Chapter 4

Division Ammunition Office and Ammunition Transfer Point

This chapter discusses the responsibilities, functions, and operations of the DAO and ATP sections within the division. It also covers the activities within division and corps structures that have staff and management responsibilities for munitions operations and planning during peacetime and contingency operations.

DIVISION AMMUNITION OFFICE

4-1. The Class V supply section of the DMMC is commonly referred to as the DAO. This section manages munitions for the division, provides staff supervision to division/brigade ATPs, and provides technical assistance and advice on munitions management to divisional units. Also, this section maintains records of munitions allocations, receipts, and expenditures for divisional units.

4-2. The DAO has administrative, operations, inspection, and ATP elements. Routine munitions duties and responsibilities may differ from one division to the next.

OFFICE ELEMENT

4-3. Within the Class V section, the DAO is the principal munitions staff officer for the division. The DAO assists the DISCOM commander in all matters pertaining to division munitions support and represents the DISCOM commander on matters concerning munitions requirements and availability. The DAO also maintains direct liaison with the division G3/G4 within limits defined by the DISCOM commander or DMMC chief. Other DAO responsibilities are as follows:

- Coordinates and controls use of Class V supplies.
- Monitors RSRs from tactical commanders for the G3.
- Monitors CSRs for the G4.
- Maintains munitions allocations for the division and approves munitions requests for users.
- Provides staff supervision for ATP operations.
- Maintains liaison with supporting CSAs and ASPs and the COSCOM MMC and MCC.

4-4. The senior munitions NCO is the principal enlisted assistant to the DAO and supervises all enlisted personnel assigned to the Class V section. Other responsibilities of the senior munitions NCO are as follows:

- Conducts on-the-job training to ensure proficiency and cross-training of enlisted personnel.
- Supervises preparation of all correspondence, plans, and reports and edits these documents prior to dispatch.

- Supervises maintenance of forms, files, and records.
- Serves as custodian for all classified documents.
- Ensures proper maintenance of all Class V section authorized equipment and vehicles.

OPERATIONS ELEMENT

4-5. The operations element provides technical advice and assistance on munitions supply, transportation, handling, and storage. The section supervisor is an ammunition warrant officer who provides the DAO with the current division munitions supply status. Ammunition supply sergeants perform stock visibility and clerical duties. Other responsibilities are as follows:

- Maintains stock visibility and supporting documentation and ensures availability of current information.
- Assists units in preparing munitions forecasts.
- Assists units on the storage, maintenance, and handling of ABLs.
- Reviews and updates basic load authorizations.
- Processes DA Forms 581, verifies unit forecasts, and monitors using unit submissions of DA Form 1687.

INSPECTION ELEMENT

4-6. Munitions inspection NCOs make up the DAO inspection element. This element advises on the safety, serviceability, maintenance, and security of all munitions assets in the division. It also evaluates division use of munitions storage and safety procedures in garrison and in the field and recommends improvements to these procedures. Other responsibilities of the inspection element are as follows:

- Inspects unit ABL and ammunition holding areas and ensures that units follow regulations and safety procedures.
- Observes and assists in investigations on munitions malfunctions.
- Coordinates with EOD teams.
- Maintains records and reports of munitions inspections.
- Monitors munitions suspension notices.
- Maintains specifications on packaging and storing of munitions.
- Uses applicable munitions load drawings to monitor and ensure proper and safe loading relative to munitions movement.

ATP ELEMENT

4-7. NCOs assigned to the ATP element of the DAO provide staff supervision of the forward ATPs. The DAO may also have representatives at the supporting CSAs and ASPs if enough personnel are assigned. Responsibilities of the ATP element include the following:

- Provide technical assistance, coordination, and advice to ensure munitions transfer operations at the ATP are conducted properly and efficiently.
- Monitor munitions flow into and out of the ATP.

- Authenticate DA Form 581 and ensure each request is within the CSR.
- Ensure only authorized personnel receive munitions based on the unit DA Form 1687.
- Keep the DAO informed through daily reports and ensure ATP operations comply with division SOPs.
- Assist the ATP NCOIC with selection of adequate ATP sites.
- Verify contents of corps resupply vehicles.
- Establish primary and backup communications with the DAO, the supporting ASA, and other agencies (i.e., FSB support operations offices and the brigade S4).
- Coordinate with the brigade S4 and FSB support operations office to schedule using unit resupply.
- Coordinate with operations element for backhaul of corps transportation assets.

AMMUNITION TRANSFER POINT

4-8. The ATP section of the FSB/CSB supply company operates the forward ATPs. The supporting DS ordnance company or modular platoon ATP section operates the rear ATP. Since the munitions support mission is such a critical one, the ATP section performs *only* munitions transfer operations. It is neither equipped nor staffed to perform other supply-related functions. The ATP section is primarily responsible for conducting munitions operations and maintaining stock status records of munitions.

4-9. Munitions operations include the transloading of munitions from corps trailers to user resupply vehicles under all environmental and threat conditions, receiving unit turn-ins, performing emergency destruction of munitions, and conducting relocations. This section is also responsible for the following:

- Controlling the flow of vehicles within the ATP to avoid congestion and to ease munitions handling operations.
- Consolidating trailers with less-than-trailer loads to economize resupply.
- Releasing transportation assets for backhaul.
- Defending the ATP from enemy threats.

4-10. To maintain visibility of munitions, the ATP section keeps type and quantity records of the balances of the munitions within the ATP. Paperwork and reports relative to munitions received from corps or users is passed along to the DAO representative as well as reports on damaged munitions.

ORGANIZATION

4-11. The ATP section is comprised of the section chief (an NCO) and section members. The section chief supervises operations under the staff supervision of the DAO. The number of personnel assigned to the ATP depends on the unit TOE authorization.

ATP Section Chief

4-12. Section chief/NCOIC responsibilities include planning and organizing ATP operations, supervising ATP section members, and developing the operations SOP. Other responsibilities of the section chief are as follows:

- Ensures all operations are conducted safely with consideration for operational hazards (i.e., fire protection).
- Disperses vehicles and conducts vehicle inspections.
- Signs and processes shipping documents, including DD Form 1348-1A.
- Ensures safe munitions handling.
- Manages ATP cover, concealment, and security.
- Maintains stock status records of munitions at the ATP.
- Ensures proper and continuous operator maintenance is performed on all section equipment, such as MHE, trucks, and radios.
- Establishes work schedules.

Because the ATP section operates independently in a support area, the NCOIC must keep the DAO representative informed of problems or added support requirements, such as personnel, MHE, security, or transportation assets.

Section Members

4-13. Section members have both munitions-specific duties and field operations responsibilities. Their responsibilities are as follows:

- Ensure safe handling of munitions within the ATP.
- Operate rough terrain forklifts used to transfer munitions from corps to user resupply vehicles.
- Perform preventive maintenance on assigned equipment.
- Reposition trailers to enhance operations.
- Maintain cover and concealment of the operations area.
- Assist with ATP security.

MUNITIONS-RELATED FUNCTIONS

4-14. Within the division, there are other organizations with functions critical to the division's ammunition support. Discussed below are the munitionsrelated functions of the maneuver battalion and brigade operations and training staffs and logistical staffs, the DISCOM, support battalions, and the general staff.

MANEUVER BATTALIONS/BRIGADES (S3)

4-15. Based on anticipated tactical operations, the S3 of each maneuver battalion determines munitions requirements and submits them to the brigade S3. The brigade S3 determines the consolidated munitions requirements for the brigade from the battalions' input and from knowledge of planned tactical operations. (The exception is artillery units whose requirements are determined through the DIVARTY.) The brigade's consolidated requirements are added to the requirements of divisions and nondivisional elements that are supporting the brigade. The total requirement is submitted to the division G3. The other important task of the maneuver brigade S3 is to select the location of the BSA.

MANEUVER BATTALIONS/BRIGADES (S4)

4-16. The S4 of each maneuver battalion requisitions munitions based on consolidated company requirements needed to support brigade operations. Munitions requests are submitted to the brigade S4 along with on-hand quantities, critical shortages, and forecasted changes in requirements. The brigade S4 consolidates the requests, coordinates with the FSB support operations officer to establish unit issue schedules, and provides the DAO with a unit issue priority list and consolidated unit requirements. Finally, the brigade S4 provides the battalion S4s with their allocations of the brigade CSR and advises the DAO to ensure that units do not exceed authorizations.

DIVISION SUPPORT COMMAND

4-17. The DISCOM provides logistical support to the division through organic support battalions and supports the maneuver brigades through the FSB. The MSB provides support to the division rear elements. More detailed information on DISCOM functions can be found in FMs 63-2 and 63-2-1.

4-18. Key staffs in the DISCOM are the S2/3 and the DMMC. With input from the DAO, the S2/3 prepares OPORDs and annexes for CSS and coordinates DISCOM assets needed to support the ATPs (i.e., MHE, personnel, DISCOM and corps transportation). The S2/3 also coordinates with the DAO on chemical munitions operations, distribution, and accountability control. When the division operates a series of base camps, consideration will be given to augmenting the DISCOM staff with a cell of QASAS/qualified military inspectors to provide explosives safety and ammunition technical services to the division.

4-19. The S2/3 exercises division-level movement control through the MCO, an agent of the DISCOM commander who controls the use of motor transport assets for division CSS operations. Users forward their transportation requirements to the MCO. The MCO tasks the TMT company of the MSB and/or equivalent organizations, coordinates with the DMMC to ensure that supply movement priorities are met, and passes transportation requirements that exceed division capability to the DTO for further coordination and action.

4-20. Through the support operations branch, the S2/3 ensures that division support operations are conducted efficiently. This branch directs CSS elements of the division, ensures that SOPs governing CSS operations are prepared and followed, and prepares appropriate CSS directives and OPORDs for DISCOM internal operating elements (i.e., the FSB, MSB, and DMMC).

4-21. The DMMC manages supplies for the DISCOM. It determines division requirements and maintains supply records. It also directs the receipt, temporary storage, issue, and distribution of supplies and equipment, and provides command and control over the Class V supply section.

SUPPORT BATTALIONS

4-22. The ATPs are organic assets of the supply company in the FSB. Each FSB is in direct support of a maneuver brigade. The TMT company of the MSB distributes supplies to the FSB. Also, the TMT company can provide emergency munitions line-haul to augment corps transportation.

DIVISION GENERAL STAFF (G3 AND G4)

4-23. The G3 establishes the division RSR (based on consolidated RSR information from the brigades and anticipated combat requirements) after consulting with the DAO, DISCOM commander, G4, and other staff members. The division RSR is then submitted to the corps or equivalent organization for further planning and action.

4-24. It is important that the G3 keep the DAO informed of tactical situations that may impact on munitions operations. Such information may include the current and projected divisional tactical situation, weather, terrain, potential problem areas, MOPP levels, and munitions requirements other than those provided by the brigades.

4-25. The G3 manages emergency munitions resupply and determines priorities, needs, and (with the DAO) methods for performing emergency resupply operations. The G3 also coordinates with the DISCOM commander and G4 to determine the location of the DSA.

4-26. Based on the CSR received from higher headquarters (i.e., corps or theater), the G3 sub-allocates the division CSR. The CSR is published either in OPORDs, fire support annexes, or similar documents for the combat units.

4-27. The G4 also provides planning for division movement support through staff supervision of the DTO. The DTO serves as the communications link for transportation between the division and the corps and requests corps transportation support from the MCA. Further, the DTO provides DISCOM MCO guidance and assistance on division movement priorities, unit movements, movement requests, and MSR use and validates airlift requests for CSS operations.

ECHELONS ABOVE DIVISION

4-28. As directed by the COSCOM, the CSA and ASP support the ATP. These storage areas are corps assets assigned to COSCOM ordnance battalions/corps support battalions, companies, or platoons. They support the ATPs by preparing and shipping munitions in MCLs or single DODIC loads. When workload allows, and the DAO has provided the required information, the CSAs and ASPs may prepare preloaded ATP trailers and hold them until needed for resupply. These prepared trailers can be used either for emergency resupply or as part of the normal push to the ATP. CSAs and ASPs also issue munitions to units operating in their areas.

4-29. Higher level MMCs provide commodity management and inventory visibility control of munitions. The CMMC manages munitions at the corps level only and interfaces with the operational level MMC. The operational level MMC manages assets for the entire theater and is the primary interface between the theater and the NICP, DLA, and USAMC.

DAO AND ATP OPERATIONS

4-30. Munitions support to the division involves two basic functions. The first is planning and the second is execution. Both are accomplished by the DAO's Class V supply section and the supply company's ATP section.

4-31. The Class V supply section's planning function focuses on how to logistically support the commander's tactical plan so that the right munitions are available at the right place and time. The section's execution function is to monitor the distribution and flow of munitions during battle.

4-32. The ATP planning function is to coordinate resupply of combat units with the arrival of incoming munitions shipments. Its primary execution function is the transloading of munitions to combat units.

4-33. How well these sections perform their functions directly affects the quality of munitions support to the division. All operations involve close coordination between the two sections.

DAO OPERATIONS

4-34. The Class V supply section supervises the ATP staff and manages munitions. The DAO determines the amount of munitions needed to support the division based on the tactical plan and established CSR. Also, the DAO decides how to distribute munitions available in the ATPs to best support users. The DAO coordinates with the supporting CMMC and CSAs and ASPs for resupply and continually monitors tactical requirements to modify resupply requirements. Planning will address the types and quantities of munitions required and identify the ATPs to which the munitions will be delivered. Some of the more important responsibilities of the DAO are discussed below.

SOPs and OPLANs

4-35. The DAO publishes SOPs and develops portions of OPLANs to ensure plans and procedures that adequately support the tactical forces are established within the division. Before implementing SOPs and OPLANs, they must be carefully coordinated with the support battalion.

4-36. The DAO determines and publishes the support plan for each ATP so that all supported units know the identity and location of their supporting ATPs. The DAO provides the G3 with ATP information to be covered in OPLANs and OPORDs, including DAO, storage area, ATP, and CSA locations.

Division Resupply Requirements

4-37. Anticipated tactical operations drive division resupply requirements. The DAO estimates these requirements using information from the automated OPLOG Planner, input from the brigades, and knowledge of the force to be supported. Either the brigade S3 provides weapon status information, or it is obtained from the weapon systems status report submitted through logistics channels (S4/G4). This report gives the current status of on-hand weapon systems in the maneuver battalion.

4-38. SIDPERS reports provide current personnel data when troop strength is the basis for munitions allocations (as is the case with hand grenades, flares, simulators, and so forth). The DAO uses historical data for the particular force/scenario or planning rates in the OPLOG Planner when anticipating combat losses.

4-39. Added planning and coordination are required to support nondivisional and corps slice elements (i.e., an artillery battalion supporting a maneuver brigade). The overall division munitions planning process must include organizations, or portions of organizations, that normally support the division. The DAO will maintain close coordination with the operational and logistical staff elements of these nondivisional elements. Such coordination enables the munitions planner to anticipate requirements.

4-40. In coordination with the G4 and the CMMC and based on proposed MCL configurations submitted by the maneuver brigade S4, the DAO computes the numbers and types of MCLs required to support the division. MCLs are preplanned packages of munitions that consist of items needed to support a particular type unit or weapon system. The MCL concept differs from previous resupply concepts. With this concept, the ATP supplies a fully functional package loaded on flatrack(s), instead of multiple single DODIC platforms located throughout the ATP.

4-41. The CMMC consolidates data from all assigned divisions and nondivisional elements as appropriate (such as corps artillery) and completes composition of the MCLs. The DAO translates the user munitions allocation, which is based on CSRs, into MCL packages and submits these requirements to the CMMC. With knowledge of how much of what MCL is required at each ATP, the CMMC can continue to push munitions if communications systems fail.

Division Munitions Status

4-42. The DAO monitors the division ATPs to determine the availability of all types of munitions. Also, the DAO checks on the ETA of incoming shipments and notifies DAO representatives and support operations sections of the support battalions. The DAO locates representatives at the ATPs or on MSRs to coordinate and control munitions flow and to direct redistribution of munitions in the ATPs to support combat units more effectively. In peacetime, the DAO monitors all ABL and operational or contingency stocks to ensure availability and serviceability.

EMERGENCY REQUESTS

4-43. Under the push system, munitions are specifically requested only in emergencies. Preplanned munitions continue to flow until the MCLs are changed either in type or quantity to be delivered. A munitions shipment is said to be "throughput" when it bypasses one or more nodes; it is used to improve efficiency in the distribution process when emergency requirements dictate.

4-44. Emergency throughput involves corps transportation assets historically not employed near the front lines. For this reason, the corps G3 makes the

decision to conduct the operation, based on the requirement and the recommendation of the DAO.

4-45. Several methods may be used for throughput of emergency requirements. Whichever the method, it is essential that close coordination and communications be maintained among the users, the DAO, the G4, and transportation units. The division SOP is the appropriate medium for specifying requirements and procedures to be followed.

4-46. Combat units pass emergency requirements for munitions through G3/S3 channels to the DAO as quickly as possible. The DAO selects the fastest method of responding to the requirement, based on its priority as determined by the G3. Possible solutions include diverting inbound shipments from ATPs that are supporting units with less need, using aerial resupply, using throughput procedures previously described, or using a combination of these. The DAO implements emergency resupply solutions and monitors the action to ensure effective and efficient resupply.

Chemical Munitions

4-47. Chemical munitions do not remain in an ATP for long periods of time. Based on a materiel release order from the CMMC, they are pushed forward to the ATP and then issued directly to the using unit. Chemical munitions require chain of custody documentation using DD Form 1911. The ATP may receive chemical munitions from either the CSA or ASP. The ATP assumes custody and coordinates security until the munitions are issued. Also, the ATP may serve as a transfer point for retrograded chemical munitions. The DAO and ATP representative closely monitor receipt of chemical munitions and ensure that units are notified to expedite issue and limit ATP handling time. Specific controls for chemical munitions are covered in AR 50-6.

Records and Reports

4-48. Although the amount of detail may be reduced, combat operations or SASO do not eliminate the need for keeping records and preparing reports. The division must still be able to track its munitions status to be an effective combat force. The DAO must keep records for each ATP of the on-hand status, munitions issues, munitions requirements (to help establish usage data), requirements documents, and authorized expenditure rates (CSR/RSR).

Authorized Rates

4-49. No prescribed format exists for transmitting RSRs or CSRs, but it is imperative that they are transmitted through both operational and logistical channels (i.e., OPLANs, OPORDs). The DAO receives CSRs from the G4. The DAO representative at each ATP must ensure that units do not exceed their CSRs by maintaining authorization information for each supported unit, including divisional and supporting corps-slice elements. When the DAO representative authenticates a user's munitions requirement document, the unit authorization is reviewed. Any previous issues are subtracted to determine the quantity of munitions the unit is authorized. The S4 of the supported brigade will provide CSR data for each unit the ATP supports. 4-50. To monitor CSRs, the DAO can use either SAAS-DAO/SAAS-ATP or a manual system consisting of stock record decks. If a manual system is used, it will allow the user to maintain visibility of all assets, process documents quickly, and prepare status reports easily.

Document Flow

4-51. Even with emerging automated procedures, the Class V supply section and ATP should keep some manual forms and process some documents to maintain good munitions control. The following section discusses some of the important documents that the DAO and ATP NCOIC are likely to encounter. Detailed documentation processing is discussed elsewhere in this manual.

4-52. Shipping documentation. Corps storage areas ship munitions to the ATP using DD Form 1348-1A, DD Form 1384, and if necessary, a DD Form 1911 for chemical munitions. The transportation system uses DD Form 1384 to control the shipment throughout the shipping process. This form includes information basic to shipping and transportation activities (i.e., type of shipment, mode of shipment, special handling information, required delivery date, lot number, number of items, weight and volume of items and total shipment).

4-53. The ATP NCO verifies the actual shipment against these documents to ensure that the correct items and quantities have been shipped and makes corrections, if needed. The documents are then signed and returned to the Class V supply section for processing. Stock records at the ATP are posted using either SAAS-ATP or manual records.

4-54. The REPSHIP is another document used for shipping. The REPSHIP alerts the receiver (i.e., DAO or ATP) to a pending shipment and provides the ETA, a listing of items and quantities shipped, and special instructions for transportation agencies and receiver. The ATP either uses the REPSHIP to plan for receipt of the shipment or arranges to meet the convoy in case the ATP has to relocate while the convoy is en route. Although the DD Form 1348-1A may be used as a REPSHIP, no standard form or format is prescribed. The theater may direct the use of the most suitable format. Any available media may be used to transmit REPSHIP data.

4-55. Issue and transload documentation. The main document needed to perform munitions issue or transload operations is DA Form 581. The S4 of the using unit requests issue of munitions on the DA Form 581 within the authorized quantities (CSR) provided by the brigade S4. Before releasing the unit to transload, the DAO representative at the ATP verifies that the request is within the unit CSR and that the ATP has the required amount. If either the CSR or the ATP quantity will be exceeded, the DA Form 581 must be amended. The DAO representative also checks the DA Form 1687 to ensure that the unit representative is authorized to draw munitions.

4-56. Once munitions are transloaded, the ATP representative verifies the load with the unit representative to ensure the unit gets the right type and amount of munitions. This procedure also helps to maintain munitions visibility. When the unit departs, the DAO representative posts the issue to his control records and reports the transaction to the DAO through the DTR.

4-57. Daily transaction reports. The DAO updates and verifies records using DTRs submitted by the ATP representatives. The DTRs will be limited to pertinent munitions information and problems/anticipated operations that would affect the flow of munitions. A short SITREP should accompany the DTR. The report period depends on the situation, command procedures, and common sense. However, twice daily reports should be considered reasonable.

4-58. The DAO also uses the DTRs to compare balances with estimated requirements and submits a consolidated balance report to the CMMC IAW the SOP. Any serious or important information may be included with the balance report.

4-59. Munitions status report. The division will develop a simple and standardized AMSTAT to report its munitions status to higher headquarters. The DAO provides consolidated information from the ATPs via the DTRs and adds any pertinent information. Various formats may be used based on the report's intended purpose. The AMSTAT must be classified at a level high enough to keep from revealing important logistical and/or tactical information. It may be submitted electronically or by direct computer link. The corps determines the AMSTAT addressees, but at minimum it is sent to the corps and division G3s and G4s and division units with action. Information copies will be provided the CMMC.

Surveillance Operations

4-60. Surveillance operations ensure that munitions are safe for issue and use. These operations include the observation, inspection, and classification of munitions and components during storage and movement. Extensive inspections are not expected during combat but should be expected during SASO. They may be required, however, to conserve valuable or critical munitions assets and to ensure that serviceable munitions are issued to using units. The ATP-level inspector is mainly concerned with munitions suspension or restriction control, weapon malfunctions, and ABL inspections. Supporting DOD QASAS/qualified military inspectors will perform serviceability inspections of all ammunition transferred from one unit to another when the tactical situation permits. Such transfers will be the exception to normal operations but are warranted in such situations as unit rotations during SASO.

Munitions Suspensions

4-61. The ATP will issue only serviceable munitions to combat users. Some munitions may be determined to be unsuitable for combat use due to deterioration, age, storage conditions, or manufacturing defects. Such munitions may be classified as suspended or restricted and are unsafe to use or move for a variety of reasons. Use of suspended munitions can pose danger to the weapon crew. Restricted munitions are items safe to move, store, or use under the proper conditions. (For example, particular lots of faulty artillery shells that have been specially tested and approved as safe for use only in overhead fire operations.) TB 9-1300-385 contains the current worldwide list of suspended and restricted munitions.

4-62. When munitions are discovered to be dangerous, suspension or restriction notices are sent to all affected organizations as quickly as possible. The Class V supply section inspector monitors these notices.

4-63. The DAO requests disposition instructions from the CMMC for unsuitable munitions within the ATPs and coordinates with the CMMC to determine if the ATPs will be resupplied. The DAO directs the ATP NCOIC to mark and segregate (to the extent possible) the suspended/restricted munitions. The DAO then notifies all units that received suspension or restriction notices and coordinates through the battalion S3 to arrange for turn-in and reissue.

4-64. If the CMMC directs that the munitions be destroyed, they can be destroyed by ordnance personnel. The disposal site must meet disposal guidelines IAW DA Pam 385-64 and the MMR. If EOD personnel are required, the division G3 will coordinate with the supporting EOD unit for assistance.

Weapon/Munitions Malfunctions

4-65. Weapons and munitions do not always function as intended in combat. Occasionally malfunctions do occur. Combat units must notify the DAO of the malfunction as soon as possible. The DAO notifies the CMMC and the ordnance battalion/corps support battalion for inspection support. Besides DAO inspectors, investigation of munitions malfunctions may require the assistance of QASAS/qualified military inspectors for inspection and resolution. Based on this inspection, munitions may be suspended locally pending a more thorough investigation.

ABL Inspections

4-66. ABL must be periodically inspected to ensure proper and safe storage. During combat, some munitions storage standards may be relaxed. Both civilian and military munitions inspectors will inform commanders of the risks involved. Inspection requirements are discussed in SB 742-1. Command policies will contain provisions for the cyclic scheduling, supporting, and accomplishment of inspections of ammunition in the possession of units. This is an explosives safety force protection measure.

ATP OPERATIONS

4-67. The ATP section of the FSB supply company operates the brigade ATP in close coordination with the DAO, FSB, brigade, division staff, and supporting/supported organizations. Activities and responsibilities of the ATP section are described below.

Site Location and Selection

4-68. For the most part, the ATP section plans for and establishes the ATP, which must be properly sited in the support area (brigade/division) to support combat operations. The maneuver brigade S3 sites the BSA, and the division G3 determines the DSA location.

4-69. The DAO, ATP NCOIC, and brigade and division staffs will provide input to the ATP site selection. The DAO provides munitions-related technical information and suggestions on how best to lay out the ATP for support operations. Following site selection, the best layout for the ATP must be planned and executed.

4-70. As the division munitions expert, the DAO provides input on the proper positioning of ATPs on the battlefield. ATP section personnel do most of the planning and physical setup of the ATP. However, the DAO ensures that it is positioned to most effectively support combat users, given the munitions requirements of the supported force and the tactical factors of METT-TC. The DAO coordinates placement of the rear ATP with the division G3 and placement of forward ATPs with the supported brigade S3 and the support battalion. An ATP is normally part of the BSA. Depending on the tactical situation and METT-TC, it may also be located at a railhead, shipyard, port of debarkation, or at an ASP or CSA or adjacent to a road network.

Site Layout

4-71. No specific standard configuration exists for ATP layout. Layout will be based on the tactical situation and what is deemed to be the most functional way to provide support to using units. See DA Pam 385-64 for additional guidance. The MCL concept increases the capability of the ATP to support a specific type of unit with one-stop transloading rather than multiple stops to fill munitions requirements. However, it still may be necessary to maintain trailers with single DODIC loads to replenish other type units. The DAO and ATP section must analyze the support situation and determine how best to support users.

4-72. Some layout considerations are common to any configuration. One entrance/exit point, with consideration for an emergency exit, allows control of unit and corps vehicles and MHE. A good one-way roadnet should have room to allow unit vehicles and MHE to operate safely. A separate holding area should be available to hold incoming trailers temporarily that cannot be placed immediately.

4-73. The signature of the ATP should be reduced using terrain features such as vegetation, trees, slopes, and valleys for concealment. Special care must be taken not to disrupt the natural look of the area.

Receipt Of Munitions

4-74. The key function of the ATP is to receive munitions from CSAs/ASPs, on corps transportation assets, and transload them to user resupply vehicles. Current analysis estimates the receipt of shipments at every three to four hours, which realistically translates to continuous operations. Receipt is, therefore, the most important operation.

4-75. The DAO representative and the ATP section must be prepared to properly receive and place trailers, transload to users, and record and report the receipt. Munitions may also be received from other ATPs when the DAO directs redistribution in support of the division or as turn-ins of unused or unusable munitions. Within CSR constraints, the DAO must ensure the availability of munitions stocks at ATPs to support user needs. During SASO, the ATP may be required to store limited amounts of munitions stocks.

4-76. Receipt Planning. The shipper will notify the ATP in advance of a scheduled shipment either by hard copy or electronic REPSHIP, or DD Form 1384. In combat, SAAS-DAO communication is the probable means of advance notification. The DAO also informs the receiving ATP representative of the ETA and types and quantities of munitions expected.

4-77. The planning process at an ATP is continuous. When an advance shipment notification is received, the ATP section must know where to place the trailers, consistent with different hazards and storage standards, to ensure safe operations.

4-78. Receipt Documentation. The ATP representative will verify shipment contents against the shipping documents (i.e., DD Form 1384 and DD Form 1911 for chemical munitions). The ATP section assists by helping with the count. The ATP representative must record any discrepancies and damaged munitions on the shipping documents and, time permitting, record the quantity of munitions by lot number for DAO records.

Vehicle Inspection

4-79. Munitions are especially sensitive to fire. Before entering the ATP, convoy tractors and trailers and using unit vehicles must be inspected for safety defects that could start or contribute to a vehicle or grass fire. Inspection criteria are stringent during peacetime operations. In combat or SASO and based on mission requirements, the criteria may be relaxed to speed munitions flow. However, this must be a documented command decision. The inspection criteria of DD Form 626 will be used as much as possible.

Trailer Placement

4-80. When placing trailers, the NCOIC has two considerations. The first is how to best support the units. If possible, place unit loads or MCLs in the same general area. If the munitions are issued by DODICs and not by MCLs, trailers of the same DODICs should be located together. The second consideration is the characteristics of the munitions. Munitions must be stored correctly to reduce hazards to the ATP. Consult DA Pam 385-64 for specific guidance. Chemical munitions will receive special attention because of added hazards and security needs.

Escort And Release

4-81. ATP section personnel should escort tractors to ensure that trailers are properly positioned and recorded on a planograph or locally prepared site log. After trailers are placed, the drivers pick up any trailers to be backhauled to the rear. Once the return convoy is established, the DAO representative provides a copy of all documents to the convoy commander and releases the convoy for the return to the CSA.

Munitions Returns

4-82. Using units return very few munitions since most will have been expended. However, munitions that are returned must be handled carefully. Users can return munitions that are suspended or restricted or because they are excess to basic load requirements. Combat units may also turn in CEA.

4-83. The DAO representative notifies the DAO of returns using the daily AMSTAT. If the munitions are unserviceable, the DAO requests disposition instructions from the CMMC. If the munitions are returned as serviceable excess, the DAO redistributes them to users.

4-84. Returned munitions can create problems. The most significant of these are the following:

- Arrival of unit returns with little or no warning. The ATP NCOIC should anticipate user returns and set aside areas of the ATP for returned munitions. Accepting returns should be regarded as part of a normal day's operations.
- The potentially hazardous condition of returned munitions. This problem is more dangerous since the munitions may pose serious safety hazards, depending on their characteristics and condition.

To help reduce storage hazards, ATP personnel will mark returned munitions and store them separately from serviceable munitions. As soon as mission permits, an ammunition inspector will assign an ammunition condition code and determine if any suspensions or restrictions are applicable. This practice prevents inadvertent issue to using units and the possibility of a safety hazard.

Unit Issues

4-85. Thorough preparation by all key players is essential to an efficient issue operation. The battalion S4 prepares the request for issue on a DA Form 581 and coordinates resupply schedules with the brigade S4, the support operations officers, and the DAO. The support operations office coordinates with the DISCOM S3 to schedule supported units. The FSB SPO, in conjunction with the DAO representative, will work with supported units to ensure that forecasted munitions are properly receipted.

4-86. When the S4 notifies the DAO of the requirement, the DAO decides how best to support it and determines if the required munitions are in the supporting ATP. The DAO also ensures that the requirement is within the CSR or that an increase has been granted. If the munitions are at the ATP, the using unit can go to the ATP and transload; if not, the DAO must determine how to support the unit. If required, the DAO arranges emergency resupply by coordinating with the unit, the division G3, and the CMMC.

4-87. Before entering the ATP, using unit vehicles must be inspected for safety defects that could be hazardous to the ATP or its personnel. Vehicle inspection procedures are covered in other chapters of this manual.

4-88. While the ATP section inspects the unit's resupply vehicles, the DAO representative authenticates the DA Form 581, verifies that the unit requirement is within CSR limits, and ensures that the ATP has the required

quantities. If the requirement exceeds the CSR or the munitions are not in the ATP, the DAO representative requests instructions from the DAO.

4-89. After transloading, the DAO representative verifies the issue and ensures that the correct types and quantities of munitions have been issued and loaded safely on unit vehicles. Once the unit is released, the DAO representative and ATP NCOIC update their munitions records. The updated records allow preparation of the AMSTAT and asset control within the ATP.

Operations Safety

4-90. ATP section personnel must operate the ATP safely and maintain its assigned equipment. The ATP NCOIC ensures that all operations are conducted as safely as possible. The most significant danger in an ATP is fire. MHE movement and transloading also present significant hazards. See Chapters 7 and 8 for operational and fire safety precautions and provisions applicable to munitions storage facilities and operations.

ATP Relocations

4-91. The purpose of the ATP is to provide dedicated munitions support to the user as far forward as possible. When the supported force maneuvers, the ATP moves accordingly. Routinely, the ATP should be prepared to move frequently, as METT-TC dictates. Detailed plans will be established to allow for quick, orderly movement under pressure. Evacuation priorities will be established beginning with the most important assets. Except for the emphasis on speed, the basic procedures for an emergency move are the same as for a routine move.

4-92. When planning for relocations, the following factors must be considered:

- First, the move must be thoroughly planned. Preparation and practice during peacetime (IAW a well developed SOP) increases the capability to move effectively and reduce confusion during wartime.
- Second, the ability to maintain communications is extremely important.
- Third, support to the brigade from the corps munitions structure and lines of communications between supported units and with the corps must be maintained. Disruption of munitions flow in support of the brigade should be minimized to the extent possible.

4-93. The ATP is moved in phases to maintain continuity of support to the combat users. A portion of the ATP may move to establish a new site, and the remainder may move later and establish full operations. The relocation can be divided into three phases: pre-movement, movement, and post-movement.

4-94. Premovement. Planning input and coordination by the DAO, G3, G4, and ATP section ensure that a coordinated, safe, and quick relocation is conducted. Relocation plans must be coordinated with all supported and supporting agencies. The DAO coordinates with the CMMC for the move. This includes arranging for corps transportation to move the munitions to the site and for the backhaul of empty trailers at the old site. Also, the DAO notifies the support operations office of the closure and arranges for users to draw as much as possible, which effectively reduces the amount of munitions

to be moved with corps assets. The DAO representative assists with reconnaissance of the new BSA site and provides munitions and trailer status to the DAO.

4-95. The ATP section conducts the actual move with coordinated divisional or corps transportation assets. It must consolidate munitions on as few trailers as possible, break down the area, and prepare the equipment and vehicles for movement.

4-96. The support operations office notifies the supported brigade of the intended move and provides information about closure of operations at the old ATP and the initiation of operations at the new site. The support battalion provides the necessary division assets and coordinates for corps assets to conduct the relocation. The S2/3 requests prime movers to move munitions and MHE. Also, the S2/3 prepares the overall FSB and MSB movement plans, including convoy operations.

4-97. Movement. During the movement phase, the BSA or DSA establishes the advanced element at the new site. The ATP NCOIC provides this element with MHE and personnel to support the brigade until normal resupply operations can be established. The support battalion organizes the convoy for movement to the new site. The CSA/ASP begins to ship to the new ATP site as soon as possible.

4-98. Post-movement. The DAO representative and the ATP NCOIC set up the new ATP site and prepare to conduct normal ATP operations. In doing so, they ensure that the old site is closed and all equipment, stocks, and personnel have been relocated to the new site. The old ATP site must remain open long enough to provide continuity for all users and resuppliers.

SUMMARY

4-99. This chapter has provided a general overview of the organizational structure and operational requirements of the DAO and the ATP. Also, it has established the functional link between the division and corps ammunition structure. Effective DAO and ATP operations are critical to the combat power and sustainability of the division and its brigades. Trained and prepared Ordnance soldiers are key to effectiveness.

BRIGADE COMBAT TEAM AMMUNITION OFFICE AND AMMUNITION TRANSFER POINT

The Interim Brigade Combat Team is scheduled to be operational in fourth quarter, fiscal year (FY) 2000. Its design gives the Army a rapidly deployable, highly mobile, survivable, and lethal force intended to fill the void between traditional heavy and light forces. Planners have incorporated the principles of velocity management, reach-back support, and regionally available commercial support to the maximum extent possible to reduce the brigade's combat support and logistics footprint. Organic noncombat equipment has been drastically reduced with the expectation that the brigade will operate in an extremely austere environment until the theater matures. The existing ammunition support structure has been adapted to provide efficient and effective support. Elements tailored to support the BCT include the ATP and the BAO, a brigade-level element similar in structure and function to the DAO. These adaptations may be changed or modified before activation of the initial brigade.

AMMUNITION TRANSFER POINT. The ATP section will be assigned to the supply support platoon of the headquarters and distribution company, which in turn is assigned to the brigade support battalion. The headquarters and distribution company provides the majority of organic transportation and supply support to the BCT.

The ATP section's ability and requirement to reconfigure ammunition loads is limited. Ammunition arriving at the ATP will be in mission or customer configured loads that have been configured outside the theater (i.e., usually at a depot, an ISB, or remote ASA).

The BCT ATP will conduct limited storage operations. Unlike the traditional ATP activity, which is considered an event and not a storage facility, the ATP will support the BCT in SASO or small-scale contingency operations with little or no ammunition consumption.

BRIGADE AMMUNITION OFFICE. The BAO consists of an ammunition warrant officer and a senior NCO assigned to support operations of the base support battalion. The BAO's primary duties and responsibilities are comparable to those of the DAO discussed earlier. However, the BAO will coordinate mainly with the next lower echelon of staff offices (i.e., the brigade S3/4 instead of the division G3/4).

The BAO warrant officer may be the senior or most experienced ammunition logistician in theater, while the DAO staff will most likely have an MMC team and/or ASA comprised of Ordnance personnel supporting the division-level deployment.

The BAO will operate SAAS-ASP in lieu of SAAS-DAO. Also, the BAO may be required to establish direct communications with and report to the supporting MMC. This may occur in situations where no other levels of SAAS are deployed to the theater.

Chapter 5

Munitions Support in an NBC Environment

This chapter discusses munitions support in a theater of operations for combat or SASO, where NBC weapons have been used or are available for use. This information also applies to WMD situations. The information contained herein supports current Army doctrine and should be used with emerging NBC defense doctrine.

OVERVIEW

5-1. All combat operations or SASO have the potential to occur in an NBC environment. US policy neither condones nor authorizes first use of biological and chemical weapons. US policy concerning nuclear warfare is to deter and, if deterrence fails, to terminate the conflict at the lowest possible level of violence consistent with national and allied policy objectives. This policy does not preclude US first use of nuclear munitions.

5-2. Commanders and planners must assess an enemy's willingness to employ these weapons and the conditions that would prompt them to do so. For example, a virtually defeated enemy may resort to unrestricted warfare by any means to turn the tide of battle.

5-3. Use of WMD can result in extensive destruction and mass casualties. Only cohesive, disciplined, physically fit, and well-trained munitions units are able to function in an NBC environment. Long-term operations in this environment degrade even the best-trained soldiers. The wearing of NBC equipment for long periods decreases the ability of a munitions unit to provide support. Munitions leaders must train and equip all personnel to endure these conditions. By being prepared, munitions units can continue the support needed for combat forces to maintain the advantage over the enemy.

5-4. Command is more difficult in an NBC environment. Command, control, and support operations areas are likely targets. Control is difficult even within the smallest operation. The employment of WMD greatly alters the tempo of combat support, which in turn affects the combat mission. Munitions leaders must never assume they are immune to attack and need to consider ways of decreasing risk.

NUCLEAR WEAPONS

5-5. The immediate effects of a nuclear detonation are blast, thermal radiation, initial nuclear radiation, and EMP. These effects can cause significant personnel and materiel losses. Secondary effects include urban devastation, fires, and radiological contamination. EMP can affect unshielded electronic equipment and degrade C3I systems. Also, residual radiation can have long-term effects on personnel, equipment, facilities, terrain, and water sources. Munitions units and activities may be targeted for nuclear weapons attacks.

BIOLOGICAL WEAPONS

5-6. Although the US has renounced the use of biological weapons, many nations have not. Availability of biological weapons to potential enemies requires munitions leaders to prepare for operations in a biological environment. Defensive measures must be employed to reduce the effects of a biological attack. All munitions soldiers and civilians must receive adequate information, along with psychological and medical preparation.

CHEMICAL WEAPONS

5-7. Chemical weapons produce immediate and delayed effects that hamper operations by contaminating equipment, supplies, and critical terrain. Munitions leaders can reduce the effects of chemical use by applying the fundamentals of contamination avoidance, protection, and decontamination. Munitions leaders use chemical reconnaissance and decontamination as two planning imperatives for all missions. *Training is key*.

NBC DEFENSIVE FUNDAMENTALS

5-8. NBC defensive fundamentals include contamination avoidance, protection, and decontamination. Performing these fundamentals counters the effects created when WMD are used. Normal operations become more difficult, and overall efficiency is reduced. Munitions leaders must consider mission degradation and hazards when employing defensive fundamentals.

CONTAMINATION AVOIDANCE

5-9. Contamination avoidance is key to providing munitions logistical support in an NBC environment. It is also the key to survival. Contamination avoidance consists of a number of individual and unit preventive measures that can be both passive and active. Passive measures include the use of concealment, dispersion, deception, cover, and OPSEC. These measures reduce the probability of an enemy using WMD and limit damage if such weapons are used. Active measures include detection, identification, marking areas. and contaminated warnings. relocating or rerouting to uncontaminated areas.

5-10. To increase survivability and supportability, munitions units must act quickly to avoid contamination, improve mobility, and lessen initial and residual effects of WMD. The following must be used whenever possible:

- Alarm and detection equipment.
- Dispersion (consistent with operational requirements).
- Overhead shelters.
- Shielding materials.
- NBC-hardened materials.
- Protective covers.
- Chemical-agent-resistant coating paint.
- NBC reconnaissance assets.
- Intelligence assets and reports.
- NBC-hardened shelters and tents.

5-11. Munitions stocks should be stored at dispersed sites. This helps to reduce the effects of WMD and complicates the enemy's target acquisition efforts. Also, munitions must be kept separate from other supplies and as mobile as circumstances allow. Resupply operations should be accomplished at night. All these measures work to keep the munitions support system functional and capable of supporting tactical missions.

NBC Reconnaissance

5-12. Munitions units perform NBC reconnaissance within their AO. Specialized NBC reconnaissance units conduct reconnaissance outside the unit AO and the COMMZ. They provide contamination information to leaders, which assists in developing operational plans. NBC reconnaissance units report to NBC centers where information is analyzed and disseminated to units through periodic intelligence reports. Other units, other services, and allied units operating in the area provide added data. All this information combined gives leaders a more complete picture of the AO.

Detection and Identification

5-13. All units use organic detection and identification equipment to identify NBC items. With fielding of BIDS, munitions units will have an effective system for detecting and identifying biological agents. However, enemy forces may use biological and chemical items unknown to the US and beyond the capability of our identification equipment.

5-14. NBC reconnaissance and medical and intelligence personnel sample suspected CB items and forward the samples to supporting medical activities for identification. Once agents are identified, the information is transmitted to units through the NBC reporting center.

NBC Warning and Reporting System

5-15. The ASCC operates a network of NBC warning and reporting centers. These centers provide information about NBC hazards and are the focal point for NBC battlefield contamination information. The NBC centers collect, consolidate, evaluate, manage, and disseminate NBC data reported by units, and interface with adjacent friendly and allied organizations. Through operations channels, they provide the evaluated NBC information to units in their AO. The unit leader uses this information to plan and execute the mission.

Limiting Exposure

5-16. Detection and identification of WMD within the munitions unit AO limits exposure and adverse effects on munitions support operations. Units use organic detection and identification equipment to receive early notification of CB attacks. This early warning allows unit personnel to limit exposure by donning appropriate protective clothing. Also, BIDS helps limit the effects of large area attacks employing potentially catastrophic biological agents. Using data collected by BIDS, medical personnel can determine what preventive measures and treatment are required if exposure occurs.

PROTECTION

5-17. Protection is initially an individual responsibility. At minimum, personnel must have IPE; this allows them to operate freely in a contaminated environment, but not without some degradation. Collective NBC protection provides rest and relief from continuous wear of IPE and a contamination-free work area for critical missions. Type I functions (i.e., C3I and light maintenance) are best performed while using some form of collective protection. Type II functions (i.e., storage, receipt, issue, and load configuration) require IPE with periodic breaks for rest and relief. Movable collective protection can be provided to those areas on a site where its not feasible to permanently emplace collective protection. Moveable collective protection could be placed at storage, receipt, issue, and load and configuration areas. Temporary rest and relief shelters should be provided as break areas within the ASA or ATP.

5-18. Munitions leaders must provide proper training in protection skills. Before encountering an NBC hazard, munitions units use MOPP and other available protective means to balance unit effectiveness with personnel survival skills. ASAs and ATPs are considered by the enemy to be prime targets for WMD.

5-19. Munitions support systems must be structured with the capability and flexibility to continue support operations in an NBC environment. Protective measures and procedures to offset the effects of WMD must be integrated into daily operations. In an NBC environment, frequent testing for contamination of supplies and assets is required. NBC monitoring must be continuous.

NBC CONTAMINATION

5-20. The presence of contamination reduces the effectiveness of munitions unit support. Contamination forces soldiers into IPE that degrades their ability to provide support. Once leaders understand the behavior and characteristics of contamination, they can take measures to avoid and reduce the NBC hazard. Considering these factors enables soldiers, planners, and leaders to integrate NBC defense measures into support and operations plans.

FORMS OF CONTAMINATION

5-21. Different origins and forms of contamination create different types of hazards. To determine risk and method of decontamination, soldiers must understand contamination and what makes it dangerous. See FM 3-5 for more information on forms, types, and persistency of contamination hazards.

NEGLIGIBLE RISK

5-22. Leaders must understand negligible risk levels when making operational decisions. Negligible risk levels for *CB contamination* are those that cause mild incapacitation among no more than 5 percent of unprotected soldiers who operate for 12 continuous hours within one meter of a contaminated surface. Negligible risk levels for *radiological contamination* are measurements of 0.33 cGy or less. This level of radiation causes no more than 2.3 percent mild incapacitation to unprotected soldiers.

DECONTAMINATION CONCEPTS

5-23. Decontamination, or decon, is the removal, destruction, or neutralization of contamination. Leaders must understand the reasons for decon and have a working knowledge of decon principles, types, and techniques. They must be prepared to make an assessment based on the following information:

- Operational situation.
- Available decon resources and METT-TC.
- Effects of decon on unit's ability to perform its mission.

5-24. IPE and collective protection shelters offer only a temporary solution. Decon is the more permanent solution.

5-25. Once a unit is contaminated, there are practical reasons for performing at least some decon as soon as possible. Leaders will follow the guidelines in this section when deciding which actions best support the mission.

DECISION TO DECON

5-26. When making the decision to decontaminate, consider resources available within the context of METT-TC. Before the decision is made, the following factors must be addressed:

- Lethality.
- Performance degradation.
- Equipment limitations.
- Spread of contamination.

Lethality

5-27. Some kinds of contamination are so toxic they can kill or incapacitate within seconds after contact with exposed skin. Should the skin become contaminated, do the following immediately:

- 1. Stop breathing.
- 2. Mask.
- 3. Give the alarm.
- 4. Decontaminate the skin.

Performance Degradation

5-28. MOPP gear provides protection but degrades performance the longer soldiers are in MOPP. Using tools and weapons or operating equipment while wearing IPE is awkward and dangerous. The protective mask reduces the soldier's field of vision, causing a loss of depth perception. Also, soldiers cannot eat while wearing a protective mask.

5-29. Normal body functions are potentially dangerous in contaminated areas. The simple process of removing IPE to urinate or defecate could expose the soldier to contaminates. The seal on the protective mask or IPE garments may be broken while the soldier is sleeping. Also, wearing of IPE may increase the threat of heat injury. See FM 3-4 for more information.

5-30. Soldier performance decreases over time in MOPP. Leaders must conduct a risk assessment before soldiers in MOPP perform missions. The following tasks are degraded when soldiers are wearing MOPP gear:

- Navigating.
- Terrain orientation.
- Decision-making processes (leader fatigue).
- Communications.
- Maneuver formations.
- Convoy operations.
- Operating MHE.

Limitations of Individual Protective Equipment

5-31. MOPP gear provides protection from CB attacks. Agents can gradually penetrate the protective mask hood. However, the hood's protective qualities can be extended by decontamination. FM 3-4 provides information on filter and MOPP gear exchange and wear limits.

5-32. Leaders must consider time and resources needed to conduct decon versus the degradation caused by operating in MOPP. They must also understand that soldiers must move to a clean area to conduct unmasking procedures. Completion of hasty decon (MOPP gear exchange and vehicle washdown) reduces soldiers' risk based on the following:

- Decreases time soldiers are exposed.
- Provides temporary relief from MOPP.
- Decreases the risk of spreading contamination.

5-33. MOPP gear provides little direct protection from the hazards of radiological (rad) contamination, (i.e., radiation from fallout). However, wearing MOPP gear has indirect advantages. These include preventing inhalation of radioactive particles, keeping contamination off the skin, and greatly simplifying decon. Radiation contamination must be removed as soon as possible, and MOPP gear must be replaced.

Spread of Contamination

5-34. All soldiers must avoid contamination as much as possible. Once a soldier and unit become contaminated, a quick and rapid decon is critical to prevent spreading to a clean surface or area.

PRINCIPLES OF DECON

5-35. The resources of manpower, time, and materiel are critical to the leader's decision on how to sustain operations. Leaders must apply two concepts in the decision-making process:

- Resource usage.
- Ability to sustain operations.

Leaders must know when, where, what, and how to perform decon by following the four principles discussed below.

5-36. *First, decontaminate as soon as possible.* This is the most important of the four principles. Contamination hazards force leaders to put the unit into MOPP; this immediately begins to degrade the unit's ability to do its mission. The sooner the contamination is removed, the sooner the unit can reduce MOPP levels and begin restoring the unit's level of support.

5-37. Second, decontaminate only what is necessary. Decontaminate only what is necessary to continue the mission. This helps sustain combat power. Consider the following factors when deciding whether decontaminating will interfere or help with the mission:

- Mission, "tempo of the battle," and unit munitions support requirements.
- Time available.
- Degree of contamination.
- Length of time unit has been in MOPP.
- Assets available to perform decon procedures.

5-38. Third, decontaminate as far forward as possible (limit spread). Contaminated soldiers and equipment should not be moved from the operational area if decon assets can be brought forward. This keeps the equipment on location where it is needed, allows decon to begin earlier, and limits the spread of contamination.

5-39. Fourth, decontaminate by priority. Clean important items of equipment first. Leaders must decide which equipment and supplies are most important to the mission at the time and prioritize them for decon. Since ASAs perform various operations, priorities may be organized by functional area.

LEVELS OF DECONTAMINATION

5-40. The three levels of decontamination are immediate, operational, and thorough (fixed site). Below is a brief description of each level.

5-41. *Immediate decontamination* minimizes casualties, saves lives, and limits the spread of contamination. Immediate decon includes skin decontamination, personal wipedown, and operator spraydown.

5-42. Operational decontamination sustains operations and reduces the contact hazard. It also limits the spread of contamination, which may eliminate the need for MOPP gear or reduce the time it must be worn. This process includes vehicle washdown and MOPP gear exchange operations.

5-43. *Thorough decontamination* reduces or eliminates the need for individual protective clothing. Units carry out thorough decon with assistance from chemical units. It includes DTD and DED. See FM 3-5 for information on planning and executing the above levels of decon.

MUNITIONS RESUPPLY

5-44. Munitions units must make every effort to provide uncontaminated munitions to units. Contamination avoidance measures must be emphasized.

If uncontaminated munitions are not available, the available munitions must be decontaminated before they are issued or sent into a clean environment. Munitions support personnel must thoroughly understand decontamination roles and procedures. Because of their units' limited decon capability, available assets must be used effectively. When possible, weathering can reduce contamination to acceptable levels.

5-45. Protective overwraps on munitions containers protect the round in storage, reduce the effects of chemical agents, and make decontamination easier. If munitions are not packaged with protective overwrap, makeshift coverings (i.e., tarpaulins or plastic sheets) provide some protection and speed up decontamination. Protected munitions must be stored on a pallet that can be decontaminated.

5-46. Contaminated stocks are normally not issued, but are kept separate from clean stocks until decontaminated. In emergency situations, certain contaminated items may be issued. Contaminated items are issued only if they provide a decisive tactical advantage. Also, they are issued first to units that are contaminated. Only under the most extreme conditions are contaminated munitions issued to an uncontaminated unit. The decision to issue contaminated items is made by the authorized controlling commander. The decision to issue contaminated stocks is based on the following considerations:

- METT-TC.
- Criticality of items.
- Type of contamination.
- Extent of contamination.
- Resources available for decontamination.

5-47. Dealing with contamination means that leaders at all levels must take the initiative and be more innovative than ever before. Essential to the munitions unit's success is its leader's ability to *"read the threat"* and respond accordingly. Munitions leaders must do the following:

- Identify threat locations on the battlefield.
- Identify threat weapons and capabilities.
- Disperse and cover exposed munitions stocks to reduce vulnerability to contamination.
- Update the threat continually using intelligence assets.

5-48. Contaminated munitions must be transported with great care. Coordination must allow for flexibility in routing, marshalling, serializing, and communicating. Vehicles carrying contaminated munitions stocks produce vapor clouds. Vapor clouds are hazardous to the terrain, local population, and follow-on vehicles. The following measures can reduce the hazards of transporting contaminated munitions:

- Limit contamination as much as possible.
- Cover all loads with NBC-protective covers.
- Coordinate movement of contaminated munitions stocks with responsible MCC.

- Designate specific routes as MSRs for contaminated munitions stocks when possible.
- Designate units with collective protection vehicles as the primary contaminated munitions haulers.

UNIT SOPs

5-49. Unit SOPs should be written IAW guidance contained in this chapter and in the following publications:

- AR 190 series (military police).
- AR 380 series (security).
- AR 385 series (safety).
- DA Pam 385 series.
- DO49 Technical Report DPG/TA-88/030. Decontamination of Selected Military Equipment: US Army Ammunition Stocks, September 1988.
- FMs 3-3, 3-3-1, 3-4, 3-4-1, 3-5, 3-7, 3-100.
- TC 3-4-1.

5-50. Command SOPs may be used as format and organization guidelines. At minimum, and in keeping with the mission of munitions support operations, SOPs will address the following areas:

- Dispersal of munitions within the storage area to prevent all of one type munitions from becoming contaminated.
- Contamination avoidance by using ISO containers, militaryowned demountable containers, shrink-wrap, CARC paint, NBCprotective covers, pallets, and agent-resistant packaging materials.
- Priorities for protective covers.
- Collective protection for facilities.
- Procedures for identifying and marking contaminated stocks.
- Decontamination of personnel, equipment, MHE, facilities, and munitions.
- Priorities for decontaminating personnel, equipment, MHE, facilities, and munitions.
- Weathering of contaminated stocks.
- Transportation of contaminated munitions.
- Priorities for issuing munitions, including contaminated munitions.

SUMMARY

5-51. This chapter provides only an overview of key considerations for munitions support in an NBC environment. It is not meant to replace current, relative FMs or other guidance provided by the references in paragraph 5-50. An understanding of the NBC threat and establishment of an effective learning program are essential to sustaining munitions support.

Chapter 6

Standard Army Ammunition System-Modernized

This chapter provides information on SAAS-MOD and the environment in which it is used. More detailed information about how to use the system effectively may be found in the Standard Army Ammunition System End User Manual. This on-line manual may be viewed and downloaded at http://www.gcss-army.lee.army.mil/saashdbk/default.htm. Users include commanders, staff personnel, managers/supervisors, and operators.

OVERVIEW

6-1. In the early 1970s, SAAS was developed to provide automated status of ammunition assets for the theater or MACOM (i.e., SAAS level 1). In 1982, SAAS level 3 added Class V management capability and other stock control activities to the corps support command. The two baselines were merged as SAAS 1/3 in 1986. As this system evolved, the requirement to maintain visibility and accountability became more demanding. During Operation Desert Storm, the system was not able to meet wartime requirements. In 1994, SAAS was placed in limited moratorium, and resources were redirected toward developing a modernized system, SAAS-MOD.

6-2. SAAS-MOD replaces and combines SAAS-1/3, SAAS-4, and SAAS-DAO in a modular design concept. It is the approved STAMIS for all Class V conventional retail ammunition inventory control or management. SAAS-MOD automates and integrates ammunition management functions among users, storage sites, and theater managers. It operates on deployable NDI hardware in both tactical and nontactical environments at the theater, corps, ASP, division, and installation levels.

6-3. SAAS-MOD provides total functional integration of existing and future retail level Class V information management systems. SAAS-MOD operates on IBM-compatible PCs using COTS software whenever possible. SAAS-MOD application software handles the unique requirements involved in maintaining ammunition data.

OPERATING ENVIRONMENT

6-4. SAAS-MOD gives commanders and ammunition managers the capability for producing accurate, timely, and near real-time Class V information during peacetime and contingency operations, as well as wartime operations on a highly mobile battlefield. It provides management and stock control for conventional ammunition, GMLR, and C&P materials. SAAS-MOD operates at all of the following functional levels in the theater of operations:

- Corps and theater MMCs or MACOM-equivalent.
- DAO and ATP.
- ASA (TSA, CSA or ASP).
- Installation ASA.

SAAS AREA FUNCTIONS

6-5. SAAS-MOD supports ammunition managers at three functional levels in a theater of operations (MMC, ASP, and DAO) by providing the capability to pass and receive near real-time data. System functions are divided into the following ammunition management areas:

- General core operations.
- Materiel management.
- Requirements management.
- Primary operations.
- Ammunition surveillance management.
- SAAS interface.

These SAAS software areas incorporate distinct functions and processes. Below is an overview of the types of products that can be produced and the types of information that can be processed.

GENERAL CORE OPERATIONS

6-6. General core operations are performed at the three functional levels of SAAS for the system to produce accurate and timely information. They cover establishment and maintenance of the military organizational structure; facility resources; reference data; and ammunition requirements, authorizations, and assets for all functional levels within a theater or corps. These operations are discussed below.

Organization Management

6-7. Organization management incorporates the processes used to identify all activities receiving or providing ammunition support by name, UIC, organization address, DODAAC, and RIC (where applicable). Command and ammunition logistic support structures are also shown.

Security Management

6-8. Security management functions identify valid user(s) by maintaining profiles for each user. These functions are accessed through the Maintain User menu and the User Manager for Domains menu.

Information Support

6-9. Information support procedures provide access to facilities to establish and maintain complete, accurate, and current logistics records. These records facilitate requisition, inventory control, and shipping.

System Administration

6-10. System administrative functions include archiving and restoring data, other file maintenance as needed, maintaining site defaults for MILSTRIP documents, and domain administration.

Maintenance Resources

6-11. Maintenance resource functions include identifying resources needed in the theater to manage ammunition assets. Resource functions also include maintaining the location of all assets, the movement of assets, inventory statistics, and mass transfers.

Accounting Functions

6-12. Accounting functions enable SAAS-MMC managers to establish and maintain the management account structure in the theater. The structure contains recording account codes (detailed accounts), summary account codes, and WARS purpose codes.

6-13. The recording account identifies stockage requirements by DODIC at the ASP for a specific purpose (for instance, a unit, project, or operation). The summary account codes, which are roll-ups of the applicable recording accounts, identify requirements at both the corps and theater levels and relate to a more general purpose. The WARS purpose codes (i.e., war reserve, training, operational projects, and ammunition basic load) identify the total requirements for the theater. The accounting function is used to report requirements for training and ammunition.

MATERIEL MANAGEMENT

6-14. Ammunition materiel management functions are performed only at theater and corps MMCs. These functions relate to the overall management of authorizations, requirements, and redistribution of ammunition assets within the theater. They may be performed at a lower level only when authorized. Material management functions are outlined below.

Identifying Excesses and Shortages

6-15. The processes available for identifying excesses and shortages compare specified theater and corps requirements to available assets (on-hand/intransit) and display excess and shortage conditions. This function allows direct access requisition or directives processes to order, redistribute, or report excess.

Requisitions

6-16. The available selections allow managers to establish a requisition, create a follow-up transaction, and generate a request for cancellation and/or request modification of a requisition. When a requisition is initiated or modified, the system updates due-in and due-out status.

Directives

6-17. The directives process maintains current due-in and due-out status in the background and contains selections for the following functions:

- Procedures to prepare, view, and update MROs.
- Procedures to prepare, view, and update local shipment directives.
- Procedures to maintain shipment notifications for shipments within or coming into the theater or corps.
- Procedures to initiate and maintain MILSTRIP excess reports and generate shipment directives for the ASP when shipping instructions are received from the CCSS.

Background Processes

6-18. This batch process handles all transactions coming in through the communications process from DAAS, SPBS-R, and any SAAS activity. It routes and processes all MILSTRIP, SAAS, and SPBS-R transactions. Besides updating the SAAS tables, the process creates output for WARS and other SAAS activities.

REQUIREMENTS MANAGEMENT

6-19. The functions of managing ammunition requirements are performed at the DAO and ATP. They include maintaining ammunition requirements and visibility and distribution within the division. The DAO is responsible for distributing ammunition, verifying unit requirements, and tracking ammunition coming into the division. Requirements management functions are described below.

Task Force Support

6-20. Task force support processes allow the manager to create and update task force data for a military organization. These processes also identify ATPs providing support.

Requirements in Wartime Operations

6-21. Management processes in wartime allow the manager to update, submit, and monitor ammunition requirements and to facilitate distribution within the division.

Requirements in Peacetime Operation

6-22. Management processes in peacetime allow the DAO to manage requirements and basic load, operational load, and training ammunition for the division.

PRIMARY OPERATIONS

6-23. Primary operations functions, also called ammunition asset management, are normally performed at the ASP. They are used to receive, store, issue, and account for ammunition in a retail ammunition stock record account. The account may be located at an ammunition DS/GS company or the responsible installation organization. Functions are described below.

Stock Control

6-24. Stock control processes cover all transactions used to maintain and update the stock records and supporting documents of a formal stock record account. The processes available are as follows:

- Stock control monitoring (supply studies, due-in/due-out analysis, and excess).
- Stock control operations (receipts, issues, turn-ins, shipments, inventories, and ammunition maintenance transactions).

Storage Management

6-25. Storage management processes include maintenance of storage site (warehouse) profiles, explosive safety profiles, and compatibility information.

AMMUNITION SURVEILLANCE MANAGEMENT

6-26. The on-site ammunition inspectors perform ammunition surveillance management functions. These tasks are associated with acquiring and maintaining the records of ammunition quality and safety at ATPs or ASPs.

SAAS COMMUNICATIONS

6-27. SAAS-MOD receives and transmits data from/to several systems at each functional level. SAAS-MOD uses magnetic media, mail, and communications networks to accomplish all interfaces.

SYSTEM PERFORMANCE

6-28. SAAS-MOD provides a standard ammunition management tool that is capable of the following:

- Maintaining current status of all ammunition within the command ASAs and ATPs.
- Computing complete rounds, days of supply, configured loads, and authorized stockage levels.
- Providing data used by the manager to determine redistribution of assets.
- Supporting Class V logistic estimates based on weapon systems.
- Maintaining data on US and foreign munitions for use in determining Q-D and NEW computations and weapon systems interoperability.
- Supporting surveillance stockpile management.
- Supporting ad hoc query, including data imported and exported to other systems.
- Evaluating and providing distribution history and distribution plan.
- Requisitioning from the NICP if acting as a TAMMC or from a higher node if acting as a CMMC.
- Maintaining and calculating the status of CSR.
- Planning, determining, and forecasting future requirements.
- Maintaining and evaluating consumption of ammunition historical data.
- Computing and determining transportation requirements for movement by type and number of carriers.
- Maintaining asset visibility aboard transport vehicles passing through the system including due-ins and due-outs.

INTERFACES

6-29. SAAS-MOD receives and sends data to several systems. When the communications link is down, operators can input data manually if it is received off-line. All data received by communications is normally batch-processed after the communications portion of the interface is complete. All

SAAS activities within a theater provide data for each other. SAAS-MOD contains the following interfaces:

- WARS receives daily SAAS transactions that affect assets.
- MILSTRIP data received and sent to the CCSS.
- MILSTRIP and MILSTAMP data sent and received through the DAAS.
- FEDLOG provides up-to-date catalog information.
- TAMIS-R provides allocation and authorization data for training ammunition.
- CSSCS interface keeps tactical commanders informed on status of selected ammunition.
- DAMMS-R (TC-AIMS-II) allows the MMCs and ASPs to receive information on in-transit shipments.
- SPBS-R provides on-hand quantities at the unit.
- Corps SAAS interfaces with corps DAMMS-R (TC-AIMS-II) and CSSCS activities.
- ASPs, TSAs, and CSAs providing training ammunition support send training expenditure information to TAMIS-R.
- SAAS-DAO uses SPBS-R and ULLS-S4 to track weapon densities, basic load requirements, and training ammunition support.

REQUIRED HARDWARE

6-30. The NDI hardware required to operate SAAS is purchased through a DOD computer contract that provides complete systems. The user gets the most modern equipment available on the contract at the time of purchase and installation. The equipment is tailored for each of the three functional levels and to the site that operates it. Quantities of hardware at each location are based on unit missions and are outlined in the BOIP for SAAS. The equipment described in this paragraph is subject to change because of improvements in technology.

THEATER/CORPS

6-31. The computer hardware at the theater and corps MMC level consists of a network file server, 1 to 14 PCs for user terminals, 1 to 8 laser printers, a UPS, surge suppressor, LAN equipment, and modems.

DIVISION AMMUNITION OFFICE/AMMUNITION TRANSFER POINT

6-32. The computer hardware at the DAO and ATP levels consists of a network file server, a printer, surge suppressor, laptop for each ATP, LAN equipment, modems, and AIT equipment. AIT equipment includes the following:

- RF interrogator/laser scanner and docking stations.
- Portable printer.
- Thermal printer.

AMMUNITION SUPPLY POINT

6-33. The hardware for the ASP consists of a network file server, a printer, surge suppressor, 3terminals (PCs or laptops with monitor), LAN equipment, modems, and AIT equipment. AIT equipment is the same as listed above.

REQUIRED SOFTWARE

6-34. The SAAS System Administrator Manual can be viewed and downloaded at http://www.gcss-army.lee.army.mil/saashdbk/default.htm. This manual identifies all software required to operate or continue operations in an emergency. See Appendix B of the End User Manual for more information.

CONTINGENCIES

6-35. Several circumstances can disrupt the normal operations of an automated system. The SAAS End User Manual provides courses of action to be considered and/or included in the development of contingency plans. Table 6-1 lists those SAAS-MOD critical functions that must continue to be performed manually in the event of system failure.

SAAS-MOD CRITICAL FUNCTIONS			
Action	DAO	ASA	MMC
Maintain current status of all ammunition	Х	Х	Х
ID all excess and shortages of ammunition	Х	Х	Х
Maintain reference and catalog information	Х	Х	Х
Maintain communications with interfacing systems	Х	Х	Х
Request ammunition, obtain status/follow-up	Х		
Maintain backup of system and data files	Х	Х	X
Prepare essential ammunition reports	Х	Х	Х
Process/calculate RSR and CSR requirements	Х		
Process ammunition issue, turn-in, and receipt	Х	Х	X
transactions			
Process ammunition shipment transactions		Х	Х
Requisition ammunition, obtain status/follow-up		X*	X
Conduct inventories of ammunition, process discrepancies,		1999 - 14	
make adjustments		Х	
Report excess and shortages			Х
Maintain copies of all documents processed off-line and			
post them when the system is back on line	Х	<u> </u>	X
Report ammunition requirements to WARS			X
* This action conducted by an independent ASA only.			

Table 6-1. SAAS-MOD Critical Functions

PROBLEM REPORTS

6-36. All SAAS-MOD users are responsible for identifying and reporting problems and submitting recommended changes on an ECP-S for software enhancements. Control logs (automated or manual) are maintained by all

units submitting problem reports and ECP-S. Submit problem reports using DA Form 5005-R.

SUMMARY

6-37. SAAS-MOD corrected shortcomings of the legacy system and incorporated lessons learned from Operation Desert Storm. The system was developed in incremental blocks: Block 1-A (MMC) and Block 1-B (ASP and DAO). Full system fielding has resulted in the removal of the DAS-3 and TACCS from the SAAS inventory. It is anticipated that all functional applications currently in SAAS-MOD will evolve into the Global Combat Support System-Army.

Chapter 7

Munitions Safety

Historical Perspective

Following the cease-fire in Operation Desert Storm, the US lost more vehicles in one munitions-related accident than it lost to enemy forces during the conflict. This accident occurred when the munitions in one vehicle ignited, and the resulting fire spread to adjacent vehicles that were parked too close together. Many people were injured in the incident, and two soldiers were killed in the cleanup of the site.

Safety is always critical, whether an ammunition unit or platoon is operating in a peacetime, combat, or SASO environment. This chapter focuses on munitions safety. It covers the three levels where safety awareness is most effective. It discusses the Army Safety Program and explores areas of special concern, including the handling, loading, and unloading of munitions; the safe handling of explosives; unexploded ordnance procedures; proper use of tools and MHE; and reports of malfunctions.

SAFETY LEVELS

7-1. All soldiers and leaders must maintain a proactive posture towards safety in day-to-day operations. The need for total commitment to safety should be evident to commanders, senior soldiers, and their subordinates. The importance of safety is intensified for units and personnel engaged in munitions-related activities. Safety awareness is most effective at three levels: command, leader, and individual. These levels and the specific responsibilities of key personnel and individuals are discussed below.

COMMAND

7-2. Commanders are responsible for protecting personnel and equipment under their command. Safety, to include risk assessment and accident reporting, is an inherent responsibility of commanders at all echelons. They must take an active and aggressive leadership role in safety planning and programs. Responsibilities include appointing a safety officer/NCO IAW AR 385-10 and DA Pam 385-1, determining the cause of accidents, and taking necessary preventive and corrective measures. Also, commanders must establish an explosive safety program IAW AR 385-64 and DA Pam 385-64.

7-3. Unit safety officers are appointed on written orders and must complete a safety officer course. They report directly to the commander on safety-related matters and administer the unit safety program. The unit safety officer or NCO accomplishes the following duties:

• Prepares a unit safety program and a field safety SOP focused on awareness (rather than on reactive safety reporting).

- Reviews regulations and TMs and recommends procedures for increasing safety in unit operations, as well as in operations involving receipt, handling, storage, transport, and issue of munitions.
- Recommends procedural changes to the commander that will reduce accident risk, injury, and property loss.
- Organizes a safety committee, if needed, to assist with inspections and the formulation and recommendation of safety procedures.

See AR 385-10 and DA Pam 385-1 for guidance on appointing and functions of unit safety personnel.

LEADER

7-4. Leaders must ensure that soldiers perform their duties safely by taking the following proactive steps:

- Make soldiers aware of hazards through continuous training.
- Stress safety in operations.
- Halt unsafe operations.
- Prevent accidents through planning and preparation.

INDIVIDUAL

7-5. The key to a good safety program, and the focus of the unit safety effort, is to prevent individual soldiers from having accidents. Individual soldiers are responsible for their personal safety. Part of this responsibility includes taking the following actions:

- Becoming familiar with the Army's general safety policies for ammunition and explosives and related operations (see AR 385-64 and DA Pam 385-64).
- Learning the principles of how munitions function, how to handle, store, and transport munitions safely, and how to safely operate MHE.
- Becoming familiar with the hazards and safety precautions that apply to specific munitions.

A relaxed attitude regarding any one of these elements can lead to an accident. A problem with more than one of these elements often leads to disaster. The one who normally knows whether or not all elements are in proper balance is the individual. The safety equation below is important for soldiers to remember.

Training + Equipment + Motivation + Execution with Caution = Safety

RISK ASSESSMENT AND MANAGEMENT

7-6. *Risk assessment* is the identification of hazards and their possible effects. In peacetime, leaders learn to assess risks during training exercises. Techniques learned in peacetime training can be used successfully in combat and SASO. However, after careful evaluation of the mission, a certain amount of risk can be taken in combat and SASO that would be unacceptable in peacetime operations. See DA Pam 385-64.

7-7. During the planning phase of any operation, safety personnel must conduct a task hazard analysis and safety evaluation before writing unit SOPs. This allows sufficient time for safety input to ensure that operational changes can be made efficiently. The basic concerns during hazard analysis are METT-TC, physical layout, and the personnel involved in the operation. Experience has shown that preplanning significantly reduces accident potential and increases efficiency.

7-8. *Risk management* is the decision-making process that balances operational demands against identified risks. Risk assessment and risk management must be fully integrated into operational planning and execution. Risk management is a closed-loop, five-step process that can be used for any type of mission. The five steps are as follows:

- Identify all hazards, including those to soldiers, equipment, and stocks.
- Assess hazards to determine the risks involved and their impact in terms of potential loss and cost. To a degree, assessments are based on probability and severity.
- Develop control measures that eliminate or reduce hazards and risks; continually reevaluate risks until they are reduced to a level where the benefits outweigh costs.
- Implement controls that are effective in eliminating hazards and reducing risks.
- Enforce control measures through supervision and continually evaluate them for effectiveness.

7-9. The proper use of risk assessment and risk management procedures is a primary force protection method. Protecting personnel, equipment, and stocks from damage or loss is the bottom line.

STANDING OPERATING PROCEDURES

7-10. A written SOP must be developed and used for all munitions operations. Procedures must describe the operation so an inexperienced soldier can perform the operation safely. Failure to follow an SOP is a major cause of munitions-related accidents.

7-11. Many publications contain procedures and standards that may be used in developing reliable and useful SOPs for munitions operations. The following publications are among the most applicable:

- US Army Materiel Command regulations, pamphlets, and drawings.
- Army regulations and DA pamphlets.
- Bureau of Explosives publications.
- Code of Federal Regulations.
- Department of Defense Standards.
- Department of Transportation publications.
- Depot maintenance work requirements.

- International Air Transportation Association publications.
- International Atomic Energy Agency publications.
- International Civil Aviation Organization publications.
- International Maritime Dangerous Goods publications.
- Joint and other service regulations.
- Military standards and handbooks.
- Standardization agreements.
- Supply bulletins.
- Technical bulletins and manuals.
- Command guidance and SOPs from higher headquarters.

7-12. Soldiers must have the information necessary to perform their tasks safely. Supervisors are responsible for ensuring that all soldiers involved in an operation or task read the applicable SOP before the operation begins. The SOP must be available at the operations site and will identify potentially hazardous items or conditions that could arise. The unit safety SOP must include the following:

- Safety personnel activities and responsibilities.
- Safety training requirements and training schedule.
- Inspection procedures to detect safety violations, and recommend and enforce corrections.
- First aid training requirements and training schedule.
- Provisions for briefings on new ammunition items and technical intelligence updates.
- Procedures for accident investigations.

MUNITIONS AND EXPLOSIVES STANDARDS

7-13. AR 385-64 establishes munitions and explosives safety standards to protect military personnel, Army civilian employees, the public, and the environment. It is supplemented by DA Pam 385-64. These publications prescribe the Army's general safety policies and standards for munitions, explosives, liquid propellants, and related facilities and activities. They cover the following topics:

- Responsibilities.
- Q-D standards.
- Waiver authority and requests for waivers.
- Exemptions.
- Effects of explosions.
- Permissible exposures.
- Hazard classification.
- Compatibility groups.
- Personnel protection.
- Facilities construction and siting.
- Electrical standards.
- Lightning protection.

- Firefighting.
- Chemical agents and munitions standards.
- Accident reporting relating to the storage, packing, shipping, maintenance, and destruction of munitions.

7-14. Beyond unit SOPs, commanders must ensure that safety regulations and directives or other policies established by higher headquarters are followed during munitions operations.

7-15. Due to the destructive nature of munitions, all responsible personnel, including the user, must be constantly aware of safety procedures. Carelessness, faulty equipment, hazardous working conditions, and unsafe practices may result in injury, loss of life, and property damage. In wartime, these factors may seriously disrupt munitions support and thus have a negative impact on the outcome of operations.

7-16. Concern for the safety of personnel and property is paramount in DOD and DA safety regulations. These regulations prescribe universally applicable standards and practices. They require the preparation and implementation of safety programs, including fire plans (i.e., prevention, protection, and fighting), destruction plans, accident and incident control, and reporting plans.

7-17. Whenever and wherever munitions are handled, stored, or moved, rigid enforcement of safety regulations and strict observance of safety practices is mandatory. The ASCC announces policies and, through the TSC and COSCOM, prescribes safety procedures for munitions in the theater.

MUNITIONS AND EXPLOSIVES HAZARDS

7-18. Many potential hazards are associated with munitions and explosives. These hazards exist in various areas as discussed in the following paragraphs.

OPERATIONS HAZARDS

7-19. All operations involving munitions will be limited to the minimum number of soldiers needed to accomplish the mission safely and efficiently. Tasks not necessary to an operation must be prohibited. Also, personnel not required for an operation will be denied entry to the area. Official visits by safety inspectors and higher headquarters staff must be coordinated through command channels to ensure that personnel limits are not increased during critical operational periods.

7-20. Although some operations can be performed by one individual, at least one additional person must be nearby to watch and assist in an emergency. All operations must be supervised properly to ensure that safety precautions are observed and enforced.

STORAGE HAZARDS

7-21. Munitions and explosives hazards include (but are not limited to) fire, explosion, fragmentation, and contamination. Fire and excessive heat are among the greatest hazards to explosives. Fires in storage areas may be

spread by hot fragments from one stack to another or by fire spreading along the ground through combustible materials.

7-22. Storing incompatible munitions together presents another hazard. Appropriate Q-D and compatibility tables in AR 385-64 and DA Pam 385-64, or HN or specific Army theater requirements, will be used to determine which munitions may be stored together. Conforming to these requirements ensures that safe distances are maintained between all munitions. In combat and SASO, peacetime Q-D and compatibility requirements must be followed to the maximum extent possible. Deviation from these requirements must have command approval. Ammunition and explosives under US title, even when stored in or by a host country, are the responsibility of the US commander. Storage must conform to DOD and Army standards unless the use of other criteria is mandated or has been agreed to in an HN agreement.

7-23. Explosive licenses are an important element in safe storage. They are permanent documents developed by authorized safety personnel that may be reissued when storage objectives, METT-TC factors, or Q-D standards change. The responsible safety manager reviews each license annually for compliance and encroachment. The license and maps of the site and surrounding area will be available at both the site and servicing safety office. See Chapter 9 for more information on storage.

HANDLING HAZARDS

7-24. Identification systems assist in identifying specific hazards associated with different types of munitions. Appendix F explains in detail methods for identifying munitions using NSN, DODIC lot numbering, and the color coding system.

7-25. Munitions and explosives must be handled carefully. Any improper, rough, or careless handling may cause them to detonate. These items are safe to handle as long as proper consideration is given to the characteristics of each type of munitions or explosive, how it is assembled, the operation, and normal safety precautions. All soldiers working with munitions must observe the following safety precautions:

- If a hazardous operation is observed, report it immediately to a supervisor. Hazardous operations must be corrected at once.
- Don't conduct operations without an approved SOP.
- Don't carry heat- or fire-producing items (matches, lighters, etc.) into a storage area.
- Don't smoke in a storage location, except in a designated area.
- Ensure munitions are handled *only* by trained soldiers who fully understand the hazards and risks involved. (See AR 385-64, DOD Std 6055.9, DA Pam 385-64 and SB 742-1.)
- Don't use bale hooks to handle munitions.
- Don't tumble, drag, drop, throw, roll, or walk on containers of munitions. Containers designed with skids may be pushed or pulled for positioning, unless otherwise marked on the container.
- Don't tamper, disassemble, or alter any munitions item unless authorized.

- Keep munitions in containers as long as possible to prevent exposure to the elements. This is especially true of items packed in barrier bags or sealed metal containers.
- Open munitions boxes carefully. Return all inner packaging material to the container, and close it to keep out the elements.
- Repack munitions that are opened and not used.
- Don't use familiarity or experience with munitions as an excuse for carelessness.
- Don't carry initiating devices in your pocket. Detonators, initiators, squibs, blasting caps, and other initiating devices must be carried in protective containers. The containers must prevent item-to-item contact. Also, mark the container to identify the contents.
- Ensure that each soldier involved in handling munitions can perform first aid.
- Don't drive nails into shipping or storage containers containing munitions.
- Don't allow waste materials or litter to accumulate in storage areas.
- Be familiar with the location of fire points, the fire plan, and the organization of firefighting crews.
- Handle treated packing material carefully IAW Surgeon General directives and USAEHA Technical Guide 146.

Palletized Munitions

7-26. Before moving palletized/containerized munitions, pallets and containers must be visually inspected for broken banding or for damage to container or pallet. Repair or replace damaged items. Use USAMC unitization drawings to palletize properly. Select the appropriate drawing using AMC DWG 19-48-75-5. Manual handling of munitions, along with banding and strapping, are often necessary during palletizing operations. At minimum, handlers will wear proper protective gloves, safety shoes, and eye protection. If there is not enough space to work safely, the operation will be moved just outside the magazine or storage structure, but no closer than 30 meters to any magazine containing explosives.

WARNING

Banding is extremely sharp and may cause injuries. Such injuries are among the most frequent to occur during palletizing operations.

Electroexplosive Devices

7-27. Electroexplosive devices (i.e., electric blasting caps, squibs, switches, and igniters) are designed to be initiated by electric current. It is possible that such devices may be energized to dangerous levels by outside sources (i.e., static electricity, induced electric currents, radio communications equipment (including commercial cellular phones), high-tension wires, radar, and TV transmitters). It is also possible that induced RF current may

cause premature detonation of blasting caps. Therefore, safety precautions must be taken to prevent the premature initiation of all devices.

LIGHTNING HAZARDS

7-28. Protection from lightning is another essential part of protecting soldiers, munitions, and equipment involved in storage operations. For more on protection systems, grounding, bonding, surge protection, testing, and warning systems, see DA Pam 385-64.

STATIC ELECTRICITY HAZARDS

7-29. The generation of static electricity is not in itself a hazard. The hazard arises when the static is allowed to accumulate and discharges a spark in the presence of combustible material, thus providing a source of ignition. This hazard can include sparks discharged from a person. Areas containing combustible dusts, flammable gases or vapors, or ignitable fibers are especially vulnerable to static electricity. Exposed explosives (e.g., primers, initiators, detonators, igniters, tracers, incendiary mixtures, and pyrotechnics) are also sensitive to static electricity. See DA Pam 385-64 for procedures to mitigate static electricity hazards.

TRANSPORTATION HAZARDS

7-30. Transportation hazards include traffic accidents or saboteur incidents. The commander of the shipping unit is responsible for coordinating safe transit. Use DA Pam 385-64 and local policy to develop unit field SOPs. Safety precautions for night operations must receive special emphasis. Several publications dictate procedures for transporting hazardous materials. These include DOD 4500.9-R, 49CFR, TM 38-250, and HN regulations. Additionally, TB 9-1300-385 must be checked for suspensions or restrictions before offering ammunition and explosives for shipment. Only school-trained and certified personnel can release shipments of ammunition. Regulations and publications for specific types of shipments are discussed below. See Appendix G for transportation overview, including dimensions and cargo capacities of movement assets.

Rail

7-31. Railcar inspections are a critical part of shipping by rail. Shippers ensure that railcars receive a valid inspection. DOD 4500.9-R, DA Pam 385-64, and 49CFR cover safety inspection criteria, precautions, loading, blocking and bracing, certification of railcars, and spotting of loaded railcars. USAMC load drawings will be followed when loading large items (e.g., MLRS). Refer to AMC DWG 19-48-75-5 for a list of USAMC drawings and ordering instructions.

Motor Vehicles

7-32. Before loading vehicles, ensure that the following actions have been accomplished: all motor vehicles have been inspected, MHE has been load-tested, brakes have been set before loading and unloading, wheels are chocked, and munitions are properly prepared and packaged. DA Pam 385-64 covers safety requirements, inspection criteria, blocking and bracing, loading,

placarding, and compatibility. FMs 55-60 and 55-70 cover shipper and carrier responsibilities and placard requirements. See Appendix H for DOT hazardous materials information.

7-33. Aircraft commanders, loadmasters, or crew chiefs supervise the loading and unloading of their aircraft using TM 38-250. A Hazardous Materials Declaration accompanies containers or pallets of munitions on aircraft. AR 95-27, TM 38-250, and DOT regulations cover safety precautions, aircraft specifications, operating standards, loading and unloading procedures, and special handling certification.

Water

7-34. The USCG regulates transportation of explosives and/or ammunition on water under US jurisdiction and in vessels engaged in commercial service.

UNEXPLODED ORDNANCE HAZARDS

7-35. All soldiers must remember that munitions are designed to kill, maim, injure, and destroy. Soldiers must be able to recognize and react to UXO hazards. Reactions include avoiding the hazard, if possible, and marking and reporting it. Under no circumstances will soldiers approach, touch, or pick up UXO items. This rule is valid whether the items are identified as US or enemy. Inexperienced soldiers must be trained to react properly to UXOs.

7-36. If the UXO cannot be avoided, protective measures may be necessary to reduce risk to personnel and to minimize damage to equipment and facilities. All soldiers must be trained on appropriate tasks to ensure that they are not exposed to unacceptable risk.

7-37. Reporting UXOs on the battlefield requires timely and accurate information. The UXO spot report (Figure 7-1, page 7-10) starts with the soldier on the battlefield and moves through command channels so EOD assets can be tasked to respond. It is the initial report by the soldier who found the UXO that supplies the information needed to task resources and prioritize the UXO response. For more information on UXOs, see GTA 9-12-1 and FM 21-16.

EQUIPMENT HAZARDS

7-38. Tools and equipment may pose safety hazards during munitions operations. These hazards can be overcome through awareness training and using well-written SOPs.

Electrical Equipment

7-39. Safety hazards are inherent in electrical equipment. Many munitions are extremely sensitive to electricity. When using electrical equipment, soldiers must follow operating instructions exactly. Only approved electrical equipment will be used. To prevent electrical sparking, all electrical switches, sockets, plugs, and outlets must be of the standard explosion-proof type. Use of electrical equipment in facilities containing explosives must comply with DA Pam 385-64 and the latest edition of NFPA Standard 70.

Air

	UXO SPOT REPORT
LINE 1	DATE/TIME GROUP DISCOVERED
LINE 2	REPORTING ACTIVITY (UIC) LOCATION (GRID)
LINE 3	CONTACT METHOD: RADIO FREQ/CALL SIGN
	TELEPHONE NUMBER
LINE 4	TYPE OF MUNITION (DROPPED, PROJECTED, PLACED,
	OR THROWN)
LINE 5	NBC CONTAMINATION
LINE 6	RESOURCES THREATENED
LINE 7	IMPACT ON MISSION
LINE 8	PROTECTIVE MEASURES TAKEN
LINE 9	RECOMMENDED PRIORITY (IMMEDIATE, INDIRECT,
	MINOR OR NO THREAT)

Figure 7-1. UXO Spot Report Format

Tools and Equipment

7-40. Munitions tools and equipment are designed to be safe when properly maintained and operated. Problems are usually the result of operator misuse or error. Training programs must stress proper use, care, and maintenance of tools and equipment. Supervisors must continually inspect condition and ensure that on-the-spot corrections are made.

7-41. A wide variety of hand tools and equipment is used in munitions maintenance, care, preservation, and storage operations. They range from simple hand tools (i.e., hammers and screwdrivers), to specialized tools (i.e., banding equipment), to tools specifically manufactured to maintain munitions. See TM 43-0001-47 for a listing of this type equipment.

7-42. Hand tools are widely used by munitions soldiers. Only tools made from nonsparking materials (i.e., bronze, lead, beryllium, alloys, K-monel, or polymers) may be used. Specialized materials, such as copper wool and nonflammable solvents, are often used with nonsparking tools. Only properly maintained tools will be used around hazardous concentrations of flammable dust, gases, vapors, or exposed explosives.

7-43. Tools used in the vicinity of hazardous materials must be handled carefully and kept clean. Tools must be checked for damage before and after operations. Tools of lead or beryllium alloys that require sharpening or reshaping may be sharpened only if the area has adequate exhaust ventilation.

NOTE

When ferrous metal tools are used, the immediate area must be free of exposed explosives and combustible materials.

MHE and Lifting Devices

7-44. Lifting devices are used to raise, lower, hold, position, or pull a load from one location to another. Examples are forklifts, cranes, and pallet jacks. MHE is used to store, handle, and move munitions. Examples are forklifts, towing tractors, cranes, pallet jacks, PLS trucks, and conveyors. Forklifts and cranes are the most common MHE used by ammunition units. Operators, supervisors, maintenance, and safety personnel are key to ensuring a safe MHE operating environment. See DA Pam 385-64 for more information.

7-45. Operators. MHE and lifting device operators have a limited field of vision when moving a load. For this reason, ground guides are needed when forklifts, cranes, and PLS are in use. Personnel must assume that operators cannot see them and stay clear of the areas where MHE is in operation.

7-46. Size and load limits for MHE must be established and enforced. Operators must understand the danger of exceeding fixed load limits. The following rules will be observed:

- Keep hazardous material moving uniformly through the process steps.
- Minimize rehandling.
- Eliminate heavy manual lifting.
- Reduce transportation distances whenever possible.
- Provide special handling equipment where practicable.

7-47. Supervisors. Supervisors must ensure that operators and other personnel comply with the following:

- Inspect forklifts and cranes prior to use.
- Don't use unsafe equipment until needed repairs are made.
- Become thoroughly familiar with the hand and arm signals used to direct MHE and lifting devices (both ground guides and operators).
- Don't move loads that exceed the rated capacity of the forklift or crane.
- Don't strike munitions with the MHE.
- Follow proper lifting procedures. Deviations from lifting procedures must be approved in writing.
- Avoid/stop careless operating procedures.
- When munitions are moved with forklifts, forks must be tilted back and no more than a foot off the ground, except when moving containers with the 50K RTCH. In this case, forks must be raised to a height that offers the operator maximum visibility.
- Don't disconnect safety devices (i.e., dead-man switches).

7-48. Maintenance personnel. Maintenance officers are responsible for ensuring that MHE is properly inspected, tested, and maintained, and that only qualified personnel operate this equipment. Other responsibilities include scheduling and documenting equipment tests and initiating and maintaining historical records for each item. Historical records include the following information:

- Nomenclature.
- Identifying markings.
- Acceptance certification (test operator and test director signatures on forms).
- Location.
- Schedule and record periodic inspections.
- Schedule tests and record results.
- Maintenance services schedule.
- Parts replacement record.
- Added identification or safe operation data.

7-49. Upon receipt of new equipment, maintenance personnel inspect the item for a load rating. Every lifting device has a load rating established through testing. The load rating is the maximum authorized load that the device is allowed to lift. The *manufacturer's* rating must never be extended. The manufacturer's rated load can be found on the equipment capacity data plate or in the operating instructions. See TB 43-0142 for more information.

7-50. Maintenance personnel mark all equipment with the load rating. The only circumstances where markings or tags may be painted over or removed are maintenance, testing, or to change the equipment's rated load.

7-51. Maintenance personnel must conduct maintenance inspections or tests when the equipment is received and at prescribed intervals thereafter. Preventive maintenance is scheduled and performed according to pertinent technical publications.

7-52. Designated personnel perform load tests for all types of cranes and hoists. Weights used can be built locally, or a calibrated load indicator, a dynamometer, or any item of the proper weight may be used. All load-testing devices must have a valid calibration label displayed in a conspicuous place. Attachments, such as slings, chains, and spreader bars, may be tested together. Test loads for forklifts are made using pallet loads that correspond to the manufacturer rated load data and supplemented by factors stated in the vehicle operator's manual.

7-53. Safety personnel. The safety officer must ensure that maintenance inspection or testing programs are in place for all lifting devices, and that the devices are inspected before use. Also, the safety officer must ensure the following:

- Lifting devices that fail inspections and tests are removed from service immediately.
- Operator selection and training programs are effective.
- Load tests are performed after disassembly, overhaul, or replacement of part of the load-bearing system. Perform tests before returning the system to service.

7-54. Pallet jacks and conveyors. Pallet jacks and conveyors present special hazards to all personnel and must be handled with care. Personnel will observe the following rules:

- Use conveyors and pallet jacks in areas where they will not create hazards.
- Ensure sectionalized conveyors are supported and sections are interlocked or secure.
- Use conveyor stands to support conveyors so that they remain stable. Don't use boxes or crates of munitions.

ACCIDENT AND INCIDENT CONTROL PLAN

7-55. Every unit that handles or stores munitions must develop plans for controlling accidents and incidents. These plans are part of the command accident/incident control plan, which includes procedures for the following:

- Reporting accidents or incidents.
- Getting assistance from supporting emergency forces.
- Supporting area military and civilian agencies.
- Establishing unit emergency technical escort teams.
- Radiation control.
- Munitions safety control.
- Disarmament.
- Munitions evacuation.
- Unit firefighting teams.
- Unit decontamination teams.

7-56. Training plans, including emergency exercises designed to maintain team efficiency and readiness, are part of the command accident/incident control plan. Such plans encourage personnel assigned to emergency response teams to remain proficient in individual and team duties. Accidents or incidents involving munitions are reported and investigated IAW AR 385-40.

REPORTING MUNITIONS MALFUNCTIONS

7-57. A munitions malfunction is the failure of an item to function as designed when fired, launched, employed, or subjected to functional tests. Malfunctions include abnormal or premature functioning of an item when properly handled, maintained, stored, transported, or deployed. Malfunctions don't include accidents or incidents resulting from negligence, vehicular system accidents, fires, and misuse.

7-58. A munitions malfunction may have been caused by operator error, equipment failure, environmental conditions, or defect in the munitions item. The following steps must be taken to determine the cause of the malfunction:

- User immediately secures the site, equipment, and munitions.
- Commander of the using unit reports all facts through command channels.
- Higher headquarters may assemble a team to investigate the incident.
- The operational command *may* suspend from use the munitions or equipment involved, based on METT-TC.

- Investigating team determines cause of the malfunction and provides disposition instructions for the items involved.
- The team provides reports required by higher headquarters IAW AR 75-1.

SUMMARY

7-59. Safety awareness must be a primary concern of all soldiers regardless of rank. While the unit commander and the safety officer/NCO bear the primary responsibility for ensuring that appropriate procedures are in place, supervisors and individual soldiers are responsible for ensuring that these procedures are followed. References cited in this chapter contain more detailed information and must be used to develop SOPs and support an active safety training program.