631 CM status checks.
- Supports zeroization of UC1631 CM data under duress conditions.

The CONUS field CMS includes the following components and functions:

- UC1620 field processor provides display and selection of field operations and builds monitor files.
- UC1621 base station transfers files between HQ CMS and field CMS using secure data communications and file transfer and provides file storage.
- UC1631 communication module executes field operations and creates and stores audit records from executed recorder operations.
- UP1641 power module provides power to the UC1631. It is *not* rechargeable.
- UL1651 interface adapter connects a UC1631 to a bomb or a UT1660.
- UL1652 interface adapter connects a UC1631 to a warhead or DE1015 adapter, or to a UT1660.
- UL1653 interface adapter connects the UC1631 to a warhead using a right-angled weapon connection.
- UL1654 interface adapter connects a UC1631 to a CES.
- UT1660 field tester supports functional testing of the UC1631 and connected interface adapter. Additionally, it verifies codes for decoder operations and aids in training.
- UL1661 field IR adapter provides shielded IR communication between the UC1620 and the UC1631 and must be attached when the UC1631 is powered.

### *UC1620 field processor*

The UC1620 (fig. 3-9) is used with both the OCONUS and CONUS CMS applications for performing field operations. The UC1620 is a handheld computer with typical mobile device features: touch sensitive screen, instant on/off power, rechargeable battery, and Infrared (IR) communication. The UC1620 has an IR port for data transfer to/from the UC1630/1631. The UC1620 serial number determines if it is used with the OCONUS or CONUS CMS application.



**Figure 3-9. UC1620 field processor.**

### *UC1621 base station*

The UC1621 (fig. 3-10) is used with both the OCONUS and CONUS CMS applications for storing and transferring field operation files. The UC1621 is a COTS laptop computer with a floppy and CD (compact disc) drives for file transfer and backup. UC1621 accessories include 110–240 volts alternating current (VAC) power adapter, mouse, serial cable (for use with secure telephone equipment, USB cable, and external zip drive. A docking station may be used to set up all connections. The UC1621 is preloaded with Microsoft Windows 2000, DOE-designed US1621 software for performing file transfer using STE secure telephones, and ActiveSync software to perform file transfer with the UC1620 field processor. The UC1621 is used for file storage, to transfer files between HQ CMS and field CMS using secure telephones and US1621 file transfer software, and to transfer files to and from the UC1620 using ActiveSync software.

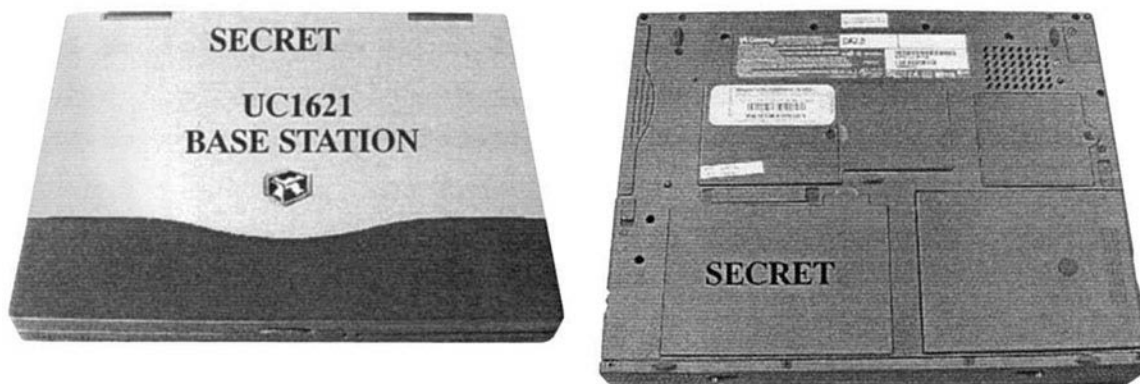


Figure 3-10. CMS base station.

### *UT1660 field tester*

The UT1660 (shown in figures is 3-7 and 3-8) are used with both OCONUS and CONUS CMS applications. The UT1660 is a multipurpose DOE-designed validation and training device. The UT1660 has a set of six numeric dials that may be set with the UC1620 replacement stylus, a ballpoint pen, or similar device. The UT1660 serial number determines if it is used with the UC1630 or UC1631.

### *Inspect and maintain*

Just like any other piece of equipment, the field CMS components require a physical inspection to determine if equipment is serviceable and undamaged. Inspect the COTS components for indications of abuse or apparent damage affecting serviceability. The communication module (CM), interface adapters, and field tester are DOE-designed components that are inspected for evidence of unauthorized disassembly or obvious penetration of the outer surfaces. Report suspected evidence of tampering to HQ CMS Inspect electrical connectors for damage per TO 11N-35-51, *General Instructions Applicable to Nuclear Weapons*. Make sure the carrying case's foam is serviceable. Verify all markings with the applicable technical manual. Verify that the power module and strap are securely attached to the CM.

### *Use*

The primary purpose of the field CMS is to execute weapon coded switch operations. At the start of the day, charge the field processor's battery. A fully charged field processor battery should last approximately eight hours. Then, transfer all files needed from the base station to the field processor. Next, select the operations that are going to be performed. Transfer this data to the communications module by way of the IR data port. Perform a functional check of the CM with the field tester, if a weapons operation is being performed. A CM functional check is also required at the end of the day. Connect the CM and field tester with the interface adapter. Perform operations loaded into the CM on

desired weapons. After all operations are complete, transfer monitor files back to the field processor and then to the base station. Finally, transmit the specific monitor files to the HQ CMS for verification, by way of STE phone in secure mode.

#### *Security requirements*

The OCONUS field CMS base station, field processor, and communications module have a Secret security classification. The field tester, power module, and interface adapter are unclassified. The OCONUS field CMS *does not* fall under the VCP program.

The CONUS field CMS base station, field processor, and communications module have a Secret security classification. The field tester, power modules, and interface adapters are unclassified. The communications module, field tester, power modules, and interface adapters *do* fall under the VCP program.

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### Self-Test Questions

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

#### **225. Use control procedures**

1. Why was it necessary to establish a UC equipment category?
2. What type of item is found under the US equipment identifier?
3. What is the definition of code check?
4. Explain command disablement (CD).
5. Explain the difference between disabling and enabling operations.
6. What is recoding?
7. What is the operation you perform to check the locked (disabled) or unlocked (enabled) status of the weapon coded switch?
8. What is the purpose of CDS?
9. What is necessary to operate CDS?

10. What operations can you select with the function knob?
11. What steps do you take if you enter an incorrect code into the coded switch?
12. Explain how to enter a code on the code dials.
13. After entering the correct code, what steps do you perform to complete disablement?
14. How do you verify weapon disablement?
15. Why do we use TDIs and who approves them?
16. What are the three types of TDIs?
17. How often do we perform TDI inspection procedures?
18. What course of action is required if there has been a loss of control or equipment shows evidence of tampering?
19. What type of safe is authorized for storing PAL equipment?
20. What does PAL do?
21. What are the PAL material inventory procedures?

**226. Code management system**

1. Which TO covers the OCONUS installation, operations, troubleshooting, and maintenance of the Field CMS hardware and software?

2. Which manual takes precedence concerning COTS equipment?
3. What are some of the OCONUS Field CMS capabilities?
4. List the CONUS components.
5. What pieces of equipment are used with both the OCONUS and CONUS CMS?
6. Who do you send a report to if you suspect evidence of tampering to the communication module, interface adapter, or field tester?
7. What is the primary purpose of the field CMS?
8. When is a functional check required for the communication module?
9. What is the security difference between the OCONUS and CONUS field CMS?

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### **Answers to Self-Test Questions**

#### **215**

1. FK for nuclear or FV for conventional.
2. Grade, AFSC, security clearance, training, experience, and PRP certification.
3. The MASO.
4. Shipment and receipt documents (with attached courier receipts, issue and turn-in, SCV, IAV, and MFR) documenting correction of accounts.
5. MASO lines through and initials next to the discrepancy.
6. By part number and NSN.
7. 24 months.
8. Annually on 1 April.

#### **216**

1. If a shipment is delayed 10 days or more.
2. DD Form 1348-1A, *DOD Single Line Item Release/Receipt Document*.
3. Enter "classified item" and the applicable item number in Item Nomenclature (item X), the serial number in Remarks (items AA, BB, etc.), and include the part number and serial number of all associated components (except LLC and parachutes) in Remarks (items DD and FF) and continue on the reverse side if necessary.

4. TO 11N-45-51A for the item number and unit cube; TO 11N-20-11 for the line number.
5. Procedures and distribution information for preparation of DD Forms 1348-1A for war reserve major assemblies, components, and test items.
6. AFI 21-203.
7. Signature and date of NARS person selecting item, UR number (if applicable) and other explanatory information.
8. Within 30 days for CONUS and 45 days for overseas.
9. Discard the suspense copy of the DD Form 1348-1A and attach the signed courier receipt to the original DD Form 1348-1A.
10. "SS materiel transferred under Presidential Directive War Reserve category."

**217**

1. TCTO and retrofit kits are normally force shipped to units based on quantities of items that the unit possesses requiring the TCTO or retrofit and you do not requisition the TCTO or Retrofit Kits unless specifically directed by the TCTO or Retrofit Order.
2. They are issued using consumption and custody procedures, as applicable.
3. 11N-40-1, *Field Modernization and Retrofit Orders*.
4. Munitions Control.

**218**

1. Knowledge on all facets of weapons accountability and have access to all required publications.
2. At least quarterly.
3. NCOIC of NARS.
4. DTRA local inventory listing.
5. Command allocation document or approved AF Form 1996.
6. MASO.
7. Status of nuclear weapons reporting activities from the previous six months.
8. Updated copy of the storage location planning report.

**219**

1. A classified message that provides managers at all levels critical information on upcoming (30-day requirements, 60-, and 90-day forecasts) shipping and receiving schedules for nuclear weapons and critical components.
2. AFNWC Logistics Division.
3. MAJCOMs.
4. No later than the 7th of each month for airlift and ground requirements for the next month (e.g., February requirements must be submitted by the 7th of January).
5. Do not schedule shipment of Type-3E load trainers, BDUs, MDUs, hand trucks, shipping and storage containers, or bolsters in the NOSS, except as opportune cargo with other scheduled shipments.

**220**

1. They should know their specific responsibilities, including those relative to the safety and security of the nuclear cargo and what to do in case of an en-route emergency such as accident, incident, or attempted hijacking.
2. AFJI 11-204, *Operational Procedures for Aircraft Carrying Hazardous Materiel*.
3. MAJCOM.
4. Local generations and higher headquarters inspections or exercises.
5. All relevant threat information known before or during the mission.
6. The transportation agency and/or shipper.
7. By way of a precoordinated worksheet or similar product, as long as all required material is covered and any changes that have occurred since the worksheet or similar product was filled out, is updated.



8. A signed acknowledgement, by the shipper and/or receiver and courier of the subjects covered.
9. Mission including the nature, hazard, and general safety requirements for shipping nuclear weapons cargo; Identification, classification, quantity, and hazard of the cargo; Identification of the authorized recipient of the cargo; two-person rule requirements; restrictions on additional cargo or passengers; emergency procedures.

**221**

1. A temporary sanctuary of a DOE convoy, at any CONUS military installation according to an approved agreement between DOE and DOD, due to an unscheduled or emergency event.
2. No.
3. Civil disorder; potential threats to the security of the shipment; natural disasters; adverse weather or road conditions; convoy vehicle equipment breakdown.
4. As soon as possible.
5. Provide a suitable temporary holding area for DOE shipments; Assume temporary responsibility for the security of the shipment if DOE Federal agents are incapacitated; Assume primary command responsibility and exercise control of emergency operations in the event of an accident involving radioactive materiel; Provide security, firefighting, explosive ordnance disposal, communications, and logistic support as necessary.

**222**

1. Publications (currently JNWPS), unsatisfactory reporting, unit level stockpile accounting and reporting,, stockpile tracking and reporting, logistics, mishap reporting (Dull Sword, Broken Arrow, etc.), maintenance bay and/or facility data entry and distribution IRCs, WIR, etc.), and decision support and forecasting.
2. In writing by the MX/SUPT.
3. To maintain records of component association to support stockpile quality studies.
4. Changes in association of any S materiel or of any serial and/or manufacturing-numbered weapon components associated with S materiel.
5. TO 11N-35-50.
6. Leave it blank, never disassemble an item merely to get a number.
7. Pop-up boxes with relevant weapon information.
8. A specific weapon.
9. If the standard EIRC entries do not fully describe the operation being performed.
10. Secret Formerly Restricted Data according to existing classification guides.
11. Two.
12. The production nomenclature designation (B61, B83, etc.) and the MOD number, the serial number, the ALT number(s) applied to the major assembly, and the DOE part number.
13. Automatically annotates an "X" in the HDG CHG column and updates the heading blocks at the top of the form.
14. Entries for all historically significant inspection or operational events specified in the assembly, test, storage, maintenance, and modernization manuals.
15. Yes.
16. No.
17. Forward the contemplated correction and receive authority to make the correction through channels for submitting URs.
18. They do not require correction or insertion if a later entry supersedes or encompasses the error or omission.
19. DIAMONDS automatically records the e-signature and displays it in the MONITOR column of the EIRC.
20. In all cases involving ALTS, DIAMONDS automatically updates the heading blocks at the top of the form.
21. Each day a reportable change occurs.
22. Any four of the following:
  - (1) Weapon or component receipt, shipment, addition, or deletion.



- (2) Weapon code, alteration code, color code (Y or R), or charge code changes.
  - (3) Weapon association, loss, or destruction.
  - (4) Component removal and installation.
  - (5) LLC exchange.
23. They are prepared on the date you transfer the items to the carrier for shipment.
24. Use the serial numbers on the documentation and containers to report receipt—do not open the container. Obtain the manufacturer's pack dates from the LIL, component part numbers from the item TO, or tag on the H1616 container. Verification of component serial numbers occurs during unpacking before use.
25. The maintenance team chief responsible for the final assembly and a knowledgeable senior NCO or officer to certify it.

## 223

- 1. JS, DTRA, HQ USAF, the National Military Command System, the National Command Authorities, and the services.
- 2. SCR.
- 3. Daily when reportable changes to a weapon have taken place in the previous 24 hours with 100 percent accuracy.
- 4. Balance, OUI weapons are supporting, weapon code or charge code, shipment or receipt, ALT code, component installation, removal, or component code, color code, weapon deletion (expended or destroyed), component addition or deletion, and location addition (new storage site) or location deletion (permanent closing of storage site).
- 5. All DOD activities that have custody or receive, stock, store, issue, or use WR shipping containers owned by DOE.
- 6. On a one-for-one basis.
- 7. 11N-100-4 and AFI 21-204.
- 8. All associated and unassociated WR shipping containers for items listed in TO 11N-100-4, including quantities of base spare assets.
- 9. In conjunction with the SIR or as of the last day of February and August.
- 10. They are similar to WR weapons in physical characteristics, but are not used for training, testing or evaluation purposes. TTIs are specially designed to test weapons, weapons materials, or operations involving the testing of weapons or weapons materiel.
- 11. Semi-annually.
- 12. Essential substances used in the production of nuclear components for nuclear weapons as outlined in the Atomic Energy Act of 1954.
- 13. DOE/NRC Form 741, Nuclear Materiel Transaction Report.
- 14. The purpose of the report is to provide monthly reconciliation of unit records contained in DIAMONDS and stockpile information contained in NUMIS. It also provides the unit a management tool for scheduling maintenance, and managing maintenance activities.
- 15. Weapon shipment and/or receipts, changes to weapon codes, charge code changes, and alpha alt code changes in Part I, changes to unassociated LLCs in Part II, changes to installed LLC serial numbers, component codes, and due dates in Part III, changes to IH and or OH status and changes to OUIs in Part IV.
- 16. Monthly (within five duty days of receipt) and semiannually.

## 224

- 1. The type of inventory being performed and your shop's designated responsibilities.
- 2. SIR and SEV.
- 3. An independent inventory that reports the status, location, and configuration of the national nuclear weapon stockpile by serial number and quantity for each location.
- 4. Two commissioned officers, and it is a visual inventory and reconciles the unit's accountable records with the National Nuclear Weapons Stockpile Database maintained by DTRA.

5. During semiannual inventories you do not reopen items stored in containers previously opened, inspected, and sealed by the accountable unit provided the information obtained from the exterior of the container and the seal and/or serial number list maintained.
6. It is conducted without prepared lists of stockpile totals or serial numbers. Serial numbers of reportable items are written on a blind inventory worksheet during the visual verification. Afterwards, the visual results are compared with unit inventory records.
7. Immediately before or during the semiannual inventory.
8. When the weapon *cannot* be used to support current mission requirements.
9. Until the next inventory certification is received.
10. Using DIAMONDS as outlined in TP 100-3150.
11. It is a rapid inventory process used to promptly confirm that all (or specified portions) of the DOD nuclear stockpile weapons are in DOD custody or that a discrepancy exists.
12. A physical weapon count compared with accountable records, followed by physical serial number verification, and reconciliation with the WCL.
13. An extract from the Stockpile Database showing a unit's nuclear assets by serial number.
14. They send a FLASH or IMMEDIATE message containing SEV parameters through the NMCC to DTRA, combatant commanders, and Services.
15. Weapon serial numbers from unit accountable records are compared against the WCL provided from DTRA.
16. An interim report is submitted and an update status is provided every 2 hours until completion.
17. Immediately after Phase I is completed.
18. A physical serial number verification of weapons with accountable records and with the WCL.
19. The phrase "Stockpile Emergency Verification Test" or "SEV Test" are substituted for "Stockpile Emergency Verification," and the sentence "This is a test of the Stockpile Emergency Verification System" must begin and end both voice and recorded messages.
20. Within two working days after termination of the SEV.
21. The gaining and losing MASO conduct a joint 100 percent inventory.
22. It can be done provided both gaining and losing MASOs participate in the inventory along with the disinterested officer and provided no transactions affecting stock record balances occur between the effective date of the inventory and the effective date of the transfer of accountability.
23. Each month (except for SIR months) select for inventory at least 10 percent of the part numbers with current warehouse balances on the account.
24. For TP 100-3150 reportable items (except trainers, which are accounted for in SBSS/AFEMS), and for each part number with a warehouse balance on the account.
25. Blind inventory worksheets, verified and initialed inventory count cards, and DIAMONDS backup database from the date of the inventory.

## 225

1. To provide control for all new equipment.
2. Use control software.
3. An operation that verifies the selected code set into the coded switch of a weapon.
4. It is the process of intentionally disabling a nuclear weapon by initiating the weapon's CDSS, thus preventing use of the weapon in its intended mode of operation.
5. Disabling activates a coded switch in the weapon that prevents weapon arming. Enabling activates a coded switch in the weapon that permits weapon arming.
6. The act of changing a code that was previously set into the coded switch of a weapon. This allows the weapon switch to respond when you insert a new code.
7. Weapon status check.
8. It provides a nonviolent alternative to other emergency destruction disablement options by damaging internal critical components that render the weapon tactically useless.

9. A classified 3-digit CDS code on the preflight panel or the AMAC controller, depending on the weapon type.
10. Disablement, disablement abort, recode, and code check.
11. Reset the code dials to 0-0-0 and enter the correct code before you attempt to turn the function knob.
12. Moving from left to right, set the correct code into each code dial (rotating knob clockwise).
13. Rotate the function knob counterclockwise to DI and pull the T-handle from its socket; verify the indicator piston extends above the panel surface confirming successful disablement; close the access door and maintain control of the T-handle.
14. When the red indicator piston protrudes above the face of the preflight panel. On B61s, the red portion of the indicator piston extends approximately 0.2 inch. On B83s, the red portion of the indicator piston extends approximately 1/4 inch.
15. To detect attempts to modify, penetrate, bypass, or substitute equipment, and they are approved by the NSA.
16. Holographic seals, screw head coatings, and holographic stickers.
17. After installation or before removal of seals, before each day's use or once annually (whichever comes first), and anytime tampering is suspected or a deviation is noted.
18. Impound the equipment, determine the reliability of the equipment, and report the incident to the controlling authority.
19. One with a single three-position (GSA approved) combination lock.
20. Electronically prevents the weapon from receiving any arming and fusing signals.
21. More than one person will inventory PAL material. Inventory PAL material upon receipt and each time the container holding the material is opened. A monthly inventory is conducted for effective material and a quarterly one for reserve editions.

## 226

1. TO 11N-UC1620-2.
2. The applicable technical manual, TO 11N-UC1620-2 or TO 11N-UC1620A-2.
3. Transfers file back and forth to HQ CMS; Executes field operations generated by HQ CMS; Performs secure recoder operations (encrypted recode, rekey, and APS operations) on MCCS; Encryption Translator (MET)-equipped weapons; Builds data files from weapon recoder operations for verification with HQ CMS; Performs decoder operations (unlock and lock) on MET-equipped weapons; Performs weapons status checks.
4. UC1620 Field Processor, UC1621 Base Station, UC1631 Communication Module, UP1641 Power Module, UL1651 Interface Adapter, UL1652 Interface Adapter, UL1653 Interface Adapter, UL1654 Interface Adapter, UT1660 Field Tester, UL1661 Field IR Adapter.
5. UC1620, UC1621, UT1660.
6. HQ CMS.
7. To execute weapon coded switch operations.
8. If a weapons operation is being performed. A CM functional check is also required at the end of the day.
9. The communications module, field tester, power modules, and interface adapters of the CONUS fall under the VCP program.

## Unit Review Exercises

**Note to Student:** Consider all choices carefully, select the *best* answer to each question, and *circle* the corresponding letter. When you have completed all unit review exercises, transfer your answers to the Field-Scoring Answer Sheet.

**Do not return your answer sheet to the Air Force Career Development Academy (AFCDA).**

40. (215) What does the prefix FK mean in the stock record account number (SRAN) of a munitions account?
  - a. Nuclear type account.
  - b. Conventional type account.
  - c. Both nuclear and conventional.
  - d. Neither conventional nor nuclear.
41. (215) Who is ultimately responsible for the accuracy of all transactions posted to nuclear accounts?
  - a. Munitions accountable supply officer (MASO).
  - b. Major command (MAJCOM).
  - c. Repairable item custodian.
  - d. Flight commander.
42. (215) Who establishes the unit spares authorization listing (USAL) and coordinates any discrepancies between the approved USAL and Base and Military Spares Server (BMSS) website?
  - a. Munitions accountable supply officer (MASO).
  - b. Defense Threat Reduction Agency (DTRA).
  - c. Air Force Nuclear Weapons Center (AFNWC) Logistics Division.
  - d. Repairable item custodian.
43. (216) What is the source document governing shipment, which we also know as a shipping document?
  - a. AF Form 1764, Status Change Report.
  - b. AF Form 2005, Issue/Turn-in Request.
  - c. DD Form 1912, Materiel Courier Receipt.
  - d. DD Form 1348-1A, DOD Single Line Item Release/Receipt Document.
44. (216) In addition to the standard entries on DD Form 1348-1A, Single Line item Release/Receipt Document, for classified items you must
  - a. list the part number and serial number of all associated components, including limited life components (LLC).
  - b. submit separate documents for the basic assembly, bomb, and warhead.
  - c. enter "classified item" in the Item Nomenclature block.
  - d. enter configuration data in the Remarks block.
45. (216) For continental United States (CONUS) shipments, start follow-up action if you do not receive a signed DD Form 1348-1A within
  - a. 15 days.
  - b. 30 days.
  - c. 60 days.
  - d. 90 days.

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46. (217) How do you normally order time compliance technical orders (TCTO) and retrofit kits?
- By forced shipment.
  - On a one for one swap.
  - Through DIAMONDS.
  - Through the Support section.
47. (217) How do you maintain and account for time compliance technical orders (TCTO) and retrofit kits?
- According to AFI 21-101.
  - According to AFI 21-203.
  - By base supply operating instructions.
  - By the maintenance facility performing the work.
48. (217) Who reviews the time compliance technical order (TCTO) program weekly and discusses TCTO status at the scheduling meeting?
- Nuclear Accountability and Reporting Section (NARS).
  - Munitions Control.
  - Plans & Scheduling.
  - Maintenance shop chief.
49. (218) When does the munitions accountable supply officer (MASO) brief the wing, group, and squadron commanders on the status of nuclear weapons reporting activities for the previous six months?
- As soon as possible of receiving the DTRA reconciliation.
  - Within a week of receiving the DTRA reconciliation.
  - Within 15 days of receiving the DTRA reconciliation.
  - Within 30 days of receiving the DTRA reconciliation.
50. (218) Who is ultimately responsible for authorizing personnel access and use of keys to nuclear facilities?
- Unit commander.
  - Maintenance officer.
  - Munitions Superintendent.
  - Munitions Accountable Supply Officer.
51. (218) How often does the MASO update the Storage Location Planning Report in DIAMONDS?
- Beginning of each day on which changes occur.
  - Beginning of each day even when no changes occur.
  - End of every duty day on which changes occur.
  - End of every duty day even when *no* changes occur.
52. (219) Who consolidates, coordinates, and deconflicts Air Force nuclear ordnance shipping schedules (NOSS) and the Department of Energy's (DOE) airlift requirements with Defense Threat Reduction Agency (DTRA) and DOE?
- Air Force Nuclear Weapons Center (AFNWC) Logistics Division.
  - Sandia National Laboratories.
  - MAJCOM.
  - HQ USAF.
53. (219) Which is *not* a MAJCOM nuclear ordnance shipping schedule (NOSS) forecast?
- 15 day.
  - 30 day.
  - 60 day.
  - 90 day.

54. (219) In an intra-service shipment of denuclearized special test items, which item is scheduled in the nuclear ordnance shipping schedule (NOSS)?
- Joint test assemblies.
  - Bomb dummy units.
  - Hand trucks.
  - Bolsters.
55. (220) Who must you immediately contact if your unit cannot support a required movement scheduled in the nuclear ordnance shipping schedule (NOSS) due to conflicts with other events (i.e., runway closure or increased threat conditions)?
- Headquarters, United States Air Force (HQ USAF).
  - Air Force Nuclear Weapons Center (AFNWC).
  - Sandia National Laboratories (SNL).
  - Major commands (MAJCOM).
56. (220) For logistic movements, personnel will be briefed on
- chain of command.
  - two-person rule requirements.
  - surface/air traffic control procedures, if applicable.
  - all of the above.
57. (221) A Safe Haven is considered a sanctuary to Department of Energy (DOE) convoys under
- temporary conditions due to a scheduled event.
  - permanent conditions due to early arrival of a scheduled event.
  - permanent conditions due to an unscheduled or emergency event.
  - temporary conditions due to an unscheduled or emergency event.
58. (221) When a decision is made to seek Safe Haven for a Department of Energy (DOE) convoy, the installation commander is normally notified from the
- Department of Energy (DOE) through Joint Nuclear Accident Coordinating Center (JNACC) to Defense Threat Reduction Agency (DTRA).
  - Department of Defense (DOD) through JNACC to DTRA.
  - DTRA through JNACC to DOE.
  - DOE through JNACC to Security Forces.
59. (221) When Safe Haven is requested, how soon after the emergency is over does the Department of Energy (DOE) remove the shipment from the installation?
- Next duty day.
  - As soon as possible.
  - Within 2 days after the emergency.
  - When approval is given from the installation commander.
60. (222) Which is *not* part of the integration of Defense Threat Reduction Agency's (DTRA) current nuclear stockpile management information systems called Defense Integration and Management of Nuclear Data Services (DIAMONDS)?
- Weapon Information Report (WIR).
  - Inspection record card (IRC).
  - Verifiable control procedures (VCP).
  - Unsatisfactory Report (UR).

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61. (222) Who appoints, in writing, system administrators for the Defense Integration and Management of Nuclear Data Services (DIAMONDS)?
- Noncommissioned officer-in-charge (NCOIC) of Nuclear Accountability and Reporting Section (NARS).
  - Munitions accountable supply officer (MASO).
  - Air Force DIAMONDS system administrators.
  - Maintenance superintendent (MX/SUPT).
62. (222) When completing the Weapon Information Report (WIR), which of the following is *not* a *true* statement?
- Use DIAMONDS where available.
  - Date will also provide a timestamp.
  - Leave areas blank if information is not available.
  - Disassemble items as necessary to get a number.
63. (222) What can be done if the Defense Integration and Management of Nuclear Data Services (DIAMONDS) standardized entries do not fully describe the defect or operation being performed?
- Leave it blank.
  - Send a message to Defense Threat Reduction Agency (DTRA).
  - Use the Amplification area.
  - Nothing, you must only use the DIAMONDS standardized entries.
64. (222) In accordance with existing classification guides, what is the classification of Electronic Inspection Record Card (EIRC) in Defense Integration and Management of Nuclear Data Services (DIAMONDS)?
- For Official Use Only (FOUO).
  - Confidential.
  - Secret.
  - Secret Formerly Restricted Data (SFRD).
65. (222) When using Defense Integration and Management of Nuclear Data Services (DIAMONDS), your shop must submit a Status Change Report (SCR)
- each time a maintenance task is performed.
  - each day a reportable change occurs.
  - after each shift.
  - daily.
66. (222) When do you prepare the Status Change Report (SCR) for shipments?
- Never, since an SCR is not required for shipments.
  - At the end of the month for all shipments that month.
  - The date you transfer the items to the carrier for shipment.
  - The date you prepare the item for shipment and place it in storage.
67. (223) Submit a Weapon Status Report (WSR) when a change occurs to a nuclear weapon or component in all of the following situations *except* when
- changing a limited life component (LLC).
  - changing the weapon color code.
  - replacing a saddlebag.
  - shipping a weapon.



68. (223) When completing a Container Asset Report (CAR), include
- a. all associated and unassociated war reserve (WR) and training containers.
  - b. all associated and unassociated WR shipping containers.
  - c. unassociated WR and training containers only.
  - d. associated WR shipping containers.
69. (223) Besides Air Force Instruction (AFI) 21-204, which technical order (TO) gives you information on how to complete the Container Asset Report (CAR)?
- a. TO 11N-50-2.
  - b. TO 11N-50-4.
  - c. TO 11N-100-2.
  - d. TO 11N-100-4.
70. (223) Who prepares the location inventory listing (LIL) and how often is it published on the Defense Integration and Management of Nuclear Data Services (DIAMONDS) Support Center?
- a. Defense Threat Reduction Agency (DTRA); weekly.
  - b. Major command (MAJCOM); weekly.
  - c. MAJCOM; monthly.
  - d. DTRA; monthly.
71. (223) In what part of the location inventory listing (LIL) are changes to unassociated limited life components (LLC) made?
- a. I.
  - b. II.
  - c. III.
  - d. IV.
72. (223) Nuclear Accountability and Reporting Section (NARS) personnel reconcile the location inventory listing (LIL)
- a. weekly and monthly.
  - b. monthly and quarterly.
  - c. monthly and semiannually.
  - d. monthly and annually.
73. (224) Who must perform the Semiannual Inventory Report (SIR)?
- a. Two commissioned officers.
  - b. Two senior noncommissioned officers (SNCO).
  - c. A commissioned officer and a SNCO.
  - d. The munitions accountable supply officer (MASO) and senior munitions operations personnel.
74. (224) The verifying officer for a Semiannual Inventory Report (SIR) is appointed in writing by the commander and is
- a. a senior NCO or officer assigned from within the squadron.
  - b. the munitions accountable supply officer (MASO) or a munitions operations representative.
  - c. a disinterested party assigned to a different unit.
  - d. the weapons custodian or superintendent.
75. (224) A letter certifying saddlebag inventory is sent to the munitions accountable supply officer (MASO)
- a. anytime during the inventory month.
  - b. within 5 workdays of the inventory.
  - c. within 10 calendar days of the inventory.
  - d. no later than the 15 day of the inventory month.

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76. (224) Which of the following do you *not* check as part of the Semiannual Inventory Report (SIR) records verification process?
- a. Weapon information report (WIR).
  - b. The location inventory listing (LIL).
  - c. Balances on stock records.
  - d. Printed copy of SIR message.
77. (224) Which procedure is *not* performed during the stockpile emergency verification (SEV)?
- a. Physical serial number verification.
  - b. Inventory of saddlebags and accessories.
  - c. Physical weapon count with accountable records.
  - d. Reconciliation with the weapons custody list (WCL).
78. (224) Who is responsible for initiating and terminating stockpile emergency verifications (SEV)?
- a. Joint Staff (JS).
  - b. National command agency (NCA).
  - c. National military command center (NMCC).
  - d. Defense threat reduction agency (DTRA).
79. (224) If Phase I actions are not complete within 4 hours after stockpile emergency verification (SEV) activation, an update status must be provided every
- a. 2 hours.
  - b. 4 hours.
  - c. 6 hours.
  - d. 8 hours.
80. (224) Submit an interim report and update the status every 4 hours if stockpile emergency verification (SEV) Phase II actions are not completed within
- a. 8 hours.
  - b. 12 hours.
  - c. 16 hours.
  - d. 24 hours.
81. (224) Who performs a change of munitions accountable supply officer (MASO) inventory?
- a. Losing MASO and a senior noncommissioned (SNCO).
  - b. Two disinterested commissioned officers.
  - c. Gaining and losing MASO.
  - d. Any two SNCOs.
82. (224) A change of munitions accountable supply officer (MASO) inventory can be done in conjunction with a
- a. Stockpile emergency verification (SEV).
  - b. Semiannual inventory report (SIR).
  - c. Staff assistance visit (SAV).
  - d. Audit.
83. (225) Which permissive action link (PAL) operation verifies the selected code has been set into the coded switch of a weapon?
- a. Enabling.
  - b. Disabling.
  - c. Code check.
  - d. Inhibited code.

84. (225) What is the process of intentionally disabling a nuclear weapon, thus, preventing use of the weapon in its intended mode of operation?
- Recoding.
  - Disenablement.
  - Command disablement.
  - Code encryption.
85. (225) The operation you use to verify the locked or unlocked condition of the weapon coded switch is called the
- condition check.
  - weapon status check.
  - enable/disable check.
  - lock/unlock condition check.
86. (225) The Command Disablement System (CDS) requires the use of a
- 2-digit code.
  - 3-digit code.
  - 5-digit code.
  - 6-digit code.
87. (225) When performing Command Disablement System (CDS), rotate the function knob
- counterclockwise to DI.
  - counterclockwise to R.
  - clockwise to DI.
  - clockwise to R.
88. (225) Who approves the tamper detection indicators (TDI) used on designated coding equipment?
- Base commander.
  - Department of Energy (DOE).
  - National Security Agency (NSA).
  - Air Force Nuclear Weapons Center (AFNWC).
89. (225) When they are *not* used regularly, within what time frame are tamper detection indicators (TDI) inspected?
- Only before removal.
  - Only prior to use.
  - Semi-annually.
  - Annually.
90. (225) The verifiable control procedures (VCP) apply to what type of permissive action link (PAL) equipment?
- Controllers with the memory phrases entered.
  - All permissive action link equipment.
  - Controllers, cables, and adapters.
  - Controllers only.
91. (225) What publication titled *Procedures for the Use and Control of Logistic Codes for Permissive Action Link (PAL) Equipped Weapons*, is the basic governing manual for PAL operations?
- TO 11N-50-2.
  - TO 11N-50-4.
  - AFI 21-204.
  - AFI 31-101.

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92. (225) Which statement is *not* true about permissive action link (PAL) inventories?
- a. Do a monthly effective material inventory.
  - b. Do quarterly inventory for reserve editions.
  - c. PAL material only needs to be inventoried upon receipt.
  - d. Inventory PAL material upon receipt and each time the container holding the material is opened.
93. (226) When operating, troubleshooting, or maintaining commercial off-the-shelf (COTS) Field Code Management System (CMS) equipment, which manuals take precedence?
- a. Applicable 11N series technical manual.
  - b. Manufacturer's manual.
  - c. 11N-35-51.
  - d. 11N-5-3.
94. (226) Which is *not* one of the capabilities of the OCONUS (outside the continental United States) Field Code Management System (CMS)?
- a. Performs weapons status checks.
  - b. Transfers files back and forth to HQ CMS.
  - c. Performs command disablement procedures.
  - d. Builds data files from weapon recoder operations.
95. (226) Which component of the OCONUS (outside the continental United States) Field Code Management System (CMS) provides display and selection of field operations and builds monitor files?
- a. UC1620.
  - b. UC1621.
  - c. UP1640.
  - d. UT1660.
96. (226) Which component of the CONUS (continental United States) Field Code Management System (CMS) transfers files between Headquarters CMS and Field CMS using secure data communications?
- a. UC1620.
  - b. UC1621.
  - c. UP1640.
  - d. UT1660.
97. (226) Which piece of Field Code Management System (CMS) is *not* a Department of Energy (DOE) designed component?
- a. Field tester.
  - b. Base station.
  - c. Interface adapter.
  - d. Communication module.
98. (226) What technical data is used to inspect the electrical connectors of the Field Code Management System (CMS)?
- a. 11N-UC1620-2A.
  - b. 11N-UC1620-2.
  - c. 11N-35-51.
  - d. 11N-5-3.

99. (226) How long should a fully-charged, field processor battery of the UC1620 Field Code Management System (CMS) last?
- a. 7 hours.
  - b. 8 hours.
  - c. 9 hours.
  - d. 10 hours.
100. (226) What is the classification of the UC1621 Field Code Management System (CMS) base station?
- a. Secret.
  - b. Top Secret.
  - c. Confidential.
  - d. Unclassified.

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## Glossary of Abbreviations and Acronyms

<b>AAAL</b>	access, approval, and authority list
<b>AEA</b>	Atomic Energy Act
<b>AFI</b>	Air Force instruction
<b>AFJI</b>	Air Force joint instruction
<b>AFKAO</b>	Air Force Cryptological Aids Operations
<b>AFMAN</b>	Air Force manual
<b>AFMC</b>	Air Force Materiel Command
<b>AFNWC</b>	Air Force Nuclear Weapons Center
<b>AFRRAD</b>	Air Force Radioactive Recycling and Disposal
<b>AFSC</b>	Air Force specialty code
<b>AFSEC</b>	Air Force Safety Center
<b>AFSSI</b>	Air Force Systems Security Instructions
<b>ALC</b>	Air Logistics Center
<b>ALT</b>	alteration
<b>APS</b>	active protection system
<b>BCE</b>	base civil engineering
<b>BDU</b>	bomb dummy units
<b>BMSS</b>	base and military spares system
<b>BS</b>	base spares
<b>CAP</b>	code activated processor
<b>CAR</b>	container asset report
<b>CAT</b>	category
<b>CBU</b>	cluster bomb units
<b>CC</b>	combatant commander or code check
<b>CCP</b>	command control point
<b>CD</b>	command disablement or compact disc
<b>CDC</b>	career development course
<b>CDS</b>	command disable system
<b>CDSS</b>	command disable subsystem
<b>CES</b>	code enabling switch
<b>CF</b>	carried forward
<b>CM</b>	COMSEC manager or communications module

<b>CMS</b>	code management system
<b>COMSEC</b>	communication security
<b>CONUS</b>	continental United States
<b>COTS</b>	commercial off-the-shelf
<b>CPSG</b>	Cryptologic Systems Group
<b>CRO</b>	COMSEC responsible officer
<b>CSM</b>	code storage modules
<b>CTU</b>	code transfer unit
<b>DI</b>	disable
<b>DIAMONDS</b>	Defense Integration and Management of Nuclear Data Services
<b>DIRNSA</b>	Director, National Security Agency
<b>DMS</b>	Defense Message System
<b>DOD</b>	Department of Defense
<b>DODD</b>	Department of Defense Directive
<b>DOE</b>	Department of Energy; due-out exists
<b>DR</b>	deficiency reporting
<b>DREAMS</b>	Deficiency Report Entry and Mail Submitter
<b>DTRA</b>	Defense Threat Reduction Agency
<b>EAP</b>	emergency action plan
<b>ECP</b>	entry control point
<b>EIDS</b>	extremely insensitive explosive articles
<b>EIRC</b>	electronic inspection record card
<b>EMSEC</b>	emission security
<b>EPROM</b>	erasable programmable read-only memory
<b>ES</b>	exposed sites
<b>ESD</b>	environmental sensing device
<b>FOLUP</b>	follow-up reports
<b>FOUO</b>	for official use only
<b>FP</b>	field processor
<b>FRD</b>	formerly restricted data
<b>FSC</b>	Federal Supply Classification
<b>GSA</b>	General Services Administration
<b>HW</b>	hazardous waste
<b>IAV</b>	inventory adjustment vouchers

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<b>IB</b>	inhabited building
<b>ICBM</b>	intercontinental ballistic missile
<b>ID</b>	identification
<b>IH</b>	in-hand
<b>IHE</b>	insensitive high explosive
<b>IR</b>	infrared
<b>IRC</b>	inspection record card
<b>IRSO</b>	installation radiation safety officer
<b>JNACC</b>	joint nuclear accident coordinating center
<b>JNWPS</b>	joint nuclear weapons publication system
<b>JS</b>	Joint Staff
<b>JTA</b>	joint test assemblies
<b>KAO</b>	Cryptological Aids Operations
<b>KCP</b>	Kansas City Plant
<b>LIL</b>	location inventory listing
<b>LLC</b>	limited life component
<b>LMF</b>	local monitoring facility
<b>LPS</b>	lightning protection system
<b>MAJCOM</b>	major command
<b>MASO</b>	munitions accountable supply officer
<b>MCCS</b>	multiple-code coded switch
<b>MDR</b>	materiel deficiency report
<b>MDS</b>	mission, design, series
<b>MDU</b>	munitions dummy units
<b>MET</b>	multiple-code coded switch (MCCS) encryption translator
<b>MFR</b>	menu for record
<b>MMHE</b>	munitions material handling equipment
<b>MNCL</b>	Master Nuclear Certification List
<b>MOD</b>	modification
<b>MS</b>	military spares
<b>MTO</b>	mission tasking order
<b>MUNSS</b>	munitions support squadron
<b>MW</b>	mixed waste
<b>MX/SUPT</b>	operations officer/maintenance superintendent



<b>MXG/CC</b>	maintenance group commander
<b>N</b>	neutral
<b>NARS</b>	Nuclear Accountability and Reporting Section
<b>NATO</b>	North Atlantic Treaty Organization
<b>NNSA</b>	National Nuclear Security Administration
<b>NOCM</b>	nuclear ordnance controlled material
<b>NOFORN</b>	not releasable to foreign nationals
<b>NOSS</b>	nuclear ordnance shipping schedule
<b>NRTS</b>	not reparable this station
<b>NSA</b>	National Security Agency
<b>NSI</b>	national security information
<b>NSN</b>	national stock number
<b>NUMIS</b>	nuclear management information system
<b>NWSM</b>	nuclear weapons stockpile memorandum
<b>NWSSG</b>	nuclear weapons system safety group
<b>OCA</b>	original classification authority
<b>OCONUS</b>	outside continental United States
<b>OH</b>	on hand
<b>OI</b>	operating instruction
<b>OMA</b>	other major assemblies
<b>OPREP</b>	operations report
<b>O&amp;I</b>	organizational and intermediate
<b>OSS&amp;E</b>	operational safety, suitability, and effectiveness
<b>OST</b>	office of secure transportation
<b>OUIC</b>	operational unit identification code
<b>PAL</b>	permissive action link
<b>PAS</b>	protective aircraft shelter
<b>PC</b>	personal computer
<b>PES</b>	potential explosion site
<b>PIM</b>	product improvement manager
<b>PM</b>	program manager
<b>POC</b>	point of contact
<b>PQDR</b>	product quality deficiency report
<b>PRP</b>	personnel reliability program

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<b>QA</b>	quality assurance
<b>QAST</b>	quality assurance service test
<b>Q-D</b>	quantity-distance
<b>QSR</b>	quality assurance service test (QAST) status report
<b>R</b>	recode
<b>RAC</b>	rapid action change
<b>RC</b>	recommended changes
<b>RCN</b>	report control number
<b>RCRA</b>	Resource Conservation and Recovery Act
<b>RD</b>	restricted data
<b>RMF</b>	remote monitoring facility
<b>RO</b>	retrofit order
<b>ROA</b>	record of assembly
<b>RS</b>	reentry system
<b>RW</b>	radioactive waste
<b>SAAM</b>	special assignment airlift mission
<b>SCM</b>	supply chain manager
<b>SCR</b>	status change report
<b>SCV</b>	stock change vouchers
<b>SEV</b>	stockpile emergency verification
<b>SFRD</b>	secret formerly restricted data
<b>SGT</b>	safeguards transporter
<b>SIR</b>	semiannual inventory report
<b>SM/IM</b>	system manger/item manger
<b>SNL</b>	Sandia National Laboratories
<b>SOP</b>	standard operating procedures
<b>SRAN</b>	stock record account number
<b>SS</b>	source and special
<b>SSAN</b>	social security account number
<b>T&amp;E DR</b>	test and evaluation deficiencies
<b>TCM</b>	technical content manager
<b>TCTO</b>	time compliance technical order
<b>TDI</b>	tamper detection indicators
<b>TMO</b>	transportation management office

<b>TO</b>	technical order
<b>TP</b>	technical publication
<b>UA</b>	user agencies
<b>UC</b>	use control
<b>UCNI</b>	unclassified controlled nuclear information
<b>UR</b>	unsatisfactory report
<b>URC</b>	universal release code
<b>UCR</b>	unsatisfactory condition report
<b>URC</b>	universal release code
<b>USAFE</b>	United States Air Forces in Europe
<b>USAFEI</b>	United States Air Forces in Europe instruction
<b>USAL</b>	unit spares authorization listing
<b>VCP</b>	verifiable control procedures
<b>VIDS</b>	very insensitive explosive substances
<b>VPN</b>	virtual private network
<b>WCL</b>	weapons custody list
<b>WES</b>	weapon electrical system
<b>WIR</b>	weapon information report
<b>WR</b>	war reserve
<b>WS3</b>	Weapons Storage and Security System
<b>WSA</b>	weapons storage area
<b>WSR</b>	Weapon Status Report

## **Student Notes**

**AFSC 2W271**  
**Z2W271 02 1213**  
**Edit Code 03**