



AMMUNITION LOGISTICS

GUIDE TO OPERATIONS

IN A RETAIL ENVIRONMENT

JANUARY 2001
REVISION 2

U.S. ARMY DEFENSE AMMUNITION CENTER

LOGISTICS REVIEW AND TECHNICAL ASSISTANCE OFFICE
McALESTER, OK 74501-9053



**AMMUNITION LOGISTICS --
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**January 2001
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PREFACE

The Logistics Review and Technical Assistance Office (LRTAO) of the U.S. Army Defense Ammunition Center (DAC) conducts ammunition logistics reviews at Army retail installations per AR 700-13. These reviews cover all aspects of an installation's ammunition mission resulting in recommendations in areas where improvement is needed. This document is the second revision of the original guide published in October 1996 (Revision 1, April 1998). It contains updated information for many of the articles included in the original guide and first revision. This revision also contains several new timely and relevant topics that should be of interest to most retail ammunition operations.

The decline of personnel and financial resources continues to be a factor in many of the inefficiencies observed by DAC review teams. This guide is a means of disseminating trends and observations, so self-reviews can be performed and corrective actions initiated. Chapters 1 through 18 address specific logistics functions and summarize correct procedures to follow. Chapter 19 is a list of Internet sites where additional information may be obtained.

This document is not intended to supersede, contravene, replace, or modify the publications referenced herein or any other Department of Defense (DoD), Department of the Army (DA), major command (MACOM), or major subordinate command (MSC) criteria. Those publications take precedence in the event of any conflict with this guide. Readers should be aware that several logistics publications, including AR 710-2, AR 725-50, AR 735-5, AR 740-1, DAP 710-2-1, and DAP 710-2-2, are currently undergoing revision, and new "official" guidance may be forthcoming in the near future. Information contained in this guide was current at the time of publication.

Further information on subjects contained herein, or technical assistance on any matter related to ammunition logistics, can be obtained from DAC. Address comments or requests for assistance to:

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TABLE OF CONTENTS

	<u>Page</u>
CHAPTER 1: <i>Hazardous Materials (HAZMAT) Training</i>	4
CHAPTER 2: <i>DA Form 1687, Notice of Delegation of Authority - Receipt for Supplies</i>	11
CHAPTER 3: <i>Emergency Response Telephone Numbers</i>	15
CHAPTER 4: <i>The Propellant Stability Program</i>	17
CHAPTER 5: <i>Temporary Storage Rack for AT4s</i>	22
CHAPTER 6: <i>Maintenance of Depot Surveillance Record (DSR) Cards</i>	24
CHAPTER 7: <i>Ammunition Information Notices (AINs)</i>	28
CHAPTER 8: <i>The Ammunition Surveillance Program</i>	30
CHAPTER 9: <i>Preparation of Standing Operating Procedures (SOPs)</i>	33
CHAPTER 10: <i>Locks and Hasps</i>	37
CHAPTER 11: <i>Construction or Modification of Ammunition Facilities</i>	39
CHAPTER 12: <i>Ammunition Surveillance Information System (ASIS)</i>	43
CHAPTER 13: <i>Inert Certification, DRMO, and the Recycling Program</i>	47
CHAPTER 14: <i>Lightning Protection System (LPS) Inspection/Test</i>	50
CHAPTER 15: <i>Replacement Seals</i>	53
CHAPTER 16: <i>Security for Commercial and Unit/Organic Moves</i>	55
CHAPTER 17: <i>Depleted Uranium Munitions</i>	60
CHAPTER 18: <i>Use of Brass Cartridge Case Deformers/Shredders</i>	70
CHAPTER 19: <i>Internet Sites</i>	73
CHAPTER 20: <i>Index</i>	75

CHAPTER 1: Hazardous Materials (HAZMAT) Training

BACKGROUND.

The Hazardous Materials Transportation Uniform Safety Act of 1990 directed the Department of Transportation (DOT) to establish training standards for all U.S. employees involved in HAZMAT classification, marking, packaging, documentation, and transportation.

On 1 October 1993, two DOT final rules went into effect. Docket HM-181 brought U.S. regulations on HAZMAT in line with international standards. Docket HM-126 required employers to train employees in the new standards. This training requirement has been incorporated into Title 49, Code of Federal Regulations (CFR), Part 172, Subpart H.

WHAT IS HAZMAT?

According to the Hazardous Materials Transportation Act, "hazardous material" is a substance or material, designated at the discretion of the Secretary of Transportation, that may pose an unreasonable risk to health, safety or property during transportation in commerce. The materials so designated include, but are not limited to, explosives, radioactive materials, etiologic agents, flammable liquids or solids, combustible liquids or solids, poisons, oxidizing or corrosive materials, and compressed gases.

WHO NEEDS TRAINING?

In implementing the requirements of the law, the Military Traffic Management Command (MTMC) established specific training requirements for transport of hazardous materials within the DoD. In general, anyone involved in or affecting the transportation of hazardous materials must be trained. Specifically, anyone who performs any of the following duties is a "HAZMAT employee" (Title 49, Part 171, Section 171.8) and is subject to the training requirements of Part 172, Subpart H:

- a. Loads, unloads, or handles HAZMAT
- b. Manufactures, tests, reconditions, repairs, modifies, marks, or otherwise represents containers, drums, or packagings as qualified for use in the transportation of HAZMAT
- c. Prepares HAZMAT for transportation
- d. Is responsible for safety of transporting HAZMAT
- e. Operates a vehicle used to transport HAZMAT

Employers (the DoD falls under the definition of a “HAZMAT employer”) must identify the positions that require HAZMAT training (i.e., those that involve performance of the above duties), and ensure that personnel currently filling or hired for these positions are trained.

WHAT TRAINING IS REQUIRED?

Three categories of training apply:

a. **General awareness and familiarization training** to provide familiarity with requirements of the Hazardous Materials Regulations (HMR) and to enable the employee to recognize and identify HAZMAT

b. **Function specific training** concerning requirements of the HMR that are specifically applicable to the functions each employee performs

c. **Safety training** concerning emergency response information, measures to protect the employee from the hazards associated with the HAZMAT to which they may be exposed, and methods and procedures for avoiding accidents

In order to avoid unnecessary duplication, training provided to comply with Occupational Safety and Health Act (OSHA) (29 CFR) or Environmental Protection Agency (EPA) (40 CFR) requirements *may* satisfy the DOT training requirements if that training includes the three categories listed above (see paragraph titled **HOW DOES HAZMAT TRAINING DIFFER FROM HAZCOM AND HAZWOPER TRAINING?**)

WHEN IS TRAINING REQUIRED?

Successful HAZMAT training must be completed *within 90 days* after the official date of employment. Employees who change HAZMAT jobs shall complete training in the new job functions within 90 days after the official date of change.

DoD employees must receive refresher training *at least once every two years*. The training interval for other than DoD employees can be up to three years. Training received from a previous employer may satisfy the requirement if that training is relevant to the employee’s current functions. A record of the employee’s training, including all elements outlined in the **KEEP THOSE TRAINING RECORDS** paragraph, must be obtained from the previous employer.

WHERE CAN YOU GET TRAINING?

Title 49 and the Defense Transportation Regulation (DTR) do not specify courses or schools for this training, only that employees will receive training in the above three categories.

There are several training programs available to meet the HAZMAT training requirements of Title 49:

- a. Locally-developed training
- b. Contractor training
- c. Commercial training kits
- d. The DOT Transportation Safety Institute
- e. The United States Navy Supply Corps School, Athens, GA
- f. 345th Technical Training Squadron, Lackland AFB, TX
- g. Defense Logistics Agency (DLA)
- h. School of Military Packaging Technology, APG, MD
- i. DAC, McAlester, OK, or Accredited Off-Campus Instruction (AOCI) courses at Fort Hood, TX or Vilseck, Germany

Installations should also contact their MACOM for information on MACOM-developed courses or courses developed by other installations that may be available.

An interactive computer-based training course designed to meet the general awareness/familiarization and safety training aspects of Subpart H of Title 49 has been developed by DAC. This course does not satisfy the function specific training requirements, which must be provided by the home installation. The course, called Hazardous Materials Transportation Safety Familiarization Course, covers hazard classes, hazardous materials tables, and the communications and safety requirements of Title 49 for transporting HAZMAT. The course is self paced and designed to be locally administered with a minimum of supervision. It can be completed in less than 16 hours and includes an on-line exam. The course can be ordered from DAC, ATTN: SMAAC-AST, McAlester, OK 74501-9053 or by fax at DSN 956-8799. Requests must include a complete mailing address and name and telephone number for the point of contact at the installation. A set of disks and basic use instructions will be provided to each installation free of charge, but only one copy per installation will be provided. Once provided, that office at the installation will become the central point of contact for any other users at that location. The program may be used by any number of students after installation on a hard drive.

ADDITIONAL REQUIREMENTS FOR "CERTIFIERS".

Certifiers are those persons who sign documentation certifying that HAZMAT is properly packaged, marked, labeled, and totally compliant with local, federal, DoD, and international laws and regulations governing transportation of HAZMAT.

In addition to the DOT training requirements, DoD requires persons who certify HAZMAT on shipping papers to receive training from one of the following sources:

- a. The United States Naval Supply Corps School, Athens, GA
- b. 345th Transportation Training Flight, Lackland AFB, TX
- c. School of Military Packaging Technology, APG, MD
- d. U.S. Army Corps of Engineers Professional Development Support Center, Huntsville, AL
- e. DAC, McAlester, OK, or AOCI courses at Fort Hood, TX or Vilseck, Germany

Training received from any of the other sources listed in **WHERE CAN YOU GET TRAINING?** above, including the DAC computer based training, does not meet the requirement for certifiers. Also, refresher training for certifiers can only be provided by the five sources identified above.

KEEP THOSE TRAINING RECORDS.

Title 49 leaves it to the employer to decide what type of training, and method of presentation, is appropriate for specific positions but does state that the training will be a “systematic program”. Successful **training and testing must be recorded** for each employee. The record must include:

- a. Employee name
- b. Dates of HAZMAT training
- c. A description, copy, or location of the training materials
- d. Name and address of the person providing the training
- e. Certification that the employee has been successfully trained and tested

AMMUNITION SUPPLY POINT (ASP) RESPONSIBILITIES.

The ASP should assure that personnel, whether military or civilian, government or private, arriving at the ASP to receive ammunition or explosives for any reason, e.g., transport to training ranges, commercial shipment, etc., have proof of HAZMAT training. This proof can be in the form of a memorandum, certificate, or card attesting that the individual has received the training.

The ASP should not release ammunition or explosives to any person who does not have proof of HAZMAT training. For DoD employees, that proof must not be more than two years old. All affected DoD employees must receive HAZMAT training every two years (up to three years for other than DoD employees). The ASP should assure that all customers are aware of the training requirement and that, without proof of training, they will not receive their ammunition. This requirement should be included in the external SOP and periodically reinforced.

TITLE 49 SAYS THAT ANYONE WHO OPERATES A VEHICLE TRANSPORTING HAZMAT REQUIRES HAZMAT TRAINING. DO ALL SERVICE MEMBERS ARRIVING AT THE ASP TO PICK UP TRAINING AMMUNITION REQUIRE HAZMAT TRAINING?

Not really. It depends on the transportation protective service required for the shipment. Let me try to explain. The key words in Title 49 are “operates a vehicle”, in other words, the driver. Now, controlled inventory item code (CIIC) 1, 2, 5, 6, 8, and Secret items require “dual drivers” without exception. If the unit has drawn any of these items from the ASP and is transporting them on unit vehicles, **two individuals in each transport vehicle containing these items must be HAZMAT trained.**

Chapter 16 of this guide explains the transportation protective services required for the transportation of ammunition and explosives (A&E) by unit/organic assets. Using that information, the following identifies shipments requiring “dual drivers”, thus requiring two HAZMAT-trained individuals, and shipments not requiring “dual drivers”, thus requiring only one HAZMAT-trained individual:

<u>If the item being transported is:</u>	<u>Then:</u>
CIIC 1, 2, 5, 6, or 8-----	Dual drivers are required and both must be HAZMAT trained
CIIC 3 or 4 (more than 200 pounds)-----	Dual drivers are required and both must be HAZMAT trained
CIIC 3 or 4 (200 pounds or less) -----	Only one HAZMAT-trained driver required
CIIC U or 7 (more than 200 pounds of hazard class/division [HC/D] 1.1, 1.2, and 1.3)-----	Dual drivers are required and both must be HAZMAT trained
CIIC U or 7 (200 pounds or less of HC/D 1.1, 1.2, and 1.3)-----	Only one HAZMAT-trained driver required
CIIC U or 7 (any amount of HC/D 1.4) -----	Only one HAZMAT-trained driver required
Secret -----	Dual drivers are required and both must be HAZMAT trained

Confidential ----- Only one HAZMAT-trained driver required

Less than 1000 rounds of ammunition smaller----- Only one HAZMAT-trained driver required
than 40mm regardless of HC/D or CIIC

Now having said all that, it's to the units benefit to have more than one HAZMAT-trained soldier crew each transport vehicle. Lets say the unit picks up less than 200 pounds of CIIC 3 or 4 ammunition and has only one HAZMAT-trained driver. Lets also say that driver becomes ill on the way to, or at, the training range. The unit must find another HAZMAT trained soldier, perhaps from another unit, in order to legally complete the move to the range or to transport any live rounds back to the ASP. Also, remember that Title 49 requires training for anyone who "loads, unloads, or handles" HAZMAT. It's unlikely that the driver will do all that without assistance.

The above requirements *could* also apply to shipments of A&E by commercial carriers. However, commercial shipments are usually of a longer distance than military units would travel from the ASP to the training range. And commercial drivers are regulated as to the maximum driving time allowed. Therefore, it's almost a certainty that both commercial representatives will drive the vehicle during the transportation of the items. So, the ASP should assure each commercial representative has proof of HAZMAT training.

HOW DOES HAZMAT TRAINING DIFFER FROM HAZCOM AND HAZWOPER TRAINING?

Good question. Hazard communication (HAZCOM) training is required by Title 29, Part 1910, Subpart Z, and Title 40, Part 68, Subpart C. Hazardous waste operations and emergency response (HAZWOPER) training is required by Title 29, Part 1910, Subpart H, and Title 40, Part 264, Subpart B. Title 29 is rules and regulations of OSHA, Department of Labor. Title 40 is rules and regulations of EPA.

Basically, HAZCOM training provides employees information on hazardous substances in their work area. Neither OSHA nor EPA is specific on length of this training or the content. EPA requires refresher training at least every three years; OSHA does not address refresher training.

HAZWOPER training is required for employees performing operations such as clean-up operations, operations involving hazardous wastes at treatment, storage and disposal facilities, or emergency response operations. Generally speaking, both OSHA and EPA training requirements include instruction on emergency procedures, emergency equipment, and emergency systems. EPA does not address length of training and does not require refresher training, stating only that training will be reviewed annually. OSHA requires 40 hours of formal instruction and three days field experience (requirements are less for workers unlikely to be exposed over the permissible limits and workers who work in areas where the exposures are under permissible limits). OSHA also requires eight hours of refresher training annually.

As with DOT in Title 49, OSHA and EPA allow equivalent training provided under other standards or codes to substitute for training required by Titles 29 and 40.

RADIATION TRAINING.

If your installation stores ammunition items containing depleted uranium (DU), then you probably need radiation awareness training. See Chapter 17 for more information.

REMEMBER.

In summary, the following should be remembered regarding HAZMAT training:

- a. *All* HAZMAT employees must receive training.
- b. Three categories of training apply.
- c. Successful HAZMAT training must be completed within 90 days after the official date of employment.
- d. HAZMAT training is required every two years for DoD employees and up to three years for other than DoD employees.
- e. Several training programs are available to meet the HAZMAT training requirements of Title 49.
- f. In addition to the Title 49 training requirements, DoD requires additional, specialized training for persons who certify HAZMAT on shipping papers.
- g. Successful training and testing must be recorded for each employee.
- h. Ammunition supply points should assure that personnel arriving at the ASP to receive ammunition or explosives have proof of HAZMAT training.

CHAPTER 2: DA Form 1687, Notice of Delegation of Authority – Receipt for Supplies

WHAT ARE SIGNATURE CARDS AND WHO NEEDS THEM?

DA Forms 1687, commonly referred to as Signature Cards, are, in effect, the first line of defense in assuring A&E are not issued to individuals not authorized access to such items. The form is to be prepared by units drawing A&E from servicing ASPs, and lists all individuals from the unit authorized to sign requests for ammunition (block 13a of DA Form 581, Request for Issue and Turn-in of Ammunition) and authorized to pick-up ammunition from the ASP.

Guidance for preparing signature cards is contained in *DAP 710-2-1, figure 11-3*, and *DAP 710-2-2, figure 24-15*. The ASP should assure that instructions for preparing signature cards are contained in external standing operating procedures or otherwise made known to units serviced by the ASP.

GRADE/RANK REQUIREMENTS.

Authority to request and pick-up ammunition is contingent on an individual's rank/grade as follows:

Request - *SFC and above or civilian equivalency*

Receipt - *SSG and above or civilian equivalency for Categories I and II*

- Responsible person as designated by the unit commander for

Categories III and IV

Upon receipt of a DA Form 581, the ASP should compare the name in block 13a and the signature in block 13c with the name and signature on the signature card. The ASP should assure that the individual reflected in block 13 of the DA Form 581 is authorized to request A&E. The signature card contains two authority columns, one to indicate authority to request and one to indicate authority to receive. An appropriate rank/grade does not in itself authorize an individual to request or receive A&E. The authority columns on the signature card must indicate 'Yes' if the individual is authorized to request/receive ammunition, or 'No' if the individual is not authorized. Some units enter an 'X' in the appropriate column to indicate authority. This can be confusing and is not as definitive as 'Yes' or 'No'. **The ASP should not accept signature cards that contain an entry other than 'Yes' or 'No' in the authority columns for each individual reflected on the card.** It is assumed the responsible individual reflected on the bottom of the card is authorized to request and receive ammunition.

In order to assure rank/grade requirements are met, the rank/grade of each individual must be entered on the signature card with the individual's name. In addition to rank/grade, the expiration term of service (ETS) date for military personnel should be entered in the same block as the name. **The ASP should not accept signature cards without rank/grade indicated for every individual on the card and ETS date for military personnel. DON'T CONFUSE "CUSTODY" WITH AUTHORITY TO RECEIVE.**

Some ASPs have permitted E-5s to receipt for Categories I and II A&E based on AR 190-11, paragraph 7-15.c, which states that Categories I and II may be placed in the custody of a noncommissioned officer E-5 and above. "In the custody of" is not the same as receiving ammunition from the ASP. Paragraph 7-15 of AR 190-11 details procedures to be followed during movement of A&E by unit or organization transportation. The allowance regarding E-5s simply means that once Category I or II A&E has been drawn from the ASP by a SSG (E-6) or above, those items may be placed in the custody of an E-5 for transportation to, for example, training ranges, holding areas, etc. **An E-5 cannot receipt for Categories I and II from an ASP.**

SOCIAL SECURITY NUMBERS (SSNs) SHOULD NOT BE ENTERED.

Signature cards should not contain SSNs. A single giant 'X' should be entered in the SSN block of the card by the unit prior to providing the card to the ASP. Existence of SSNs on signature cards should not be grounds for returning the card to the unit. If cards are received at the ASP with SSNs entered, the ASP should use white-out or a black marker to obscure the numbers and then enter an 'X' in the block.

SIGNATURE CARDS ARE VALID FOR ONE YEAR.

Signature cards are valid for a period not to exceed one year. If a change in delegating authority (the individual indicated on the bottom of the card and reflected on the attached assumption of command/delegation of authority orders) is expected within one year of the date of the signature card, that expected change date will be the expiration date of the signature card. **The ASP should not accept cards without an expiration date or cards with an expiration date exceeding one year.**

CHANGES TO SIGNATURE CARDS.

If any data on the signature card changes or becomes outdated, the entire card becomes invalid and a new card reflecting the revised data must be prepared by the unit. **The ASP should not accept verbal or memo changes and should not allow cards to be altered or accept cards with obvious changes to existing data.**

SECURITY SCREENING.

Paragraph 2-11 of AR 190-11 requires security screening of all personnel whose duties include control, accountability, and shipment of A&E. This includes personnel who request and/or receive A&E. The Remarks block of the signature card should contain the statement "Authorized representatives listed above have passed security screening required by AR 190-11". **The ASP should not accept cards without the security screening statement.**

ASSUMPTION OF COMMAND/DELEGATION OF AUTHORITY ORDERS.

A copy of the assumption of command/delegation of authority orders should be submitted along with the signature card and attached to the card by the ASP. The person who assumes command or is delegated authority, as reflected on the appropriate orders, should be the same individual reflected on the bottom of the signature card. **The ASP should not accept signature cards that reflect a responsible person different from that reflected on the assumption of command/delegation of authority orders.**

ASP RESPONSIBILITIES.

Signature cards come in a three-copy set. The original and one carbon copy are to be provided to the ASP and one carbon copy kept at the unit. **The ASP should not accept photocopied signature cards.**

When a DA Form 581 requesting an issue of ammunition is received at the ASP, the ASP should assure the signature card will still be current on the scheduled pick-up date. As a service to units, the ASP should review all cards quarterly and alert any unit, in writing, whose card will expire during the next quarter. This should eliminate problems associated with units arriving at the ASP to pick up ammunition and not being able to do so because their signature card has expired. **The ASP should not issue A&E to any unit without a current signature card on file at the ASP.** If cards have expired or will expire shortly, the ASP should require the unit to provide a new card prior to arriving at the ASP for an ammunition pick-up. Providing a signature card to the ASP when arriving to pick up ammunition will only cause delays while the ASP reviews the card and verifies signatures with the DA Form 581. Any inconsistencies found could impact on the unit's scheduled training. For this reason, signature cards should be provided as far in advance as possible to allow sufficient time for the ASP to review the cards and for the unit to make any needed corrections.

During the quarterly signature card review, the ASP should take notice of any ETS dates that are approaching or have passed. If either of these situations is noticed, the ASP should request the unit(s) submit a new card replacing individuals whose ETS dates have expired or will soon expire, or extending ETS dates. **The ASP should not honor requests for ammunition signed by individuals whose ETS dates have passed or issue ammunition to individuals whose ETS dates have passed.**

A signature card contains space for four names. If more space is needed, an additional card will be used. If all the spaces for names are not used, the words 'Not Used' will be entered on the next available line. **The ASP should not accept cards that contain a blank space immediately below the last name entered.**

REMEMBER.

In summary, the following should be remembered regarding signature cards and issuing ammunition:

- a. The ASP should not accept signature cards without rank/grade indicated for every individual on the card and ETS dates for military personnel.
- b. An E-5 cannot receipt for Categories I and II from an ASP.
- c. Social security numbers should not be entered on signature cards.
- d. The ASP should not accept signature cards without an expiration date or cards with an expiration date exceeding one year.
- e. The ASP should not accept verbal or memo changes and should not allow signature cards to be altered or accept cards with obvious changes to existing data.
- f. The ASP should not accept signature cards without the security screening statement.
- g. The ASP should not accept signature cards that reflect a responsible person different from that reflected on the assumption of command/delegation of authority orders.
- h. The ASP should not accept photocopied signature cards.
- i. The ASP should not issue A&E to any unit without a current signature card on file at the ASP.
- j. The ASP should not accept signature cards that contain a blank space immediately below the last name entered.

CHAPTER 3: Emergency Response Telephone Numbers

WHAT IS AN EMERGENCY RESPONSE TELEPHONE NUMBER?

An emergency response telephone number is for use by drivers of vehicles carrying DoD munitions and explosives to obtain emergency response to an accident or incident.

WHERE DOES IT GO AND WHY?

The emergency response telephone number is to be annotated on the first page of the government/commercial bill of lading, DD Form 836 (Shipping Paper and Emergency Response Information for Hazardous Materials Transported by Government Vehicles), or other A&E shipping paper. It is essential the number on the shipping papers be accurate in order for the driver to get the necessary assistance as expeditiously as possible. Delays due to an erroneous or missing emergency telephone number could have catastrophic consequences.

WHO PROVIDES EMERGENCY RESPONSE?

There are three organizations prepared to provide emergency response to carriers of hazardous materials. Only one of these organizations will respond to emergencies involving explosives (hazard class 1). That organization is the *Army Operations Center (AOC)*. The telephone number for the AOC is (collect) (703) 697-0218/0219.

The other two organizations that can provide assistance in the event of accident or incident involving the transportation of hazardous materials are DLA and the National Response Center (NRC).

The DLA should be contacted when the cargo is non-explosive hazardous materials (hazard classes 2, 3, 4, 5, 6, 8, and 9). The DLA hotline number is (800) 851-8061.

The NRC should be contacted when a reportable quantity of a hazardous substance or a material identified as a marine pollutant is released into the environment. The NRC hotline number is (800) 424-8802.

It is extremely important that, if the cargo consists of hazard class 1 material, i.e., 1.1, 1.2, 1.3, 1.4, 1.5, or 1.6, the AOC hotline number be annotated on shipping papers. The three emergency response telephone numbers are preprinted on DD Form 836. This form will be used only for transport of hazardous materials by government vehicles (unit/organic moves). It will **not** be used for shipments of hazardous materials by commercial carriers. The DD Form 836 is available at the U.S. Army Publishing Agency (USAPA) homepage at <http://www.usapa/>. For shipments by commercial carriers, the appropriate hotline number should be clearly annotated on the bill of lading. And the hotline number for shipments of ammunition and explosives is the AOC number.

DON'T CONFUSE THE EMERGENCY RESPONSE TELEPHONE NUMBER WITH OTHER TELEPHONE NUMBERS.

In addition to the emergency response telephone numbers, shipping papers should also contain the consignor (origin) and consignee (destination) 24-hour telephone numbers, and the MTMC hotline number.

The consignor/consignee phone numbers are used by carriers to report shipment delay or for general information concerning the specific shipment.

The MTMC hotline number is used by carriers to obtain safe haven or refuge instructions in the event of a civil disorder, natural disaster, carrier strike, or other emergency. As with the AOC/DLA/NRC emergency response numbers, the MTMC hotline number is preprinted on DD Form 836 for unit/organic moves, and is included in bill of lading RIN 114 for commercial moves. The CONUS-wide MTMC hotline number is (800) 524-0331.

REMEMBER.

In summary, the following should be remembered regarding emergency telephone numbers for ammunition/explosives shipments:

a. *The Army Operations Center* is the only *emergency response* telephone number that should be annotated on shipping papers for *A&E shipments*, notwithstanding the preprinted DD Form 836 for shipments by government vehicles.

b. *Consignor/consignee* phone numbers should be annotated on shipping papers and are for *reporting delays*.

c. The *MTMC* hotline number should be annotated on shipping papers and is for *obtaining safe haven or refuge*.

CHAPTER 4: The Propellant Stability Program

WHAT IS PROPELLANT STABILITY?

When artillery propellants become thermally unstable, they can be dangerous to store. All bagged propelling charges are made of a low explosive that consists primarily of Nitrocellulose. It is the Nitrocellulose component of the propellant powder that is inherently unstable. Chemical stabilizers are added to the propellant, but the stabilizers may get used up, and then the propellant begins to generate too much heat. When the Nitrocellulose becomes hot enough, it starts itself burning very quickly, a type of burning called *deflagration*. A deflagration is an intense surface burn and doesn't produce the shock wave you get with a *detonation*. When the deflagration of the Nitrocellulose occurs, all the other parts of the propellant powder are also consumed in the fire, just as if you had fired a round from a gun tube. The *deflagration* may become a *high explosive detonation* if the propellant is closely confined. Even though a propellant deflagration won't create a huge crater like that of a high explosives detonation, it will rip and shred an earth-covered concrete magazine to pieces as it shoots an impressive fireball hundreds of feet into the air.

HOW DO WE KNOW WHAT IS STABLE AND WHAT IS UNSTABLE?

We can't predict exactly how long a propellant will remain safe to store. While one lot may stay safe for 30 years, its sister lot may self-ignite in five years. Because of the uncertain safe status of propellants and the potentially catastrophic consequences if a self-ignition occurs, the Army established the **Propellant Stability Program (PSP)** in 1921 to constantly monitor the stability of our propellants and propelling charges. The PSP is managed by the U.S. Army Munitions and Armaments Command (MAC) located at Rock Island, IL. They will keep you informed of what propellants are stable and what propellants are unstable. You will find them to be your best source for propellant stability information.

HOW DO I MANAGE MY PROPELLANT FOR STABILITY?

If your installation's ammunition operation has a quality assurance specialist (ammunition surveillance) (QASAS) assigned, he or she will already know how to manage the program and will be sure that all your propellant stocks are safe to store. However, if you *don't* have a QASAS available, then you will have to manage your own propellant stability program.

The steps that follow represent a minimal *bare bones* program that even the most meagerly equipped and staffed ASP can complete without difficulty.

GET THE MAC PROPELLANT STABILITY LIST.

Your most important tool is the "Propellant Database" which is maintained on-line by MAC. If you happen to have an old hard copy of the list, you can be assured that it does *not* contain the most recent information! To gain easy access to the most current propellant stability

information, you need to go on-line to the MAC pages in the Operations Support Command (OSC) web site. You can “click” your way there from www.osc.army.mil, or you can go directly to the list access page by using the address www.osc.army.mil/ib/ibq/surv/gen/surv5.htm. If you don’t have World Wide Web access, you will need to contact the Surveillance Team at MAC directly, either by mail, fax or phone. The mail address is Commander, MAC, ATTN: SOSMA-SNS, Rock Island, IL 61299-5500, and the phone number for the propellant desk is DSN 793-6617, commercial (309) 782-6617. The fax number uses the same phone prefixes at -7136.

WHAT DO I DO ONCE I HAVE THE LIST?

You need to check all of your applicable propellants and propelling charges against the list. The propellants you must check for stability status are:

Separate loading propelling charges (D533, D540, D541, etc)

Bagged component charges for 105mm or mortar charges packed in bulk containers (C709, C279, C436). When this propellant is already assembled to complete rounds, don’t check; the propellant will stay safe.

Expulsion/expelling charges or other similar propellant-filled components when stored together in bulk pack (more than one pound of propellant per package). This does NOT include line cutters and other propellant actuated devices.

Bulk packaged propellant (Federal Supply Class 1376)

At an ASP, you probably won’t have any of the above configurations except the 155mm separate loading charges.

CHECK FOR UNSTABLE LOTS FIRST! Go to the OSC web site and open the propellant database. There are a lot of ways to get your needed information because of the variety of ways that you can get the propellant database list to display. Do it any way you like, but probably the easiest way to check propelling charge lots that have a DODIC is to open the DODIC query and type in your DODIC (e.g., D541, D533, etc.) Scroll until you find your lot number, then look until you find the column titled “CAT.” This column contains the stability category for your lot of propellant. The propellant stability categories are:

“A” – TOLERABLE STABILIZER LOSS. A Cat “A” Lot is “good to go” and has a storage life without time limit.

“C” – SIGNIFICANT STABILIZER LOSS. A Cat “C” Lot is still safe for continued storage, but may reach a hazardous level after one year.

“D” – HAZARDOUS STABILIZER LOSS. **DANGER!** A Cat “D” Lot is *unsafe* for continued storage. The propellant or propelling charges must be *destroyed* within 60 calendar days of notification.

“QUICK CHECK” FOR CATEGORIES C AND D.

There is a really easy way for you to check for any categories “C” and “D” propellants you may have. We don’t keep too many of these low stability lots around for long, so you can go through the entire list in just a few minutes. In the propellant database, click the query for “Stability Category” and enter the letter “C.” You will see a list of all of the Army’s Category C propellants. Simply scroll down to see if any of your lots are there. Then do the same thing for Category D. If you don’t have time to do check all your lots right now, at least check them all against the “C” and “D” lists no less than once per year for all your lots, plus every time you receive a new lot at your ASP.

WHAT IF I HAVE CATEGORY D PROPELLANT?

If any of your propellant lots in storage match any of the propellants listed on the printout as CAT “D”, you must take *immediate* action to destroy that propellant, because CAT “D” propellant is known to be reaching a dangerous level of stability. CAT “D” propellant *cannot* be shipped elsewhere for destruction, so you must destroy it locally. If your installation does not have an open burning permit, you must request an exception for emergency destruction.

WHAT IF I HAVE CATEGORY C PROPELLANT?

If any of your propellant lots in storage are listed on the printout as CAT “C”, you must “flag” those lots for priority issue and make every effort to use them up within one year. If you still have them after one year, you should check with the PSP manager at MAC (DSN 793-6617) for possible disposition.

CHECK THE REST OF YOUR PROPELLANT.

Now that you have checked all your propellant against the “C” and “D” lists, the rest of your propellant lots are *probably* CAT “A”. Still, they need to be checked against the list for you to be sure, and also to verify that all your propellant lots *are* listed on the printout. If you have some propellant that isn’t listed on the printout, you can’t be sure what the stability level is. This check should be made as soon as possible after checking for CAT “D” and CAT “C” propellant, and should be done for all lots at least one time each year.

WHAT IF A LOT IS *NOT* LISTED ON THE PROPELLANT DATABASE?

You may check a lot against the list and discover that it isn’t in the database. Check TB 9-1300-385, “Munitions Restricted or Suspended”, Part 1, and see if the lot is listed there with a fix or reason. If it isn’t in this list either, then you must immediately contact the MAC for disposition. You *cannot* keep propellant of unknown stability in your storage area.

ANNOTATE YOUR RECORDS.

The results of your propellant stability check should be annotated to each DSR card. Keep the DSR remark as short as possible if the lot remains in stability Category A, such as **“Propellant Stability Test performed 1997, 0.93% RES, Stab Cat A.”** (“RES” is the Remaining Effective Stabilizer level).

If you *don't* maintain DSR cards, you should make an entry like that above to whatever sort of lot file you keep, whether it be receipt documents, card file, or what have you. If you maintain a permanent lot file of some sort, the propellant stability information should be annotated to it.

If you don't keep any sort of lot history records, as an absolute minimum you should prepare a memorandum for record. The memo should explain that you have checked all your lots against the MAC propellant stability list on such-and-such a day. It should list each lot checked by DODIC and lot number, and say that all were found to be in stability Category A or, if any were not, identify the lots that were in Category C or D and document what you did about it.

NOTICES OF AMMUNITION RECLASSIFICATION (NARs).

In addition to the propellant stability review actions already discussed, don't forget to check NARs for suspensions against propellant that have low stability levels. The TB 9-1300-385, “Munitions Restricted or Suspended” (available on-line) should always be used to check your propellant lots.

WHERE CAN I GO FOR MORE INFORMATION?

There are two publications that will help you manage your propellant stability program:

SB 742-1, “Ammunition Surveillance Procedures”, 1 June 1998 w/changes 1 and 2 (you should already have this pub). See Chapter 13, “Propellant and Propelling Charges.”

“Propellant Management Guide”, published by, and available from, DAC, SMAAC-AV

REMEMBER

The following points should be remembered to ensure your propellant is safe to store and what to do if it isn't:

- a. Category D propellant is *UNSAFE* to store and must be destroyed.
- b. Destroy propellant lots identified as lot “UNKNOWN” or “NONE”.

c. Identify *ALL* your propellant stocks by lot number, even amnesty or damaged turn-in ammo.

d. Be sure *ALL* your propellant stocks have a known current stability level assigned *and* that you have the information on record.

e. Confirm current stability level prior to issue or shipment of any propellant or propelling charge lot.

f. If you break down fixed rounds and put the propellant (and/or propellant-filled components) from those rounds into bulk containers, *THEN* the propellant must be immediately included in your stability program and stability level *must* be determined.

g. Propellant contained in fixed rounds (small arms ammunition, mortar, 105mm, 120mm) does not present a self-ignition hazard; *Don't* check it for stability.

h. Never store propelling charges out of doors or in MILVANs for long periods. The cooler temperatures inside magazines help keep propellant safely stable for longer periods.

i. The stability category code (“A”, “C” or “D”) is an *additional* identifying code that is separate from the ammunition condition code.

j. *UNSTABLE PROPELLANT CAN SELF-IGNITE WITHOUT WARNING!*

CHAPTER 5: Temporary Storage Rack for AT4s

BACKGROUND.

In response to the need for unit level storage of unpackaged AT4s, DAC Transportation Engineering Division designed two alternative storage racks that can be locally fabricated where the need exists. One storage rack is constructed of wood, the other, metal (grade 36 structural steel). The metal rack can be either bolted or welded. The plans for these racks have been posted to the DAC web site <http://www.dac.army.mil/DET/techast/at4/at4rack.pdf>.

SO WHEN I RECEIVE MY AT4s I CAN GET RID OF THE PACKAGING, RIGHT?

ABSOLUTELY NOT!! Every effort should be made to retain all ammunition packaging material. Besides, there are very few situations when ammunition should be removed from its outer packaging when received. Two of these situations are peacekeeping and contingency operations. As a matter of fact, deploying units may “inherit” an ammunition stockpile, much of which has already been unpackaged. So if your unit doesn’t also “inherit” the packing material, alternate storage plans such as this one are for you. If you do have the packing material, *THEN KEEP IT!!*

Provision of these plans is not meant to encourage storage of AT4s out of normal packaging. The plan depicts procedures to use when overpack containers are not available and should be used for guidance only until the proper storage containers are obtained. The storage of any munition out of its complete package is discouraged. However, it is recognized that certain mission requirements may dictate alternative storage configurations. The racks facilitate ready access for issue and for identification/inventory. Command approval of storage rack use should be obtained prior to their employment.

Use of the racks has no bearing on the quantity distance determinations for the storage nor does it imply blanket approval to store munitions in any situations not defined in current guidance.

HOW DO I SECURE UNPACKAGED AT4s?

Keep in mind that the AT4 is a Category I item. Category I items at deployment ammunition holding areas (AHAs) and at unit areas will be afforded the physical security measures required by AR 190-11, paragraph 5-8.d.(3). Basically, these security requirements consist of storage in a container such as a MILVAN, CONEX, or SEAVAN, the doors of which will be secured with two medium or low security padlocks (see Section X for information on approved locks); 24-hour constant armed guard surveillance, and; as always with Category I items, application and enforcement of the two-person rule.

CAN I TRANSPORT AT4s IN THIS CONFIGURATION?

NO! Although the plans show AT4 storage racks in ISO containers, loaded storage racks are not to be transported under any condition.

CAN I USE THESE RACKS FOR OTHER AMMUNITION ITEMS?

No. The dimensions provided in the plans are specifically engineered for the AT4. Do not attempt to modify the racks to accommodate other items. Using the rack for other items or modifying the rack in any manner could result in structural failure or items falling. Then your stockpile of whatever it was becomes unserviceable. If a need arises for similar racks for other items, contact the Transportation Engineering Division at DAC and chances are pretty good they can design something. Go to their web site at <http://www.dac.army.mil/det> for points of contact.

REMEMBER.

In summary, the following should be remembered regarding temporary storage racks for AT4s:

- a. The racks are for use only when outer packaging is not available.
- b. The racks can be constructed of wood or metal and must be locally fabricated.
- c. Loaded racks must not be transported.
- d. Security requirements of AR 190-11 must be enforced.
- e. Do not use these racks for items other than AT4s and do not modify the racks to accommodate other items.
- f. **KEEP ALL PACKAGING MATERIALS!!**

CHAPTER 6: Maintenance of Depot Surveillance Record (DSR) Cards

WHAT ARE DSR CARDS AND WHAT ARE THEY USED FOR?

The DSR card, DA Form 3022-R, is a technical history of each ammunition lot or serial number. Use it to record all actions affecting a particular lot of ammunition, including results of inspections, tests, and special investigations. This data is needed to assure the ammunition is suitable for issue, movement, use, or continued storage or to determine whether the lot requires maintenance or disposal. Data must be entered on the DSR card in a timely fashion. All information must reflect the true, current condition of the ammunition.

A well-maintained DSR card can simplify issuing ammunition for training, basic load, operational load, etc., since all historical information on that lot is at hand. Prior to issuing ammunition, check the DSR card to assure the lot is suitable for the intended use. Check to see if the ammunition lot:

- a. Is suspended or restricted from issue or use
- b. Requires any special preparation prior to issuing or shipping
- c. Is in a serviceable condition code
- d. Is packaged and palletized to afford easy movement
- e. Is cleared for use in overhead fire operations

WHO IS RESPONSIBLE FOR DSR CARD MAINTENANCE?

The ammunition surveillance section of each organization has the responsibility to maintain DSR cards. At many locations, the resident QASAS or ammunition inspector performs this. At facilities that do not have a QASAS or ammunition inspector, such as, but not limited to, ASPs, National Guard Bureau (NGB), and U.S. Army Reserve Command (USARC) sites, maintenance of DSR cards must be performed by someone assigned to the ASP. This function may be quite different from other duties normally performed, and benefits from updating the DSR may not be readily apparent.

PROCEDURES FOR INSTALLATIONS WITHOUT A QASAS.

The following guidelines are offered for those personnel who do not normally prepare and maintain DSR cards. First and foremost, you should not have to create DSR cards for your ammunition. A DSR card should accompany a lot of ammunition wherever it goes. In accordance with SB 742-1, each shipping facility is required to forward a DSR card for each ammunition lot shipped. If a partial lot is shipped, you may get a photocopied DSR instead of the original card. Even if you receive a copy of a card, all the requirements for posting and

maintaining the DSR card still apply. If a DSR card does not accompany an ammunition receipt, you should contact the shipper and request a copy. The shipper's telephone number is always annotated on the shipping paper, e.g., bill of lading.

If you receive a lot that you already have in storage, then you probably already have a DSR card for that lot. In that event, you should compare the card you already have with the card arriving with the shipment. If there are differences (e.g., reclassification of stock at your installation; periodic inspection performed at shipping installation), make one complete card by transferring comments from one card to the other. You should have only one DSR card for each lot of ammunition in your storage area.

WHAT INFORMATION IS ON A DSR CARD?

When received or initiated, the DSR card should contain the following permanent information:

- a. National stock number (NSN) or part number
- b. Department of Defense identification code (DODIC)
- c. Lot/serial number
- d. Date of manufacture
- e. Shelf life expiration (if applicable)
- f. Nomenclature
- g. Packaging information (# rounds/box, # boxes/pallet, weight, cube)
- h. Explosive weight
- i. Hazard class/storage compatibility group
- j. Installation

WHAT INFORMATION SHOULD AN ASP ADD TO A DSR CARD?

The following data will need to be added as it occurs or is received:

- a. Date of receipt
- b. Changes in condition code
- c. All inspections performed

- d. Suspensions and restrictions
- e. Stability category for propellant
- f. Any special remarks from higher headquarters, results of malfunction investigations, etc.

Results of inspections can only be entered to a DSR card provided they were performed by a QASAS or ammunition inspector. Other ASP personnel can add date of receipt, suspensions and restrictions, and remarks directed by higher headquarters or OSC/Aviation and Missile Command (AMCOM). Changes in condition codes can also be entered by ASP personnel, but only at the direction of the QASAS or as directed by AINs or NARs. Of all the information on a DSR card, suspension and restriction data is perhaps the most critical. Suspension/restriction information is disseminated via NARs as suspensions/restrictions occur. The TB 9-1300-385 is a complete listing of all suspended/restricted ammunition lots and also lists those lots that have been released from suspension/restriction.

The entries on the DSR card should be brief and accurate. While desirable, it is not necessary to type the entries or put them in computer format. Legibility is more important. If not typed, the entries should be made in ink. The person making the entry should initial it. Have the QASAS who visits and supports your area per AR 5-9 assist you if additional data is deemed appropriate for your stockpile. The QASAS will review DSR cards during assistance visits to assure all required entries have been made.

All entries should be written so that a person at another location could understand exactly what happened to the ammunition. The following is an example of clearly stated DSR comments:

07/25/99	PI	CC-A : 20 rounds from 20 boxes inspected IAW SB 742-1. Outer Pack: No defects noted on outer pack. Pallet is treated. Inner Pack: No defects noted on fiber containers. Item: 2/20 with fading markings, still legible. 6/20 with incidental rust. Cleared for overhead fire. No suspensions or restrictions. Inspector initials
03/13/00		Received 1,000 rds from Midwest Army Depot on document W18TYB00640001. CC-A
08/23/00	ADMIN	CC-J: Per NAR 50-00 Lot temporarily suspended from issue and use pending results of malfunction investigation. Inspector initials

DISPOSITION OF DSR CARDS.

Do not provide DSR cards to units drawing ammunition for training purposes. However, if you ship ammunition to another installation, for whatever reason, a copy of the DSR card must accompany the shipment. When you have completely exhausted your supply of a specific lot of ammunition, the DSR card for that lot should be discarded. There is no reason to keep DSR cards for ammunition not in your stockpile.

REMEMBER.

In summary, the following points regarding maintenance of DSR cards apply:

- a. Data on DSR cards is used to assure ammunition is suitable for issue, movement, use or continued storage.
- b. The DSR card should be checked for suspensions/restrictions prior to issuing ammunition for training.
- c. If a shipment arrives without a DSR card, call the shipper.
- d. You should have one, and only one, DSR card for each lot of ammunition in your storage area.
- e. It is critical that suspension and restriction data be entered to DSR cards as soon as that information is received.

CHAPTER 7: Ammunition Information Notices (AINs)

WHAT ARE AMMUNITION INFORMATION NOTICES?

AINs are messages that disseminate technical information on specific ammunition items, provide information on the conduct of the surveillance program, and dispense precautions pertaining to specific munitions. These messages are prepared and distributed by the ammunition surveillance office at OSC and are usually valid for one year. Each AIN has an expiration date. If appropriate, they will be reissued at one-year intervals with a new number reflecting the current fiscal year and with a new expiration date.

WHAT SHOULD I DO WHEN I GET AN AIN?

Follow instructions provided in the AIN. When an AIN directs a change to a publication, make the change or annotate the publication that a particular AIN applies. If an AIN pertains to a particular ammunition item, check your stock records to see if any of the items in your storage area are affected. Hardcopy of AINs that change ammunition procedures, such as firing, handling or maintenance, should be provided to units immediately and when they pick up that ammunition from the ASP. Change or annotate SOPs, desk procedures, local regulations, etc., to comply with instructions in the AIN.

HOW DO I KEEP TRACK OF AINs?

AINs are issued in numerical sequence each FY. For example, AINs for FY01 will be numbered 01-01, 02-01, 03-01, and so on, until the end of the FY. Because they may affect the entire ammunition stockpile, it is essential that each organization have access to the entire active AIN file. An AIN index is available on the OSC website at <http://www.osc.army.mil/ib/ibq/surv/gen/ainindex.pdf>

There is an AIN system contained in the Ammunition Surveillance Information System (ASIS). This system is updated through email attachments. Whenever an AIN is issued, an email will be sent from HQ, OSC with an attachment that updates affected AIN files under the ASIS AIN button. Users may contact HQ, OSC by email at sosma-sns@osc.army.mil for more information. See Chapter 12 of this guide for detailed information on ASIS.

For those who prefer hardcopy files, an excellent way to keep track of all AINs is to place them in a file or binder in numerical order. File them in descending order so the latest AIN is in the front of the file. As a notice expires or is superseded by a later edition, pull it from the active file or somehow separate it from active AINs. This will assure you use only the latest guidance issued. So you don't have to look through all AINs each time you need one, keep an AIN index. The index includes the subject of each AIN, which allows you to quickly find those concerning a particular ammunition issue.

Arrange an AIN index as follows:

| AIN # | SUBJECT / DODIC / DESCRIPTION | EXPIRES | SUPERSEDED BY |

Maintaining an AIN file is usually considered a surveillance duty. However, AINs often contain information not related to the surveillance aspect of ammunition logistics. If your installation does not have a resident QASAS, the AIN file must still be maintained locally. Someone within the ASP operations organization should be responsible for maintaining AINs. The supporting QASAS will review the file for completeness during his/her periodic assistance visits.

HOW LONG SHOULD I KEEP AINs AND SHOULD I KEEP THOSE THAT DON'T APPLY TO ITEMS IN MY STOCKPILE?

Keep all AINs until they expire or are superseded, even if you don't have any of the affected items in your storage area. You may receive some of the affected items during the year and you will know if you have received all AINs.

WHAT IF I DON'T RECEIVE AINs?

The AINs include important guidance for all installations with an ammunition mission. If you are not receiving AINs, contact your supporting QASAS for assistance or call OSC at DSN 793-7570 or commercial (309) 782-7570 to get added to the distribution list.

REMEMBER.

In summary, the following apply regarding AINs:

- a. AINs disseminate important information.
- b. Check your stockpile for ammunition affected by AINs and assure that actions required by AINs are accomplished.
- c. For ease of referral, AINs should be filed by number and indexed by subject or DODIC.
- d. Keep all AINs until they expire or are superseded.

CHAPTER 8: The Ammunition Surveillance Program

WHAT IS AMMUNITION SURVEILLANCE?

Ammunition Surveillance is a term that describes the activities necessary to assure ammunition is safe, reliable, and suitable for its intended purpose. The Army has chosen to standardize many of those activities under the umbrella of the Ammunition Surveillance Program. The Ammunition Surveillance Program mostly involves hands-on types of ammunition inspections and on-the-ground explosives safety guidance. Some of the more important ammunition surveillance activities at ASPs and training ranges include:

- a. Visual inspections (including storage structures) and tests
- b. Determining compliance with quantity-distance and storage compatibility requirements
- c. Reviewing and preparing explosives safety waivers and deviations
- d. Managing the ammunition suspension, restriction, and release program
- e. Checking for deterioration that will affect safety
- f. Assuring suitable facilities and equipment are used during ammunition logistics operations
- g. Evaluating ammunition conditions during supply and maintenance operations
- h. Monitoring troop safety during combat and training
- i. Investigating and reporting ammunition malfunctions

WHO NEEDS AN AMMUNITION SURVEILLANCE PROGRAM?

Every Army installation with a mission to receive, store, maintain, and/or issue ammunition automatically has an ammunition surveillance mission, and needs an ammunition surveillance program.

WHO PERFORMS AMMUNITION SURVEILLANCE DUTIES?

Ammunition depots and training sites with many busy ranges often have organizations to accomplish ammunition surveillance duties. Such organizations typically have one or more QASAS. These Army civilians have years of training and experience in ammunition surveillance and run the ammunition surveillance program.

There are a lot of ammunition surveillance duties that are supposed to only be done by a QASAS, because the QASAS has been specifically trained to do them. Some of the surveillance duties that only a QASAS is supposed to do include periodic inspections, selection of inspection samples, testing ammo, and conducting magazine inspection. Most QASAS have several years of experience at two or three or more locations, experience that gives them a fairly well rounded view of the ammo world. Probably the single most important thing the QASAS does is to *CLASSIFY*, or *Condition Code*, the ammunition.

THERE'S NO QASAS ASSIGNED TO MY INSTALLATION. NOW WHAT DO I DO?

Many installations with an ammunition mission (such as ASPs that support training ranges) don't have enough workload to support a full time QASAS on the staff. This does *not* mean their ammunition surveillance duties are any less important. In fact, surveillance may be *more* important at ASPs since the ASP represents the last opportunity to assure safe and reliable ammunition is issued to soldiers.

Whether or not a QASAS is on the local staff, ammunition surveillance program requirements must be met. Help *is* available! **AR 5-9** lists installations with QASAS that will provide ammunition surveillance assistance within specific geographical areas. Installations should use this regulation to establish contact with a support installation and formalize support needed with an interservice support agreement (ISA). The ISA should include information like how the support is to be provided, what the schedule of visits will be, how the costs will be reimbursed, and similar details.

Some aspects of the ammunition surveillance program that must be accomplished on a frequent, often daily, basis include the suspension/restriction program, management of the AIN file, condition code changes, and DSR card maintenance. Regular visits by QASAS per AR 5-9 are usually not adequate to get all this done on a timely basis. Local personnel must be trained to perform these duties. Under the direction of a QASAS, military ammunition inspectors and properly trained and designated civilian technicians may supplement and assist QASAS in accomplishing these ammunition surveillance functions. During AR 5-9 visits, QASAS support should include some training of local operators as well as management oversight of the local ammunition surveillance program. Depending upon your MACOM requirements, some formal classroom training may be needed as well.

REFERENCES.

The following publications should be referred to for further information about the ammunition surveillance program:

- a. AR 5-9, Intraservice Support Installation Area Coordination
- b. AR 702-6, Ammunition Stockpile Reliability Program (ASRP)
- c. AR 702-12, Quality Assurance Specialist (Ammunition Surveillance)

- d. AR 740-1, Storage and Supply Activity Operations
- e. SB 742-1, Ammunition Surveillance Procedures

Don't forget to get and use **ASIS**, the **A**mmunition **S**urveillanc**e** **I**nformation **S**ystem (See Chapter 12, this publication).

REMEMBER:

In summary, the following should be remembered regarding the ammunition surveillance program:

- a. If you have an ammunition mission, you have automatically inherited an *ammunition surveillance* mission, too.
- b. The conduct of an ammunition surveillance program is the responsibility of every commander with an ammunition mission.
- c. If you aren't getting ammunition surveillance support from a QASAS, look at a copy of AR 5-9 and contact a QASAS at your supporting installation.

CHAPTER 9: Preparation of Standing Operating Procedures (SOPs)

WHY HAVE SOPs?

The two primary purposes of an SOP are to provide clear, concise guidance to operating personnel, and to aid in the training of operators.

While the purposes of an SOP are simple to understand, development of an SOP is not so simple. Reaching the balance of what is relevant to the operation being performed versus the detail that the operator is willing to read is a common problem for the SOP writer. If too much detail is written, the operator may ignore the entire procedure; yet, if too little information is provided, a new operator may miss key steps in the operation. The key to development of a good SOP is taking a common sense approach to the operation and writing it in a clear and concise manner.

OPERATIONS THAT SOPs SHOULD COVER.

There are two basic types of SOPs that should be prepared, administrative and operational. Administrative SOPs cover those operations that do not involve handling, processing, or otherwise affecting the condition, location, or quantity of ammunition. Examples of administrative SOPs are:

- a. Processing DA Forms 581
- b. Physical security (e.g. key and lock control)
- c. Reviewing signature cards
- d. Conducting inventories
- e. Magazine data card preparation
- f. Standard Army Ammunition System (SAAS) operations

Operational SOPs cover operations that involve actual handling of ammunition. Examples of operational SOPs are:

- a. Processing commercial receipts
- b. Processing commercial shipments
- c. Issuing ammunition to units
- d. Processing unit turn-ins

- e. Storage operations
- f. Processing amnesty/found on post ammunition
- g. Inert certification procedures and processing shipments of “inert” material to Defense Reutilization and Marketing Office (DRMO)
- h. Operation of brass cartridge case deformers/shredders

DO WE NEED AMMUNITION SURVEILLANCE SOPs?

YES! Every installation with an ammunition mission *must* have an ammunition surveillance program with operations controlled by SOPs. Ammunition surveillance operations that should be covered by SOPs include:

- a. Ammunition inspections
- b. Magazine inspections
- c. Vehicle inspections
- d. Lightning protection system inspections and tests
- e. Propellant stability program
- f. AIN maintenance
- g. Suspension/restriction program
- h. DSR card maintenance

At an installation where a QASAS is assigned, he/she will perform the above tasks and will prepare the SOPs. However, at those installations where a QASAS is not permanently assigned, surveillance functions must still be accomplished. Some of these functions can only be performed by a QASAS and will be taken care of during the periodic QASAS assistance visits per AR 5-9. Some surveillance functions can be accomplished by ASP personnel. Coordination between the QASAS and ASP personnel will determine which functions can be accomplished by ASP personnel during the interval between assistance visits.

There is nothing extraordinary about ammunition surveillance SOPs. Like ammunition logistics SOPs, they should be logical, step-by-step instructions for performing tasks safely and efficiently. A QASAS supporting your installation per AR 5-9 should not use an SOP from his/her home station. The SOPs must be tailored to the conditions and facilities at your installation. Your supporting QASAS will provide technical assistance and guidance in preparing SOPs. The QASAS should sign the SOP indicating agreement with the procedures.

WHAT SHOULD BE INCLUDED IN SOPs?

The SOP content is dependent on the type of SOP. Administrative SOPs can be prepared in a narrative format and, since they do not involve explosive operations, can be fairly general in nature allowing for modification based on a number of factors. For example, one SAAS operator may prefer to post receipts to the stock record before issues, while another may prefer to post issues first. This leeway is not acceptable in operational SOPs, which should be prepared in a more structured format, leaving no room for deviation from the step-by-step procedures without a formal process. Operational SOPs should include the following as a minimum:

- a. **Location** *where* the operation will be performed
- b. General **description** of the work to be accomplished – This explains *what* the end product of the operation is to be or what is hoped to be accomplished by performing the operation.
- c. **Sequence of operations** – This section provides the detailed information on *how* the work is to be accomplished. Determining how much information is enough requires a talented writer. A statement such as “Load the transport vehicle” does not provide the operator with sufficient information to safely accomplish the operation. Going to the other extreme by providing detail such as “obtain a 10 penny nail from the left, rear compartment of the support vehicle” is going to create an SOP of such length that the operators will not read and remember the operation. The best approach is to do a dry run of the operation taking the time to write down the key steps of the operation and noting any cautions or warning that may be associated with each step. After the operation has commenced take the time to review the operation while following along with the SOP. It is expected that some minor changes will be required.
- d. **Safety requirements** – This is a difficult area to address. If you list every conceivable safety requirement people simply will not remember them. Include only what is directly applicable to the operation. Each SOP does not necessarily require the same general safety requirements. Daily and weekly safety briefings may be a method to accomplish dissemination of general safety information.
- e. **Personnel limits** – The number of individuals authorized to be present at a workstation who actually perform work.
- f. **Explosive limits** – The number of units and pounds of explosives that have been determined to be necessary to be present, consistent with a safe and efficient operation.
- g. **Equipment, tool, and supply requirements** - A complete listing of items required to conduct the operation. Include specification number, drawing number, management control number, NSN, or any other identifying information. Including this type of information will assure that operators use only those items that are authorized for use in explosives operations. Simplified ordering of replacement material, verifying material received is correct for the operation, and assisting newly assigned personnel in the identification of equipment, are

just a few of the benefits of including equipment, tool, and supply information in the SOP.

h. **Hazard analysis** – The hazard analysis is a review of proposed procedures, facilities, and equipment to identify potential hazards that could result in injury to personnel, and/or equipment damage or loss. After potential hazards are identified, corrective actions, whether they be training, protective equipment, or building modifications, are to be taken. The SOP must again be reviewed to assure all protective equipment, cautions, or warnings required as a result of the corrective actions identified in the hazard analysis are identified in the SOP.

Employees and supervisors must follow operational SOPs exactly as written. No alteration of the procedures in these SOPs should be allowed without formal staffing and approval.

KEEP ALL SOPs CURRENT.

All administrative and operational SOPs should be reviewed for currency at least annually. The SOPs may be changed or revised based on input from employees or as a result of the annual review.

REMEMBER.

In summary, the following should be remembered when preparing SOPs:

- a. Write SOPs in a clear and concise manner.
- b. Prepare SOPs for administrative and operational procedures.
- c. Surveillance SOPs are a must, especially if a QASAS is not assigned to your installation.
- d. Administrative SOPs can be flexible; operational SOPs must be specific.
- e. All SOPs should be current. Review them annually.

CHAPTER 10: Locks and Hasps

WHERE YOU CAN FIND GUIDANCE ON LOCK AND HASP REQUIREMENTS.

The AR 190-11 with Change 1, Subject: Physical Security of Arms, Ammunition, and Explosives, and the Consolidated Glossary for Physical Security Update 10-3, contain guidance regarding lock and hasp requirements for securing sensitive A&E. Which lock and hasp to use depends on the sensitivity category of the items stored in the structure.

The DoD Lock Program web page, <http://locks.nfesc.navy.mil/>, has information regarding approved locks and hasps, along with information on how to order this equipment.

WHAT LOCKS ARE REQUIRED FOR CATEGORY I ITEMS?

High security padlocks meeting Military Specification MIL-P-43607 are required to secure all structures storing Category I A&E. The only lock which currently meets this standard is the Sargent & Greenleaf (S&G) 833C. Previously, the HI-Shear LK 1200 and the S&G 831B were the authorized high security padlocks, however they no longer meet the specification. The HQDA has issued guidance that the two older locks can be used until they are no longer serviceable, at which time they will be replaced with the S&G 833C. The S&G 833C can be requisitioned using NSN 5340-01-217-5068 and the MEDECO cylinder can be requisitioned using NSN 5340-01-323-1087. DoD contractors use NSN 5340-01-449-4346 for the lock and 5340-01-449-4349 for the cylinder. The item manager for the lock and cylinder can be reached at DSN 444-2076, or commercial (215) 737-2076.

In addition to the high security lock a secondary padlock *must* be applied to structures containing Category I missiles and rockets. This additional lock can be another high security lock, a medium security lock such as the S&G 826D (no longer available through the supply system), or a low security lock. A list of low security padlocks available through GSA and the Defense Supply Center is available at the DoD Lock Program Web Page, <http://locks.nfesc.navy.mil/>. Military Specifications MIL-P-17802 (Low Security Padlocks) and MIL-P-43951 (Medium Security Padlocks) are no longer valid. Dual locks are to assure enforcement of the "two-person rule" required for access to structures storing Category I items. The keys to the two locks must be stored and issued separately with no one person having access to both keys.

WHAT LOCKS ARE REQUIRED FOR CATEGORY II ITEMS?

Lock requirements are the same for Category II with the exception that there is no requirement for the additional lock.

WHAT LOCKS ARE REQUIRED FOR CATEGORY III AND IV ITEMS?

Medium security padlocks, S&G 826D, may be used to secure Category III and IV A&E

only until stocks are depleted or replacement is required. When replacement is necessary the high security padlock required for categories I and II must be used.

WHAT HASPS ARE AUTHORIZED FOR USE?

A high security hasp is required to secure all sensitive A&E. The Naval Ammunition Production Engineering Center (NAPEC) high security shrouded hasp (MIL-H-29181) is the preferred hasp and *should* be used to secure categories I and II A&E. This is a covered hasp that protects the lock from cutting or hammer tools and inclement weather. The hasp can be ordered using NSN 5340-01-196-2547 for right hand active doors and NSN 5340-01-235-6907 for left hand active doors. The Natick high security hasp, MIL-H-43905 (this specification is being cancelled), is also authorized to secure all categories of sensitive A&E. However, as noted above, the NAPEC shrouded hasp *should* be used for categories I and II A&E. When replacement is necessary, the shrouded hasp *should* be used for all sensitive A&E.

WHAT'S NEW?

The DoD Lock Program has been testing a new system that combines the lock and hasp in one device, which can be ordered with one or two cylinders. Use of the two cylinder lock would negate the need for two separate locks and hasps for securing Category I items. The two cylinders can be keyed alike or differently. All information received indicates the new locking device provides more delay time than the current high security lock/hasp combination. The new device has not yet been approved by the DoD Lock Program for use, however it appears, when approved, it will become the preferred locking system.

REMEMBER.

In summary, the following should be remembered regarding locks and hasps for securing sensitive A&E:

- a. Structures storing Category I missiles and rockets require a high security lock **and** a secondary lock.
- b. Structures storing Category II items require the same high security lock as Category I items but do not need the secondary lock.
- c. Structures storing Categories III and IV items may be secured with a medium security lock until replacement is required. Then the same high security lock required for Categories I and II will be used.
- d. All structures storing sensitive A&E will be secured with either of two authorized high security hasps. The NAPEC high security shrouded hasp is the preferred hasp for securing structures containing Category I and II items.

CHAPTER 11: Construction or Modification of Ammunition Facilities

WHAT'S THE FIRST STEP?

The first step is determining that a new or modified ammunition facility is needed. This need is usually the result of new, changed, or increased mission or deterioration of existing facilities to the point that they are no longer safe, sufficient, or efficient for continued use.

OK, I'VE DETERMINED A NEED. WHAT NOW?

Once an installation has determined a project for an ammunition facility is needed the next step before preparing plans for construction or major modifications is to prepare a site plan and obtain Department of Defense Explosives Safety Board (DDESB) approval of that site plan. This should preclude costly changes later due to unplanned safety considerations. The site plan is usually prepared and submitted through channels by the installation safety office as required by AR 385-64.

The DDESB must review and approve the layout (site plan) and design for new facilities or major alterations to existing ones for manufacturing, handling, transporting, storing, maintaining, or testing military explosives, toxic chemicals or ammunition before the facility plan is submitted through engineer channels for construction approval.

WHAT COMES AFTER DDESB APPROVAL?

After the required site approval has been received from the DDESB, the project requirements are documented by a Project Development Brochure (PDB) and DD Form 1391, Military Construction Project Data. These are important documents in the military construction, Army (MCA) project process, and are prepared by, or thru, the installation facilities engineer (FE) organization. Usually, ammunition facilities requirements are provided by installation operating personnel from organizations such as the ASP, Directorate of Logistics (DOL), and ammunition surveillance.

WHAT IS A PROJECT DEVELOPMENT BROCHURE?

The PDB is the document used to establish functional and design criteria requirements. It is common for the PDB to be prepared by a contract architectural/engineering firm.

Functional and design criteria requirements in the PDB include an outline of project requirements and source data, functional flow diagrams, facility performance requirements, space requirements, security requirements, location of the facility on the installation, any required siting approval, special equipment requirements, and any other data considered relevant. Other than discussing these requirements with the preparer, the ASP will usually not have much involvement in the preparation of the PDB.

WHAT COMES AFTER THE PDB?

After the PDB is prepared and a design concept is provided by the PDB preparer, a DD Form 1391, Military Construction Project Data, is prepared by the installation FE using data from the PDB and additional information from operating personnel. This is the step in the process where the ASP can, and should, have a great deal of influence. ASP personnel have the most knowledge as to what is needed when planning construction of ammunition storage structures and related facilities.

WHAT INFORMATION SHOULD BE INCLUDED ON THE DD FORM 1391?

The primary reason you began this process is because you have determined that your current ammunition storage facilities are inadequate, unsafe, or inefficient. So therefore the most important element to be included on the DD Form 1391 is storage structure specifications. Some things to consider regarding ammunition storage structures are:

- a. Structures with vertical sidewalls provide the most efficient storage.
- b. Several standard drawings provide for a choice of door sizes. It is usually desirable to have the largest doors available. Door size should be specified if there is a choice.
- c. Not all standard drawings include the required high security hasp. If the design chosen does not include the appropriate hasp, it should be specified on the DD Form 1391.
- d. Structure drawings do not include aprons. Aprons should be specified on the DD Form 1391 and should be of sufficient size to accommodate planned operations.
- e. If your ASP stores a considerable amount of small arms ammunition (SAA), consideration should be given to construction of an aboveground magazine (AGM). Aboveground magazines are usually less expensive than earth covered magazines (ECM) and are better suited for storage of boxed SAA than are ECM, which should be reserved for storage of high explosive items.

In addition to storage structures, other details that the ASP should assure are included on the DD Form 1391, when appropriate, are:

- a. Security fencing
- b. Intrusion detection system (IDS)
- c. Paved roads
- d. Administrative buildings

- e. Holding pads or a separate holding area
- f. An operations building for preparing issues, performing minor maintenance, processing unit turn-ins, and performing surveillance functions
- g. A building or shelter for processing, and temporarily storing, recyclable/returnable items

The form is developed using the DD Form 1391 processor, which is an interactive computer-based teleprocessing system that assists in the preparation and review of the DD Form 1391.

DOCUMENTS MUST BE PROPERLY PREPARED.

Guidance governing the MCA documentation process is primarily contained in AR 415-10, AR 415-15, and AR 415-20. Facilities engineering personnel are very familiar with these and other applicable regulations and will assist ASP/DOL organizations in development of the MCA project. Some requirements from AR 415-10 to keep in mind during the MCA process are:

- a. All projects must comply with DoD policy on energy conservation and environmental protection.
- b. Standard designs, if available, will be used as a guide for repetitive type structures.
- c. Standard designs will be site adapted to adjust for local climate and availability of building materials.

WHY USE STANDARD DESIGNS?

Standard designs are especially helpful when selecting ammunition storage magazines, since the standard designs are “pre-approved” to meet explosives safety requirements when properly sited. This pre-approval means design costs are saved and obtaining approval from the DDESB is simplified. Since “non-standard” facilities may not be authorized to store the amount of explosives that standard facilities are, construction of locally designed or hybrid structures could impact the installation’s ability to store sufficient quantities of munitions to meet its training and mobilization missions. Also, approved standard designs usually include details such as lights and appropriate hasps that may not be included in other designs.

WHAT ARE THE STANDARD DESIGNS AND WHERE CAN I GET DRAWINGS?

Army standard design drawings are listed in U.S. Army Corps of Engineers (USACE) Pamphlet EP 1110-345-102 Explosives Storage Magazines, and may be obtained from U.S. Army Engineer Division, Huntsville, ATTN: CEHND-ED-ES, 106 Wynn Drive, Huntsville, AL

35805-1957. The pamphlet can be downloaded from the USACE homepage <http://www.usace.army.mil/publications/eng-pamphlets>.

TWO PUBLICATIONS THAT MAY ASSIST YOU.

The following two publications may assist you in the MCA process. Both are available from DAC in limited supply.

“Guide to Standard Design Ammunition Facilities” – Contains information on a number of standard design facilities. Available from DAC, SMAAC-AV.

“Site and General Construction Plan Developer’s Guide” – A reference for the development and submission of site and general construction plans. Available from DAC, SMAAC-ES, or at the DAC homepage <http://www.dac.army.mil/es> (click on the “Site Plans” button and then click “conventional site plan/safety submissions”).

REMEMBER.

In summary, the following should be remembered when planning for construction or modification of ammunition facilities:

- a. Before any construction or modification can take place, the site plan **must** be approved by DDESB.
- b. The PDB contains **general** requirements.
- c. The DD Form 1391 contains **specific** requirements.
- d. Consider **all** needs, not only storage needs, when preparing the DD Form 1391.
- e. Standard designs should be used when constructing ammunition facilities.

CHAPTER 12: Ammunition Surveillance Information System (ASIS)

WHAT IS “ASIS?”

“ASIS” is an acronym for Ammunition Surveillance Information System, but don’t let the name fool you: it *isn’t* just for Ammunition Surveillance inspectors. ASIS is a comprehensive ammunition and explosives automated information access and management tool that serves the needs of people who work in surveillance, logistics, and safety. A single set of eight compact discs (CDs) and your personal computer gives you keyboard access to hundreds of current publications, 400,000 ammunition data cards (ADC), a full range of ammunition storage and outloading drawings, specifications and standards, and more. Plus, its use lets you automatically log and categorize all of your NARs and AINs, so you can throw away your old logbooks and hard copy files!

HOW DOES IT WORK? I’M NOT SO GOOD WITH COMPUTERS.

One of the real beauties of the ASIS is the simplified “point and click” system that runs just about everything in it. The first thing to do when you get your ASIS CD set is to put the “ADMIN/TECH 1” disc into your computer’s CD drive and, before doing *anything* else, print the “READ ME FILE.” The Read Me file is about seven or eight pages of instructions to help get you loaded and started. If you follow these instructions, loading ASIS into your computer is pretty much foolproof. If you do run into trouble, the last line of the file gives you the name, email address, and phone number of the expert at OSC who will work to solve your problem with you.

You will actually begin to see how ASIS works *after* you load the CDs. These CDs contain programs that will stay in your C: drive memory so that you use the many information sources on the CDs without having to reload stuff all the time. A startup screen for all your ASIS information will display when you open the ASIS program from the desktop icon...you don’t need to put any CDs in your computer to start ASIS after it has been loaded. After you get the startup screen, go to the top bar and click on the “bookshelf” icon, and the “ASIS QUICK ACCESS” menu will appear. This is the easiest place to start all of your ASIS work. It is your ASIS “home.”

NOW, HOW WILL ASIS REALLY HELP ME?

Just look at what you have on your ASIS. You have most of the Army publications that you’ll ever need for the administrative and technical management of ammunition and explosives. That means you don’t need to keep filling out those 11-series forms all the time so that the pub centers can send you hard copies of hundreds of regulations and TMs and everything else. Plus, the search engine for the pubs is just fabulous!

HOW DO I SEARCH FOR STUFF IN PUBLICATIONS?

OK, let's say you put the "Admin/Tech 2" CD into your machine and click "Adobe Search Engine" in the bottom right hand side of the "QUICK ACCESS MENU." You are now in Adobe Acrobat. Click Edit, Search, Query, and you get a little query box, where you type in the word or word string for whatever you want to find. Here are some examples of what can happen as you question the *two hundred and twelve* publications on CD #2:

Type "Signature Card" and you get a list of two publications, and if you click on either one, you will be taken to wherever "signature card" appears in each pub.

Type "Outside Storage" and you get six publications, and you can go to each one, immediately, precisely where that term appears, just by clicking on the displayed pub number.

Type "inventory" and you get 59 pubs, same routine.

Type "discrepancy" and you get 53 pubs.

Type "inventory discrepancy" and you only get one pub! The longer the word string, the more specialized your search becomes. If you know exactly what you want, but don't know where to find it, this Adobe Search Engine will get you there in about five seconds!

You can do a similar kind of search on the pubs in Admin/Tech CD 1, but only one publication at a time. These pubs are in what is called an "IADS" format that works a little differently from "pdf."

SO WHAT DOES ASIS HAVE BESIDES THOSE PUBS?

In addition to the Quick Access Menu item for all sorts of Army pubs, there are similar sections for: Drawings (ammo complete round and component engineering drawings, plus all of the storage and outloading drawings for ammo); Military Specifications and Standards; catalog data like the Joint Hazard Classification System (JHCS); Ammunition Book Complete (ABC); and a Miscellaneous section for stuff like ammo forms, DoD forms, and Ammunition Data Cards. It is all pretty much point and click access, and the index for each section will automatically "pop up" and tell you which of the eight CDs you need to put into your CD drive to get the info you want.

YOU SAY THAT ASIS WILL FULLY AUTOMATE MY NAR AND AIN MESSAGES?

Absolutely! As long as you have the capability to receive email at the same computer you use for ASIS, the ASIS program will keep track of all your NAR and Overhead Fire (OHF) messages. The best thing of all is that you can throw away your hard copy TB 9-1300-385, "Munitions Suspended and Restricted", because the ASIS program automatically updates your automated TB each time you "unzip" a new NAR or OHF message. You no longer need to reference files of update messages...you only need to use your personal electronic copy of the

TB that is ready for you at any time on your own PC.

The TB also has an Adobe Search Engine that lets you find anything you are looking for in the TB almost instantly. Just type in the lot number, or DODIC, or item description ...whatever, and it will take you directly to that information in no more than a second or so. It is really amazing!

THE ASIS WILL TAKE CARE OF ALL MY AMMO INFO NEEDS, THEN?

Well...no, not really. But it will do *so* much and *save* you *so* much time, that once you get familiar with it and begin using it regularly, you will wonder how you *ever* got by without it!

There are some important publications that you may find that you need or that you like to have around that aren't on the ASIS at present. Some of these are:

- a. AR 5-9, Intraservice Support Installation Area Coordination
- b. AR 5-13, Training Ammunition Management System
- c. AR 75-1, Malfunctions Involving Ammunition and Explosives
- d. AR 385-14, Transportation Accident Prevention and Emergency Response Involving Conventional Munitions and Explosives
- e. AR 420-49, Utility Services
- f. AR 700-19, U.S. Army Munitions Reporting System
- g. AR 735-5, Policies and Procedures for Property Accountability
- h. AR 735-11-2, Reporting of Item and Packaging Discrepancies
- i. AR 740-1, Storage and Supply Activity Operations
- j. DoD 4160.21-M-1, Defense Demilitarization Manual
- k. DoD 4500.9-R, Defense Transportation Regulation, Part II, Cargo Movement
- l. Emergency Response Guidebook
- m. Title 49, CFR, (BOE 6000) Parts 106-180 and 397, Hazardous Materials Regulations of the Department of Transportation
- n. FORSCOM/TRADOC/OCONUS/NGB Publications

IS MY OFFICE COMPUTER GOOD ENOUGH TO RUN ASIS?

Your computer is good enough if it meets the following minimum system requirements:

800 x 600 display Resolution
Pentium CPU (or equivalent)
6x CD ROM
32 MB RAM
WINDOWS 95, 98, or NT
215MB Free Space (75MB for ASIS, 140MB for the ADC program)

If you aren't sure if your computer is up to these minimum requirements, you can figure that if you have a Pentium machine, especially if it is a Pentium II or higher, your computer will run ASIS with no problems.

HOW DO I GET MY OWN ASIS CD SET, AND HOW MUCH DOES IT COST?

ASIS is currently funded at a level that allows *free distribution* of the CD sets to authorized users (such as army units). The ASIS is updated on a fairly regular basis, so every year or so you will need a new set of CDs. Once you are placed on distribution, you should receive updated sets automatically.

To get on initial distribution for ASIS, contact the Ammunition Surveillance office at the Munitions and Armament Command, a part of and co-located with the U. S. Army Operations Support Command in Rock Island, Illinois. This is the very same office that sends you your NARs, OHF supplements, and AINs. You can contact the POC listed on any one of these messages to ask to receive copies of ASIS, or you can go to the OSC web site (<http://www.osc.army.mil> or, go directly to the Ammunition Surveillance page, <http://www.osc.army.mil/ib/ibq/surv/gen/surv.htm>) and find the current name and number of the ASIS POC there.

REMEMBER.

ASIS is a comprehensive automated information access and management tool that:

- a. Gives you keyboard access to hundreds of publications, hundreds of thousands of ADC, storage and outloading drawings, specifications and standards, forms, catalog data, and much more.
- b. Lets you do a "search" of hundreds of publications at a time.
- c. Automates your NAR and AIN messages and automatically updates your on line copy of TB 9-1300-385.
- d. Is free and, once you are on distribution, is updated on a regular basis.

CHAPTER 13: Inert Certification, DRMO, and the Recycling Program

WHAT IS INERT CERTIFICATION?

Inert certification is assurance that material turned in to DRMO for resale to the public is inert and free of explosives and other hazardous materials. The requirement to perform this certification can be found in DoD 4160.21-M-1, paragraph II-D.

All material generated from the firing and/or demilitarization of ammunition and explosives will be rendered inert before being turned in to DRMO. To prevent dangerous material from being turned in to DRMO, all inert ammunition items including dummy rounds, containers and items such as ammunition pouches and bandoleers, and inert material generated from demilitarization operations will be inspected by technically trained and qualified individuals.

HOW IS INERT CERTIFICATION ACCOMPLISHED?

The individuals who inspect the material will submit a certificate as part of the turn-in document. Guidance issued by DLA in March 1999, which immediately became effective, promulgated two significant changes to the certification requirements of DoD 4160.21-M-1. First, inert certifications now require two signatures. The first signature (certifier) may be that of a qualified DoD or contractor personnel. The second signature (verifier) must be a technically qualified DoD person who is also a U.S. citizen. The certification and verification signatures must be directly above the typed or clearly stamped or legibly printed full name, rank/rate, complete organization name and address, and phone number of the personnel who certified and verified the inspection.

The second important change is in the wording of the certification/verification statement. The new statement is as follows: “This certifies and verifies that the AEDA residue, range residue and/or explosive contaminated property listed has been 100 percent properly inspected and to the best of our knowledge and belief, are inert and/or free of explosives or related materials.” This certification can be typed right on the turn-in document (usually a DD Form 1348-1) or can be a separate form attached to the document. If it is a separate form, it should contain the document number from the turn-in document so there can be no question as to which items the certification applies. **The certification/verification must be signed.**

YOU MUST PROVIDE A LIST OF QUALIFIED PERSONNEL TO DRMO.

Each generating activity will provide a list of personnel qualified to inspect, certify, and verify material as being inert. It is the responsibility of the turn-in activity to keep the list current, with updates provided as personnel changes occur. It is usually preferable to provide an entire revised list to DRMO rather than providing only changes. Some installations provide a new list quarterly, even if there are no changes. Each list should clearly state that it supersedes the previous list. The DRMO will ensure the persons who sign the certification are included on

the list before accepting the material. The list provided to DRMO should contain a signature next to each name so DRMO can validate the signature on the certification.

MUTILATION OF SOME ITEMS MAY BE NECESSARY.

Some items may require mutilation, not for acceptance by DRMO, but for resale to the public. This mutilation is in addition to inert certification. Mutilation is usually required to prevent conversion of “scrap” to weapons or explosives delivery systems. This mutilation should be performed prior to delivery to DRMO. If required mutilation is performed by DRMO, they may retain some of the proceeds from the sale of the material to offset the cost of mutilation. The generating activity can recoup the bulk of the funds from scrap sales by performing the required mutilation themselves. Acceptable methods of mutilation can be found in appendices to DoD 4160.21-M-1.

DO I HAVE TO SEND MY RECYCLABLE MATERIAL TO DRMO?

NO! Section 6 of DoDI 4715.4, paragraph 5-10 of AR 200-1, and paragraph 3-3 of AR 420-49 authorize installations to sell their recyclables directly rather than through DRMO. The installation’s MACOM must approve direct sales of recyclable material. Recyclable materials that can be sold through direct sales include firing range expended brass and mixed metals gleaned from firing range cleanup **that do not require demilitarization**. DoDI 4715.4 requires recyclable expended brass and other metals be crushed, shredded, or otherwise mutilated prior to public sale. See Chapter 18 for information on cartridge case deformers/shredders.

CAN I SEND ALL OF MY USED PACKING MATERIAL AND AMMUNITION COMPONENTS TO DRMO OR THE RECYCLING CENTER FOR RESALE?

NO! At the beginning of each fiscal year, OSC distributes a memorandum that gives guidance on the disposition of ammunition packing material and components. Included with the memorandum is a list of items that **must** be returned to the wholesale system for reuse if they are in a serviceable condition. OSC provides a fund cite for shipping the returnable material to the appropriate wholesale installation. Any items not on the list are authorized for local disposition, *except for 120mm tank packaging*. See the OSC memo for guidance. Costs to ship material to DRMO or the local recycling center are the responsibility of the installation. If you have not received the most recent list (i.e., the one you have is more than one year old), contact OSC, ATTN: SOSMA-SNR, DSN 793-4746, for a copy. Changes to the list are distributed periodically throughout the fiscal year. Assure you are on distribution for these changes as well as the initial memorandum. The list is also available on the Internet at <http://www.osc.army.mil/sm/pubs.htm>

PROCEEDS FROM THE SALE OF RECYCLABLE MATERIAL.

In order for the installation’s ammunition organization to recoup the funds from the sale of recyclable material, a budget clearing account number must be annotated on the document transferring the material to DRMO or the recycling center, with instructions to credit that

account with proceeds resulting from the sale.

DODI 4715.4 and AR 420-49 require that *proceeds from a qualified recycling program will be used to reimburse the installation for costs incurred by the installation in operating and maintaining the qualifying recycle program.* This includes the purchase of new or replacement equipment for recycle purposes or construction of covered work areas and covered storage for recyclable material. *Fifty percent of the remaining proceeds* may be used to fund pollution abatement, energy conservation, and occupational safety and health activities. *Any remaining proceeds* may be transferred to the installation Morale, Welfare and Recreation Fund.

Since each installation can have only one budget clearing account for its recycling program, it is incumbent on the ammunition organization to ensure that the individual or group of individuals who dispenses proceeds from recycling is aware of the impact ammunition scrap has on the recycling program and the regulatory requirements for use of those funds.

REMEMBER.

In summary, the following should be remembered regarding turn in of items to DRMO and the recycling program:

- a. All material generated from ammunition and explosives operations will be rendered inert before being turned in to DRMO or the local recycling center.
- b. Material rendered inert must be inspected, certified, and verified prior to transfer to DRMO.
- c. A list must be provided to DRMO indicating those individuals qualified to certify and verify material as being inert.
- d. Some items may require mutilation, in addition to inert certification, prior to transfer to DRMO. Recyclable expended brass and other metals must be crushed, shredded, or otherwise mutilated prior to public sale.
- e. Not all material is authorized for transfer to DRMO or the local recycling center for resale. Certain items must be returned to the wholesale system for reuse.
- f. Funds from the sale of ammunition scrap must be returned to the activity generating the material to be reinvested into the recycling program.

CHAPTER 14: Lightning Protection System (LPS) Inspection/Test

WHY DO I NEED TO KNOW ABOUT LIGHTNING PROTECTION?

Over the years, we found many lightning protection systems at ASPs and ammunition and explosives operating facilities that were being inadequately tested and/or inspected. Lightning is a very real threat to ammunition in storage, and it is important to have a proper lightning protection system in place. Lightning does strike ammunition storage structures, and many structures and their explosive contents have been lost over the years because of inadequate lightning protection. No one fully understands the ways of lightning, and even the Standards Council of the National Fire Prevention Association (NFPA) says, "...lightning is a stochastic, even capricious, natural process." What they mean is even the best of experts find lightning quite unpredictable. You won't be able to totally understand the way lightning works, but you can understand how to take care of the lightning protection systems you have.

BUT OUR FACILITIES ENGINEERS TAKE CARE OF MY LPS.

At most posts, camps and stations, the LPS testing and inspection is conducted either by the Facilities Engineers, or by a commercial firm that has been contracted by the Facilities Engineers. It has been our experience these LPS tests are frequently conducted in a manner that is at odds with, or not in compliance with, our Army explosives safety standards. You probably won't ever need to do your own LPS testing, but it might be very beneficial for you to know if your LPS is being tested correctly and at the proper interval.

WHERE DO I FIND TEST AND INSPECTION INFORMATION?

There are a number of sources of information for LPS testing, but you need only be familiar with the official sources that govern the lightning protection systems on your installation:

- a. **NFPA 780, "Standard for Installation of Lightning Protection System"** - This NFPA publication is the main source for most of our technical information and can be purchased from the NFPA homepage at <http://www.nfpa.org/>.
- b. **AR 420- 49, "Utility Services"** - This is a Facilities Engineering regulation that includes methods for the test and inspection of lightning protection systems. This regulation is available on the USAPA homepage.
- c. **DAP 385-64, "Ammunition and Explosives Safety Standards"** - You should consider this publication *your* primary source for the proper oversight of your LPS. This pamphlet is available on the USAPA homepage.

As an individual who just needs to be sure that your LPS is being tested and inspected properly, you should mostly look to DAP 385-64, chapters 6 and 12 and Appendices B and D. It

is also a good idea to look through Appendices C and E, since they cover related electrical protection matters. The main thing is that you know where to look when checking out the LPS testing being done in your area.

WHAT DO I LOOK FOR?

There are three main areas that you need to be sure are being done right:

1. **Test and Inspection Intervals.** Table 6-1 of DAP 385-64 will tell you all you need to know about intervals, and there are footnotes you need to read. Very simply, though, your LPS should be *TESTED* every **24 months**, and visually *INSPECTED* every **six months**.

2. **Test Methods Used.** Again, you need to use Table 6-1, plus refer to paragraph D-3. Choice of test method is usually where the testers make errors, due to several changes in test methods over the years. For structures and locations other than earth covered magazines, the earth electrode subsystem must be tested by means of a three point fall of potential test, *PLUS* a bonding check of the lightning protection subsystem. For earth covered magazines, *ONLY* the bonding check of the lightning protection subsystem is required.

The procedures for testing the earth electrode subsystem are found in Appendix B, the bonding check of the lightning protection subsystem is in Appendix D (D-3). The visual inspection criteria for the earth electrode subsystem is in Appendix B (B-2) and visual inspection criteria for the lightning protection subsystem is in Appendix D (D-2).

3. **All LPS Components Must Be Tested.** This is probably the biggest problem that we see when we review LPS test results; the engineers fail to test all the bonded points on a magazine. For buildings 36 feet or less in height (this probably applies to all of your buildings), all large masses of metal that are a minimum 400 inches square surface area must be bonded to the LPS. Each metal mass that is bonded must be tested for electrical resistance during the bonding check.

HOW WILL I KNOW IF THE ENGINEERS TEST CORRECTLY?

If you have the time, it is recommended that you observe them conducting the tests, at least for a little while. If you have a good idea of what they are supposed to do, observing them at work for a few minutes will confirm that their procedures are correct.

Get a copy of the LPS test report and review it to assure that the bonding check was done to each building. Look to see that each of the bonded points has been tested and the results written down in the report. Be sure that the three-point fall of potential test was conducted on earth electrode subsystems (on other than earth covered magazines). It's a good idea for the test report to have a diagram of each building they test, with each test point identified so that you can be sure that each test point was actually tested and that the results meet the test standard.

WHO DOES THE SIX-MONTH VISUAL INSPECTION?

Normally, you can expect to have the responsibility to conduct the visual examinations twice a year. The engineers normally will only do the visual inspection once every two years, when they conduct the test. You will be looking at the LPS to see if deterioration or damage has occurred to exposed components of the system. Appendix D of DAP 385-64 is your best reference for the visual inspection. Be sure to document each time you conduct a visual inspection, and send a copy of the report to the installation safety office.

WHAT IF I FIND SOMETHING WRONG WITH THE LPS?

If it is something that can be fixed, like a bent air terminal, corroded connection, or a disconnected or worn cable, send a work order to the organization that conducts or manages the tests (probably Facilities Engineers). It is always a good idea to keep the installation safety office informed of any irregularities and problems with your LPS, too.

WHERE DO THE LPS TEST AND INSPECTION REPORTS GO?

The installation safety office is designated as the official repository for LPS reports. It is a good idea for ASP offices to be on distribution of those reports, too. You will find it helpful to keep a duplicate set of LPS test and inspection reports (those inspection reports are probably written by you or one of your ASP staff, anyway!).

REMEMBER.

Remembering the following points will help you feel comfortable with your lightning protection system:

- a. Lightning is unpredictable, and your ammo and explosives must always be protected from it.
- b. DAP 385-64 is your primary source for LPS information.
- c. Be aware of LPS standards so that you can be sure tests are conducted properly and results are valid; review all test reports.
- d. The ASP staff may be responsible for conducting the visual inspection every six months.
- e. Submit work orders to the Facilities Engineer to repair the LPS, and keep the safety office informed of any system deficiencies.
- f. Keep a file of all the test and inspection reports.

CHAPTER 15: Replacement Seals

BACKGROUND.

In October 1997, the Deputy Under Secretary of Defense (Environmental Security) issued a policy memorandum requiring all DoD policies and standards concerning use of security seals be revised to prohibit the use of lead seals. HQDA reiterated that policy in a January 1998 memorandum. Lead seals can continue to be used until current stocks are depleted. Replacement lead seals are no longer available in the Army supply system.

WHY THE BIG FUSS ABOUT LEAD SEALS?

As a whole, it's estimated the DoD uses more than one million lead seals every year. A large portion of these seals are left on the ground after their removal from packaging, slowly dissolving and contaminating soil and ground water. Lead has long been recognized as a health hazard, damaging the nervous system and blood forming organs in people, especially children, who may come into contact with contaminated water or soil.

OK, OK. SO WHAT DO I USE INSTEAD?

Drawing 8794342, Seal, Metallic, Assembly, Details and Instructions for Application, states, *"Procurement of new seals shall be parts 8794342-4 or 8794342-6 only."* Part number 8794342-4 is the Alucast #911, an aluminum seal available with a sealing tool and dies to show who applied the seal or where the seal was applied. Part number 8794342-6 is the Prong-Lok Pro-4, available in either strong steel or light aluminum. This seal comes with a logo or initials pre-embossed. A sealing tool is required to crimp the seal to the wire. It's very possible additional replacement seals, including non-metallic ones, may be approved in the future. But right now, these are the only approved replacement seals.

Drawing 8794342 is available from U.S. Army Armament Research, Development and Engineering Center (ARDEC), Packaging Application Team, Rock Island, IL, at DSN 793-8206 or commercial (309) 782-8206. You can also visit their web site at <http://www.pica.army.mil/ardec-ri/dale/packaging.html>.

HOW DO I GET THE NEW SEALS? ARE THEY AVAILABLE THROUGH THE ARMY SUPPLY SYSTEM?

New seals must be procured commercially. The two currently approved seals identified above are manufactured by Stoffel Seals Corporation. Check out their web site, <http://www.stoffel.com>, for product and ordering information. AIN 94-00 contains additional information.

WHERE CAN I GET MORE INFORMATION?

The Navy is the Executive Agent for the DoD Locks, Safes, Vaults, Seals and Containers Program. The Naval Facilities Engineering Service Center (NFESC) in Port Hueneme, CA, is the technical manager. You can get more information on the DoD Lock Program at the NFESC web site at <http://locks.nfesc.navy.mil>

REFERENCES.

The following references establish the requirement to use seals and govern their use and control:

- DoD 5100.76-M, paragraph C3.1.2.
- AR 710-2, paragraph 3-40.a.(3)
- AR 190-51, paragraph D-10

REMEMBER.

- a. Lead seals can no longer be obtained, but on-hand stocks can be used until exhausted.
- b. Two alternative seals made of steel or aluminum are authorized replacements and must be purchased commercially.

CHAPTER 16: Security for Commercial and Unit/Organic Moves

WHAT CONSTITUTES A UNIT OR ORGANIC MOVE?

A unit move is transportation by vehicles “owned” or controlled by the unit. For example, when a unit arrives at the ASP to pick up training ammunition using its HEMTTs or HMMWVs, that is a unit move. An organic move is transportation by military vehicles other than unit vehicles. For example, if the ASP delivers training ammunition to the ranges in vehicles assigned to the ASP or obtained from the installation motor pool, that is an organic move. In either case, transportation is by military owned vehicles. Transportation security is the same whether it’s considered a unit or an organic move. Since highway transportation represents the bulk of military munitions movement, we will focus on that mode. Rail, air, and water movements involve unique transportation security requirements.

IS THERE A DIFFERENCE IN THE SECURITY REQUIREMENTS FOR COMMERCIAL AND UNIT/ORGANIC MOVES?

Yes and No. There are very specific services that must be provided by commercial carriers, depending on the items being transported. These transportation protective services (TPS) are detailed in DoD 4500.9-R, Defense Transportation Regulation. The DTR does not specifically address security for unit/organic moves. The DTR, Chapter 205; DoD 5100.76-M, Chapter 6; and AR 190-11, Chapter 7, require TPS for unit/organic moves to adhere as closely as possible to those required for commercial moves.

LETS DISCUSS COMMERCIAL SHIPMENTS FIRST.

The following are the TPS that are generally applied to commercial shipments of A&E, with brief explanations:

- Satellite Motor Surveillance (SM) – A computer based system used to track, via a transceiver in the vehicle, vehicle location, in transit vehicle status changes, and emergency situations. SM does not have a dual driver requirement and is, therefore, usually used in conjunction with DD, DN, or PS.

- Dual Driver Protective Service (DD) – Requires two qualified drivers in the same line-haul vehicle. When not being driven, the vehicle must be attended at all times by a qualified representative of the carrier. A vehicle is “attended” when the person responsible for the shipment is in the vehicle, awake, not in a sleeper berth or is within 25 feet of the vehicle and has the vehicle within his/her constant, unobstructed view.

- Dual Driver Protective Service with National Agency Check (DN) – Same as DD. Plus, both drivers will have undergone a NAC background check and will have a copy of their NAC verification with them and available for inspection at all times.

- Protective Security Service (PS) – Requires two drivers in the same line-haul vehicle. Both drivers will have been granted a “Secret” clearance under the DoD Industrial Security Program. When not being driven, the vehicle must be under continuous attendance and surveillance so as to prevent tampering, pilfering, or sabotage. At least one of the drivers must remain in the cab of the vehicle, or within 25 feet of the vehicle with the vehicle in his/her unobstructed view.

- DoD Constant Surveillance Service (CS) – Requires only one driver. When not being driven, the vehicle must be attended at all times by a qualified representative of the carrier. A vehicle is “attended” when the person responsible for the shipment is in the vehicle, awake, not in a sleeper berth, or is within 100 feet of the vehicle and has the vehicle within his/her constant, unobstructed view.

The above definitions for the various TPS are basic requirements. There are other aspects related to security in transportation such as use of signature and tally records, exclusive use, prohibition against trip-leased equipment, locking and sealing, and others.

As stated earlier, which TPS to apply depends on the item being shipped. The criterion to use is the CIIC of the item, as follows:

<u>If the item being shipped is:</u>	<u>Then use:</u>
CIIC 1 -----	SM and DN (See Note)
CIIC 2 -----	SM and DN (See Note)
CIIC 3 -----	SM and DD (CS for 200 pounds or less) (See Note)
CIIC 4 -----	SM and DD (CS for 200 pounds or less) (See Note)
CIIC 5 -----	SM and PS (See Note)
CIIC 6 -----	SM and DN (See Note)
CIIC 8 -----	SM and DD (See Note)
CIIC U – HC/D 1.1, 1.2, and 1.3 -----	SM and DD (CS for 200 pounds or less) (See Note)
CIIC 7 – HC/D 1.1, 1.2, and 1.3 -----	SM and DD (CS for 200 pounds or less) (See Note)
CIIC U – HC/D 1.4 -----	No TPS required
CIIC 7 – HC/D 1.4 -----	No TPS required
Secret -----	PS
Confidential -----	CS
Less than 1000 rounds of ammunition smaller than 40mm regardless of HC/D or CIIC –	No TPS required

Note: SM is not available OCONUS. In OCONUS, the use of Security Escort Vehicle Service (SE) is authorized as an approved transportation security measure in lieu of SM without the need for a waiver or exception. SE consists of a carrier-provided, inconspicuous, unmarked escort

vehicle with two unarmed, licensed drivers. The escort vehicle drivers will meet the same qualifications as the drivers of the cargo vehicle. Armed guards may be used as a compensatory (additional) protective service. Local national personnel may be used for armed guard surveillance when status of forces agreements prohibit arming of U.S. personnel.

A final point that should be made regarding shipment of CIIC 1 items by commercial carrier is that missiles and launch and control equipment *cannot* be shipped in the same conveyance. This applies to items such as Stinger and Redeye missiles and their launch tubes/gripstocks.

OK, NOW UNIT/ORGANIC MOVES.

The required security for unit/organic moves is not so clearly delineated as that for commercial transportation. However, AR 190-11 contains the following guidance:

- Paragraphs 7-4.b. and 7-15.c. state that Category I material (CIIC 1, 5, and 6) will be placed in the custody of a commissioned officer, warrant officer, noncommissioned officer (E-5 or above), or DoD civilian (GS-5 or above). Keep in mind that an E-5 cannot receipt for Category I material from the ASP (see Chapter 2 of this Guide). Unit movements of Category I will be under armed guard surveillance.

- Paragraph 7-15.c. requires the same protection for Category II material (CIIC 2 and 8) as for Category I material except that the requirement for armed guards does not apply if state or territorial law prohibits the arming of guards. As with Category I material, an E-5 cannot receipt for Category II material from the ASP.

- Paragraph 7-15.d. states that Categories III and IV material will be under the continuous positive control of designated, responsible personnel.

Confused? Lets try to put it in a format a little easier to understand. Remember that both the DTR and AR 190-11 require TPS for unit/organic moves to adhere as closely as possible to those required for commercial moves. Also, paragraph 2-11.a.(1) of AR 190-11 requires a NAC or an Entrance National Agency Check (ENTNAC) for any government employee (civilian or military) operating a vehicle or providing security to a vehicle transporting Category I, II, or classified A&E. So the following would apply:

If the item being transported is:

Then use:

- | | |
|--------------|--|
| CIIC 1 ----- | Two drivers, one must be an E-5 or above and one must be armed (see Note 1).
Both will have a background check. |
| CIIC 2 ----- | Two drivers, one must be an E-5 or above and one must be armed unless prohibited by state or territorial law (see Note 2).
Both will have a background check. |

CIIC 3 -----	Two drivers determined to be responsible by the unit commander. Vehicle will be under continuous positive control. Apply DD provisions regarding vehicle attendance and surveillance.
CIIC 4 -----	Same as for CIIC 3.
CIIC 5 -----	Same as for CIIC 1 plus both drivers will have a "Secret" clearance (PS provisions).
CIIC 6 -----	Same as for CIIC 1 plus both drivers will have a "Confidential" clearance.
CIIC 8 -----	Same as for CIIC 2 plus both drivers will have a "Confidential" clearance.
CIIC U and 7 -----	Same as for CIIC 3.
Secret -----	Same as for CIIC 3 plus both drivers will have a "Secret" clearance.
Confidential -----	Same as for CIIC 3 plus both drivers will have a "Confidential" clearance.

Note 1: In OCONUS, local national personnel may be used for armed guard surveillance when status of forces agreements prohibit arming of U.S. personnel.

Note 2: When arming of guards is prohibited, a request for exception to this requirement along with compensatory measures will be submitted. SE is generally considered an acceptable compensatory measure for the absence of armed guards.

Remember earlier we said that CIIC 1 missiles cannot be shipped in the same conveyance with their launch and control equipment when shipped by commercial carrier. This doesn't apply to unit/organic moves. These items can be shipped in the same conveyance during a unit move; however, the entire shipment will be considered CIIC 1.

USE OF FEDERAL EXPRESS (FEDEX) TO SHIP SMALL QUANTITIES OF AMMUNITION.

Beginning in April 2000, the DoD began an 18-month test to determine the feasibility of shipping small quantities of small arms ammunition by FEDEX. Under this program, shipments of ammunition from OSC depots may be made via FEDEX under the following conditions:

- a. Only ammunition less than 50 caliber.
- b. Individual requisitions of 4,000 rounds or less. Ammunition shall be packed in unit packages of no more than 4,000 rounds, not to exceed 150 pounds.
- c. No more than five packages, or 20,000 rounds per conveyance, with each package destined to separate consignees.

Most ammunition less than 50 caliber is CIIC 4 and would require SM and DD if the shipment were more than 1,000 rounds. HQDA has waived the physical security requirements to correspond to the DoD test program.

What does this mean for retail installations? Well, first of all, the authority to ship by FEDEX applies to **OSC depots only**. So posts, camps, and stations cannot ship via FEDEX under this test program. However, they may receive ammunition delivered by FEDEX. There is no cause for alarm. However, there are some points installations should be aware of when receiving ammunition by FEDEX. Violation of any of these points should result in a discrepancy report to the shipper:

- a. If you receive ammunition 50 caliber or larger via FEDEX, it is a violation and must be reported.
- b. If you receive more than 4,000 rounds in one shipment via FEDEX, it is a violation and must be reported.
- c. If you receive more than one package in a single shipment via FEDEX, it is a violation and must be reported.

REMEMBER.

Applying the proper security measures to A&E in transit may very well be more important than security in storage. Keep the following points in mind and coordinate all A&E movements very closely with your transportation and security personnel and you shouldn't have any problems:

- a. Knowing the proper CIIC is key to applying the proper TPS.
- b. There are some differences in the protective services provided to commercial and unit/organic moves.
- c. TPS for commercial transportation are detailed in AR 190-11 and the DTR.
- d. The DTR and AR 190-11 provide *guidance* for securing unit/organic moves.
- e. Transporting A&E in OCONUS presents additional security challenges.

CHAPTER 17: Depleted Uranium Munitions

WHAT IS DEPLETED URANIUM AND WHY DOES THE ARMY USE IT?

DU is a mixture of 234U(0.0005%), 235U(0.2500%), and 238U(99.7500%), and is a byproduct of the uranium enrichment process. DU emits low-level radiation.

The Army uses DU because it self-sharpens during penetration; its high density and strength; its ease and relatively low cost of fabrication; and availability make it desirable for use as the penetrator in antitank shells (the part of the projectile designed to actually penetrate the armor). Tungsten has also been used in kinetic energy munitions because it also is a dense material. An advantage to tungsten is that it is not radioactive, but it is less effective and more expensive than DU.

HOW DO I KNOW IF I HAVE DU ITEMS IN MY STORAGE AREA? WHAT ITEMS CONTAIN DU?

Well, the packaging won't contain the words "radioactive" or "depleted uranium" or any other caution or specific identification. However, each package, overpack, or unitized/palletized group of packages must be conspicuously marked "DOT-E 9649" with figures at least one inch high. This marking indicates the DOT has authorized the transportation in commerce of munitions containing DU.

DU is used in armor-piercing rounds of caliber 20mm, 25mm, 30mm, 105mm, 120mm, as well as other munitions. The following is a listing of ammunition, currently in the Army inventory, containing DU cartridge penetrators:

<u>CALIBER</u>	<u>NOMENCLATURE</u>	<u>NSN/DODIC</u>	<u>MODEL</u>
20MM	APDS LINKED	1305-00-193-4227-A675	MK149 MOD 0
20MM	APDS LINKED	1305-01-087-6742-A675	MK149 MOD 0
20MM	APDS LINKED	1305-01-185-3265-A676	MK149 MOD 2
25MM	API	1305-01-136-3623-A979	PGU-20/U
25MM	API	1305-01-251-2582-A979	PGU-20/U
25MM	API	-A983	PGU-20
25MM	APFSDS-T	1305-01-304-9977-A986	M919
30MM	HEI & APIT LINKED	1305-01-061-2214-B102	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-063-2167-B102	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-056-4626-B103	PGU-13/B & PGU-14/B

30MM	HEI & APIT LINKED	1305-01-056-4907-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-083-5998-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-093-3340-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-095-1062-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-113-2462-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-146-1530-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-157-2627-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-161-0622-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-232-6180-B103	PGU-13/B & PGU-14/B
30MM	HEI & APIT LINKED	1305-01-225-8202-B103	PGU-13/B & PGU-14/B
30MM	APIT LINKED	1305-01-057-7912-B117	PGU-14A/B
30MM	APIT LINKED	1305-01-057-7913-B117	PGU-14A/B
30MM	APIT LINKED	1305-00-416-5809-B128	PGU-14/B
30MM	APIT LINKED	1305-01-023-1909-B128	PGU-14/B
105MM	APFSDS-T	1315-01-082-9856-C523	M774
105MM	APFSDS-T	1315-01-227-0008-C523	M774
105MM	APFSDS-T	1315-01-136-9631-C524	M833
105MM	APFSDS-T	1315-01-245-4019-C524	M833
105MM	APFSDS-T	1315-01-324-6633-C543	M900
120MM	APFSDS-T	1315-01-168-6108-C786	M829
120MM	APFSDS-T	1315-01-226-7418-C786	M829
120MM	APFSDS-T	1315-01-292-7753-C786	M829
120MM	APFSDS-T	1315-01-269-2256-C380	M829A1
120MM	APFSDS-T	1315-01-316-1211-C380	M829A1
120MM	APFSDS-T	1315-01-169-8947-C783	M827
120MM	APFSDS-T	1315-01-361-5023-C792	M829A2
120MM	APFSDS-T	1315-01-422-6335-C792	M829A2

I BET I NEED A LICENSE IF I HAVE THIS STUFF IN MY STORAGE AREA, DON'T I?

Actually, individual installations don't need a license. The Nuclear Regulatory Commission (NRC) allows the Army to store and handle ammunition items containing DU

penetrators under license number SUC-1380. The possession of the source material (depleted uranium) is licensed to HQ, OSC in accordance with Federal law, Title 10, Code of Federal Regulations. The Safety/Rad Waste Team, AMSOS-SF, of the OSC manages this license for the OSC Commander. The Radiation Safety Officer (RSO) is responsible for the license compliance and personally accountable for the source material. Violations of this law may result in a personal fine or imprisonment. Failure to report a noncompliance is also punishable under Federal Law.

The license covers storage, transportation, inspection, uploading, and minor maintenance of DU ammunition at U.S. Army installations. This license does not cover testing, firing, or production of DU ammunition. The NRC and Army regulations require that your installation's RSO maintain a copy of the license on-post.

WHAT IS A RADIATION SAFETY OFFICER (RSO)?

If you are at an installation that stores DU ammunition in bulk quantities, (depot or plant) there will be a designated RSO and an alternate RSO that have training commensurate with their responsibilities. If you are at an installation that stores DU ammunition in non-bulk quantities (post, camp, or station), there will be a designated radiological trained person responsible for the safe storage and use of radioactive materials. This person will have training and experience commensurate with his/her responsibilities.

Your installation RSO or designated person will have implemented a radiation protection program at your installation per the license conditions and Federal regulations. Part of the radiation protection program is to ensure that personnel who handle pallets, containers, and/or individual DU ammunition rounds receive annual DU-awareness training.

TRAINING? WHAT'S REQUIRED?

Glad you asked. AR 40-5, Preventive Medicine, paragraph 9-9.a.(2), states, "All persons working in or frequenting any portion of a controlled area where radioactive materials are used or stored, or where equipment capable of producing radiation is energized, will be informed of the radiation hazard involved and instructed regarding the rules and procedures to be observed (AR 40-14/DLAR 1000.28, AR 40-46, and USAEHA TG No. 153)." Instruction topics will include -

- a. Safe working techniques and procedures
- b. Proper use of protective equipment and devices
- c. Procedures to be followed when an accident or incident occurs or in other emergency situations
- d. Daily preoperational, operational, and postoperational checks or surveys to ensure proper radiation safety

e. Procedures for maintaining an operational log for each piece of equipment that will identify when interlocks and other control or warning devices are bypassed or overridden

The regulation also requires that records of this training will be maintained by the RSO. Records will include a brief outline of the instruction given and a list of persons who received the training.

During a 1997 inspection, the NRC reinforced this training requirement adding that appropriate personnel will receive annual training and will be tested. Training and testing on the information contained in this Chapter will meet regulatory and NRC requirements. The installation RSO or designated radiologically trained person is responsible for assuring this training and testing requirement is met.

WHAT IS RADIATION?

The three primary types of radiation are alpha, beta, and gamma. DU emits all three types.

a. Alpha radiation only travels a few inches in air and can be blocked by a sheet of paper or the outside layer of dead skin on our bodies.

b. Beta radiation will travel many feet in air, but can be blocked by a thin layer of plastic or metal. Ammunition shipping and storage containers shield the alpha and the beta radiation coming from DU munitions.

c. Depending on the strength of the source, gamma radiation can be highly penetrating and require a lot of shielding material. The gamma radiation from DU is relatively mild and drops off rapidly as you increase your distance from it. At several feet, the gamma radiation from DU is hard to detect.

The radiation levels on the exterior of packaged and unpackaged ammunition items containing DU are such that personnel monitoring is not required for routine storage, handling, and transportation. There is no external radiation hazard from normal handling of DU ammunition.

The two best ways to limit your exposure to DU are to increase your distance from it, and decrease the amount of time you spend near it.

WHAT ARE THE RISKS AND HAZARDS ASSOCIATED WITH DU?

Depleted uranium is a potential risk to personnel who may be exposed to the aerosolized products of a burning tank round (e.g., during fire in a tank bustle where armor-piercing rounds are stored, or if a DU round has penetrated the armor into the tank's crew compartment).

Although DU metal is mildly radioactive and can be chemically toxic if large amounts are internalized, the potential hazard of DU is secondary to that of the explosives in munitions. Installation personnel must take care when handling any ammunition/explosive item, and they must follow storage compatibility rules.

The DU is only a hazard if taken into the body in large amounts. Once in the bloodstream, it acts similar to other heavy metals (like lead) and can be chemically toxic. In large concentrations, it can affect kidney function. Inside the body, DU can also cause internal radiation exposure since there is no dead layer of skin, and the alpha and beta radiation can damage the soft tissues.

Inhalation is the primary pathway for DU to get inside your body. For you to breathe in DU, it must get airborne through an explosion, fire, or during a penetrator strike. These are associated with the battlefield and not with normal storage and handling. The SUC-1380 license does not authorize firing or operations that can cause DU dusts, mists, or gases. If you are near an explosion or fire involving DU, you should leave the area and stay out of the smoke plume.

Remember, ammunition items are designed to withstand extreme environmental conditions and rough handling without being a hazard to either the user or the environment. Accidents involving ammunition items containing DU components that are not associated with a fire or the threat of a fire pose little or no radiological hazard and will be handled per local procedures that are based primarily upon the explosives hazard associated the item.

FIRES INVOLVING DU MUNITION ITEMS.

The response to a fire involving ammunition is generally based upon the location of the fire, the potential threat to human life, and the explosive hazard associated with the munitions involved in the fire. In all cases, the senior fire officer present will make fire-fighting decisions. Fires involving ammunition items containing DU components have a dual hazard. Of primary concern is the explosive hazard associated with the munitions. The other hazard is the potential radiation hazard associated with oxidized DU and is discussed here.

When DU ammunition items become involved in a fire, a very small portion of the DU may become aerosolized and migrate with the smoke plume. The hazard of this aerosolized DU is considered small. The majority of the DU involved in a fire remains at the scene. This DU can pose an external radiation hazard if it remains in contact with the skin for an extended period of time. The DU remaining in the vicinity of the fire has been analyzed and has been found to be highly non-respirable and highly non-soluble in lung fluid. The small portion of this DU that is respirable can be an internal radiation hazard through inhalation if it is suspended in the air. Suspension could occur due to wind, explosion, or the activity of recovery crews. Because the DU, which remains at the scene of the fire, is highly non-soluble in lung fluid, the primary internal hazard of this DU is not chemical toxicity, but is the radiation exposure to the lung.

Historically, the occurrence of fires or explosions involving finished ammunition items for all Services is rare. Both the Army and Air Force have conducted burn tests on DU

ammunition items. These have shown that only small quantities of DU are released into the environment if a fire should involve ammunition items containing DU components. The extreme density of DU tends to result in its being deposited in the immediate area of the fire.

Fires involving munitions with a mass detonation, fragmentation, or mass fire hazard are not fought on a routine basis. For these types of fire, the area is generally evacuated, and attempts are made to fight incipient fires that are generated by the main fire. Fires involving munitions with a moderate fire hazard are generally fought. Additionally, fires posing a serious threat to human life may also be fought.

Fire-fighting personnel should, whenever possible, wear self-contained breathing apparatus if they are required to enter the smoke area. Although the smoke plume poses a small radiation hazard, personnel downwind of a fire involving DU ammunition should be evacuated mostly due to the possible presence of other non-radiological products in the smoke.

Additional characteristics of DU in a fire are summarized in TB 9-1300-278. Everyone involved in the handling of DU ammunition should become familiar with the TB.

REPORTING ACCIDENTS/INCIDENTS WITH DU MUNITIONS.

Accidents and incidents involving ammunition items containing DU components will be reported per Army procedures to the local RSO. The local RSO will report any accident or incident to the license RSO (Safety/Rad Waste Team, AMSOS-SF, of the OSC). The license RSO will report accidents and incidents to the NRC as required. Reports to the NRC will be made to the NRC regional office serving the license RSO regardless of the location/installation of the accident or incident.

The following types of accidents and incidents will be reported as expeditiously as possible through the Army accident reporting system to the local RSO and license RSO:

- a. Theft or loss of control of ammunition items containing DU components
- b. Functioning of ammunition items containing DU components
- c. Fires, explosions, or accidents involving storage structures, transport vehicles, or Army weapon systems that contain DU ammunition where the ammunition items are or could be damaged
- d. Accidents or incidents that damage or expose the DU components to the environment, or release DU to the environment

Other types of accidents and/or incidents involving DU ammunition are outlined in TB 9-1300-278. The time limit for reporting these types of accidents/incidents is 30 days.

WHAT PERSONAL PROTECTIVE MEASURES SHOULD I TAKE WHEN HANDLING DU AMMUNITION?

The only protective measure needed when handling intact DU rounds is to wear gloves. Always wash your hands afterward, even if you wore gloves. As required by the NRC, do not chew gum, eat, drink, or apply cosmetics in areas where DU munitions are stored or handled. The radiation levels from DU ammunition are low enough that you do not have to wear a dosimeter during normal storage and handling operations. Your installation RSO will decide when personnel need dosimeters. Your RSO has radiation detection instruments that can detect the presence of DU. Your RSO can check the radiation levels in your work area to see if you should wear a dosimeter.

Areas and buildings where DU munitions are stored or handled must be posted with a “Caution Radioactive Materials” sign. You will also see other notices posted where DU ammunition is in storage. These notices are:

- a. NRC Form 3, Notice to Employees
- b. A copy of License SUC-1380
- c. Part 19 of Title 10, CFR, Notices, Instructions and Reports to Workers: Inspection and Investigations
- d. Part 20 of Title 10, CFR, Standards for Protection Against Radiation
- e. Section 206, reporting noncompliance, and Section 211, whistleblower protection, of the Energy Reorganization Act of 1974
- f. A notice providing the name and telephone number of your RSO. If posting of the above documents is not practical, this notice will describe the above documents and state where they may be examined.

WHAT ARE THE SAFETY PROCEDURES FOR DU?

The storage, handling, and transportation procedures used with ammunition items containing DU will be per DOT and NRC regulations and are summarized in the following two paragraphs. These regulatory procedures will be in addition to procedures used with other ammunition items of the same explosives hazard classification and storage compatibility group. Because of the toxic nature of DU, SOPs will be developed locally to assure that personnel involved in operations with DU rounds are protected from possible ingestion. SOPs should include procedures covering accidents, storage, incidents, and reporting requirements involving rounds containing radioactive DU materials (reference TB 9-1300-278). See Chapter 9 of this guide for information on preparing SOPs.

Storage and Handling Procedures

The Army has developed detailed practices for safe storage and handling of all ammunition items in the DoD war reserve stockpile. These procedures are geared to reducing the likelihood of fires, explosions, and physical damage to the ammunition items. Each installation authorized to store, handle, or transport ammunition items has implemented safety and security procedures to reduce the likelihood of accident involving the munitions. The safety procedures include, but are not limited to:

- a. Housekeeping procedures to minimize or eliminate unnecessary combustible material in and around storage areas, work areas, and transport vehicles
- b. Use of lightning protection systems around storage and work areas
- c. Regular inspections of work and storage areas and transport vehicles
- d. Securing DU ammunition items within specially designed secure areas and storage structures on the installation and in vehicles during transit

Transportation

Procedures for the commercial transportation of ammunition items with DU components must comply with all transportation regulations applicable at the time of shipment. Packaging, marking, and labeling of DU ammunition items will be per all applicable transportation criteria unless specifically exempted. The metal shipping and storage containers for DU ammunition are stenciled with DOT-E 9649. This is a Department of Transportation exemption that allows the DoD to ship DU munitions according to the primary explosive hazard and without radiation markings.

SURVEILLANCE OF DU AMMUNITION.

QASAS are individuals trained specifically to perform surveillance inspections that verify the condition and serviceability of all ammunition items in the DoD stockpile. QASAS use published inspection criteria to visually inspect DU ammunition at locations and times determined by HQ, OSC.

DU ammunition inspection criteria include inspection for corrosion. Evidence of DU corrosion may indicate that additional inspection and investigation is necessary to determine the cause and extent of the problem. Inspection intervals and criteria, as set by HQ, OSC, allow for adequate detection of corrosion problems. DU ammunition deemed unserviceable by a QASAS will be reported as appropriate per SB 742-1 and DAP 738-750.

The possibility exists that ammunition items containing DU components may be damaged in handling or shipping to the extent that the items are considered unsafe. On these occasions, only U.S. Explosive Ordnance Disposal (EOD) units are authorized to render the item

safe for handling and shipment. Render-safe demilitarization does not involve destruction or incineration of the DU penetrator.

WHERE CAN I FIND MORE INFORMATION?

Check out the following sources for additional information on DU and radiation issues:

- a. AR 11-9, The Army Radiation Safety Program
- b. DOT-EXEMPTION 9649, authorizes transportation in commerce of munitions containing DU
- c. NRC License Number SUC-1380, NRC License and Application for Possession of Depleted Uranium as cartridge penetrators
- d. SB 742-1, Ammunition Surveillance Procedures, Appendix L
- e. TB 9-1300-278, Guidelines for Safe Response to handling, Storage, and Transportation Accidents Involving Army Tank Munitions Which Contain DU
- f. TM 43-0001-28, Data Sheets – Artillery Ammunition
- g. OSC web site <http://www.osc.army.mil/dm/dmwweb/indexdmw.htm>
Here you can find AR 11-9, DOT-E 9649, and License SUC-1380.
- h. NRC website <http://www.nrc.gov/>

REMEMBER.

DU ammunition is not as ominous as it sounds. Keep the following points in mind and you should have no problems with your DU items:

- a. Unserviceable ammunition items containing DU are not to be disposed of by burning or detonation. They have to be reported by the QASAS to HQ, OSC for disposition.
- b. Render-safe demilitarization of damaged DU ammunition is only done by EOD.
- c. Full service DU ammunition rounds may only be fired during war emergency. All peacetime firings are prohibited except at times of NRC license and host nation agreement.
- d. Loss or unauthorized firings of DU munitions must be reported to HQ, OSC, RSO within 24 hours of the discovery.

e. The DU is encapsulated within the cartridge and poses no external radiation hazard from normal handling.

f. When handling DU ammunition, wear gloves. If corrosion is found on the round, contact your local RSO and QASAS.

g. Regardless if gloves are worn or not, wash your hands after handling DU ammunition.

CHAPTER 18: Use Of Brass Cartridge Case Deformers/Shredders).

BACKGROUND.

To ensure proper demilitarization under DoD 4160.21-M, Defense Materiel Disposition Manual, DoD Instruction 4715.4, Pollution Prevention, requires installations to crush, shred, or otherwise destroy expended brass cartridge cases prior to direct sale to the public through a qualified recycling program (QRP).

Some installation QRPs purchased deformers to meet the requirement for processing spent cartridge cases before offering them for sale to the public. Brass cases were visually inspected and certified free from explosives prior to processing in the deformer. However, the probability remained that live rounds could be included in the certified brass and processed through the deformer, creating an explosives safety hazard for operators and personnel in the vicinity of deformer operations.

Based on the explosives safety concerns, HQDA imposed a moratorium on the purchase and use of brass deformers (DALO-AMA message 26093Z Mar 99).

SO WE CAN'T USE OUR DEFORMER?

Not so quick. The March 1999 DA message also directed a detailed, controlled test of available deformers to determine the technical requirements to best ensure operational and explosives safety. The DAC Validation Engineering Division conducted the tests in March 2000. Tests were conducted on the two deformers most often purchased by installations, the CP Manufacturing Inc., OD5000 Ordnance Deformer, and the Bouldin & Lawson, Rotary Drum Ordnance Deformer. The objective of the tests was to identify any safety hazards that may be present when live ammunition is inadvertently processed through these deformers.

WHAT DID THE TESTS SHOW?

The tests were conducted using 5.56mm, .50 caliber, and 20mm ammunition with the CP Manufacturing unit and 5.56mm and .50 caliber ammunition with the Bouldin & Lawson unit. The tests measured blast overpressure and decibel noise levels. As tested, the blast overpressure resulting from detonation of ammunition in both units was well below the threshold of 2.3 psi. The only direct evidence of any safety hazards were excessively high noise levels when live ammunition detonated inside the deforming chambers. However, there were numerous *potential* safety hazards when live ammunition was **not** detonated but damaged to a point where live propellant accumulated in the deforming chambers and in the exhaust containment vessels. Also, neither unit was constructed with explosion-proof motors, which could result in severe potential safety hazards to operating personnel.

The report documenting the results of the tests can be downloaded from the DAC homepage at <http://www.dac.army.mil/dev/>. Go to “Reports” on the left hand menu, then select Report Number 00-05.

SO WHAT DOES THAT MEAN? CAN WE USE OUR DEFORMER OR NOT?

What that means is that there is no direct explosives hazard to operators when the deformers are operated per the manufacturers instructions. However, excessively high noise levels present an occupational safety and health hazard that must be addressed with proper personal protective equipment. Based on the findings of the DAC tests, HQDA rescinded the March 1999 moratorium and issued guidance on the use of deformers (DALO-AMA/DACS-SF message 180712Z Jul 00). The message states that deformers can be used with the following conditions:

- Use of deformers will be sited as an ammunition operation and conducted by trained, experienced ammunition personnel.
- Deformers will only be used to render spent cartridge cases incapable of being reloaded or reused. They will not be used to ensure that spent cartridge cases contain no live rounds.
- Installations will perform a risk assessment and prepare an SOP.
- Deformers will not be used to process spent cartridges generated from armor piercing ammunition.
- Procedures will be implemented to minimize the accumulation of propellant on processed brass and inside the deformers.

REMEMBER.

Keeping the following points in mind will help minimize the possibility of safety incidents while operating brass deformers:

- a. Deformers must be formally sited as ammunition operations per Army and DoD explosives safety requirements.
- b. Installations must prepare and submit for approval an explosives safety site plan prior to operation of deformers.
- c. An SOP must be prepared and must include the requirements specified in the July 2000 HQDA message.
- d. Occupational safety and health hazards must be addressed by use of personal protective equipment.

e. Operators must be trained in the use of the equipment. Training should be documented and records retained.

CHAPTER 19: Internet Sites

The following Internet sites contain some useful and interesting information that may be of benefit to the Army logistician. Some sites are ammunition related while others are of a more general nature. Some sites require registration and assignment of a login and password. Each of the following web sites was accessed and the addresses listed were valid at the time this guide was prepared.

Air Force	http://www.af.mil/
Air Force Pubs	http://afpubs.hq.af.mil/
Air Force Technical Orders	http://www-ext.tinker.af.mil/tild/default.htm
American National Standards Institute	http://www.ansi.org/
Army	http://www.army.mil/
Army agencies	http://www.hqda.army.mil/HQDA/hqdalink.htm
Army installations and facilities	http://www.army.mil/public/installations.htm
Army Knowledge Online (Army email and search engine)	http://www.us.army.mil/
Army Link News	http://www.dtic.mil/armylink/news/
Army Materiel Command	http://www.amc.army.mil/
Army Pubs	http://www.usapa.army.mil/gils/browsable.html
Army site index links	http://www.army.mil/Siteindex.htm
Aviation and Missile Command	http://ammo.redstone.army.mil/
Code of Federal Regulations	http://www.access.gpo.gov/nara/cfr/cfr-table-search.html
Corps of Engineer Pubs	http://www.usace.army.mil/publications/
Defense Ammunition Center	http://www.dac.army.mil/
Defense Demilitarization and Trade Security Controls	http://www.almc.army.mil/demil
Defense Reutilization and Marketing Service	http://www.drms.dla.mil/
Defense Technical Information Center	http://www.dtic.mil/
DDESB	http://www.hqda.army.mil/ddesb/esb.html
DefenseLINK	http://www.defenselink.mil/
Defense Finance and Accounting Service Pubs	http://www.asafm.army.mil/DFAS/
Defense Logistics Agency Pubs	http://www.dlaps.hq.dla.mil/
DoD Pubs	http://web7.whs.osd.mil/corres.htm
DODSSP (military specs/standards)	http://astimage.daps.dla.mil/quicksearch
EPA Toxic Release Inventory information	http://www.epa.gov/tri/
EPCRA	http://www.denix.osd.mil/denix/Public/ES-Programs/Pollution/pollution.html
Federal Register	http://www.access.gpo.gov/su_docs/aces/aces140.html
Federal Web Site Search Engine	http://www.firstgov.gov
Field Support Command	http://www.osc.army.mil/FSC/default.asp
FORSCOM	http://www.forscom.army.mil/
FORSCOM Ammo	http://www.forscom.army.mil/ammo/
FORSCOM Pubs	http://www.forscom.army.mil/pubs/
Gen Reimer Training & Doctrine Digital Library	http://www.adtdl.army.mil/atdls.htm
Government Manual	http://www.access.gpo.gov/nara/
Hazardous Materials Information System (MSDS)	http://131.87.1.212/

Industrial Logistics Systems Center Pubs	http://www.ilsc.army.mil/docindex.htm
International Organization for Standardization (ISO standards)	http://www.iso.ch/
Locks, Hasps, and Security Seals	http://locks.nfesc.navy.mil/
Logistics Integration Agency	http://lia.army.mil/
Logistics Support Activity	http://www.logsa.army.mil
Marine Corps homepage	http://www.usmc.mil/
Marine Corps Information	http://www.usmc.mil/info.nsf/info/
Munitions and Armament Command	http://www.osc.army.mil/sm/macindex.htm
Munitions Rule	http://www.denix.osd.mil/denix/Public/Policy/Range/rule.html
National Fire Prevention Association	http://www.nfpa.org/
National Guard Bureau	http://www.ngb.dtic.mil/
National Guard Pubs	http://www.ngbpdc.ngb.army.mil/
National Institute of Standards & Technology	http://www.nist.gov/
Naval Ammunition Logistics Center	http://www.nalc.navy.mil/NALC/mainpage.html
Naval Ordnance Safety and Security Activity	http://nossa.ih.navy.mil/
Navy Directives	http://neds.nebt.daps.mil/
Office of Hazardous Materials Safety	http://hazmat.dot.gov/
Operations Support Command	http://www.osc.army.mil/
Optional Forms (OF)	http://web1.whs.osd.mil/icdhome/ofeforms.htm
Propellant stability information	http://www.osc.army.mil/ib/ibq/surv/gen/surv5.htm
PS Magazine Online	http://www.logsa.army.mil/psmag/psonline.htm
Range Rule	http://www.denix.osd.mil/denix/Public/Policy/Range/rule.html
Soldiers Magazine Online	http://www.dtic.mil/soldiers/
Standard Forms (SF)	http://web1.whs.osd.mil/icdhome/sfeforms.htm
TRADOC	http://www-tradoc.army.mil/
TRADOC Pubs	http://www-tradoc.army.mil/pubs.htm
Transportation Command (Defense Trans Reg)	http://www.transcom.mil/J4/j4lt.dtr.html
USAREUR Forms/Pubs	http://www.aeaim.hqusareur.army.mil/

CHAPTER 20: Index

This is an index of key topics located throughout this document. It is organized alphabetically by topic and identifies the chapter(s) within this document where each topic can be found.

Aboveground magazines, chapter 11
AINs, chapters 6, 7, 8, 9, and 12
Ammunition stockpile reliability program, chapter 8
Ammunition surveillance, chapters 4, 6, 7, 8, 9, 11, 12, 13, and 17
Army Operations Center, chapter 3
ASIS, chapters 7, 8, and 12
Assumption of command orders, chapter 2
AT4s, chapter 5
Authority to receive, chapter 2
Authority to request, chapter 2
Brass deformers, chapter 18
Computer based training, chapter 1
Construction, chapters 11 and 13
DA Form 581, chapter 2
DA Form 1687, chapter 2
DA Form 3022-R, chapter 6
DD Form 836, chapter 3
DD Form 1348-1, chapter 13
DD Form 1391, chapter 11
DDESB, chapter 11
Depleted Uranium, chapters 1 and 17
DLA, chapters 1, 3, and 17
DOT, chapters 1 and 17
DOT Exemption DOT-E 9649, chapter 17
DOT final rules, chapter 1
DRMO, chapters 9 and 13
DSR cards, chapters 4, 6, 8, and 9
Earth covered magazines, chapters 11 and 14
Emergency Response Guidebook, chapter 12
Emergency response telephone numbers, chapter 3
Energy conservation, chapters 11 and 13
Environmental protection, chapter 11
EPA, chapter 1
Explosives safety, chapters 8, 11, 14, and 18
Facilities engineering, chapter 11
Federal Express, chapter 16
Fencing, chapter 11
Hasps, chapters 10 and 11

Hazard analysis, chapter 9
Hazardous Materials Transportation Uniform Safety Act, chapter 1
HAZCOM training, chapter 1
HAZMAT training, chapter 1
HAZWOPER training, chapter 1
High security hasp, chapters 10 and 11
High security padlocks, chapter 10
High security shrouded hasp, chapter 10
Hotline telephone numbers, chapter 3
IDS, chapter 11
Inert certification, chapters 13 and 18
ISAs, chapters 5 and 8
Lightning protection system, chapters 9, 14, and 17
Locks, chapters 5 and 10
Low security padlocks, chapters 5 and 10
MAC, chapters 4 and 5
MCA, chapter 11
Medium security padlocks, chapters 5 and 10
MTMC, chapters 1 and 3
Mutilation, chapter 13
National Response Center, chapter 3
NFPA, chapter 14
Nitrocellulose, chapter 4
Nuclear Regulatory Commission, chapter 17
OSC, chapters 4, 6, 7, 12, 13, 16, and 17
OSHA, chapter 1
Packing material, return to wholesale system, chapter 13
Physical security, chapters 5, 9, and 16
Proceeds from the sale of recyclable material, chapter 13
Project development brochure, chapter 11
Propellant stability program, chapters 4, 6, and 9
QASAS, chapters 4, 6, 7, 8, 9, and 17
Qualified recycling program, chapter 18
Radiation safety officer, chapter 17
Radiation training, chapters 1 and 17
Recycling program, chapters 13 and 18
SAAS, chapter 9
Secondary padlocks, chapter 10
Security screening, chapters 2 and 16
Security seals, chapter 15
Shipping papers, chapters 1 and 3
Signature cards, chapters 2, 9, and 12
Social security numbers, chapter 2
Standard facilities, chapter 11
SOPs, chapters 1, 7, 9, 17, and 18

Suspended ammunition, chapters 4, 6, 8, 9, and 12
Title 10, CFR, chapter 17
Title 29, CFR, chapter 1
Title 40, CFR, chapter 1
Title 49, CFR, chapters 1 and 12
Transportation security, chapters 1 and 16
Two-person rule, chapters 5 and 10
USACE, chapter 11