



**US Army
Technical Center for Explosives Safety**

Explosives Safety Management Program

Commander's Quick Reference Guide

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**US Army Technical Center for Explosives Safety
DSN 956-8737 or commercial (918) 420-8737
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The Cardinal Rule

Expose:

the minimum number of people

to the minimum amount of explosives

for the minimum amount of time

Consistent with safe and efficient operations.

Notes:

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Purpose

This guide is provided to aid Army commanders in developing written explosives safety management programs according to the Army Safety Program.

The Army Explosives Safety Management Program consists of 16 elements, grouped into 5 major functional areas. This guide attempts to explain each element and asks questions to evaluate each element.

This guide is not intended to supersede, contravene, replace, or modify the publications referenced herein or any other Department of Defense (DoD), Department of the Army (DA), Army Command (ACOM), Army Service Component Command (ASCC) or Direct Reporting Unit (DRU) criteria. Those publications take precedence in the event of any conflict with this guide. Information contained in this guide was current at the time of publication.

Notes:

Notes:

What is an Explosives Safety Management Program?

An Explosives Safety Management Program or ESMP is a documented top down management approach that specifies the explosives safety roles and responsibilities of each organization. The Army's ESMP is documented in AR 385-10, The Army Safety Program and DA Pam 385-64, Ammunition and Explosives Safety Standards. Both of these documents require commanders of organizations with an ammunition and explosives (A&E) mission to create an ESMP. So what does that mean?

Organizations with an A&E mission include ammunition plants, depots and arsenals along with any tenants that have activities on these types of installations. It also includes forts, posts, camps, and stations that have an ammunition storage and training mission. It's pretty much like this; if there is ammunition or explosives in production, research, development, test and evaluation (RDT&E), storage, used on a range or recovered, there needs to be an ESMP.

On Army installations, managed by Installation Management Command (IMCOM), the senior commander (SC) maintains overall responsibility and management of an installation level ESMP, while the day-to-day functions should be assigned to each

brigade and the individual tenants. The garrison's responsibility, in supporting the SC, is the day-to-day operation and management of the installation and base support services. The garrison ensures that installation services and capabilities are provided in accordance with HQDA directed programs, SC guidance, common levels of support (CLS), and IMCOM guidance according to AR 600-20, Army Command Policy. The garrison should not be responsible for performing all installation level explosives safety functions. The garrison should provide explosives safety technical assistance and support functions to each brigade and tenants.

On non-IMCOM installations, the commander in charge also maintains overall responsibility and management of an ESMP. The day-to-day explosives safety functions are assigned to the commander's safety office or designated action office(r).

An ESMP needs to address 16 functional areas. But first there are some general requirements that don't fit into any of the functional areas. These general requirements are listed in AR 385-10, paragraph 5-3 and DA Pam 385-64, paragraph 1-5.

It is important and a requirement, to identify an individual responsible for overseeing the SC's explosives safety program. Normally this is the SC's senior safety professional. This person should be

Notes:

JHCS—Joint Hazard Classification System
MCE—Maximum Creditable Event
MOOTW—Military Operations Other Than War
NEQ—Net Explosives Quantity (in kg)
NEW—Net Explosive Weight (in lb)
PES—Potential Explosion Site
PTR—Public Traffic Route
QASAS—Quality Assurance Specialist (Ammunition Surveillance)
QD—Quantity Distance
SCG—Storage Compatibility Groups
TSA—Theater Storage Areas
UNO—United Nations Organization

identified in writing using the standard appointment order format. The ESMP should implement the installation Executive Explosives Safety Council (EESC) with the SC as the EESC chairperson. Council members should consist of all commanders or directors of organizations on the installation with an A&E mission. It is advisable to establish an Explosive Safety Working Group (ESWG). The ESWG gives all organizations a voice in the formulation of the installation explosives safety policies. It provides a forum to discuss and resolve explosives safety managerial and technical policy issues. Documentation/concerns from the ESWG will be forwarded to the EESC for presentation to the EESC. The EESC will make recommendations to the chairperson on explosives safety policy and program management.

Personnel

Organization and Staffing

Each Army activity is organized and staffed differently. The SC and staff must evaluate the size of their explosives safety mission. Some organizations may only have security guard force ammunition storage which would require oversight by a single safety specialist. Other installations or activities may have large ammunition storage areas, active RDT&E ranges, and multiple tenants performing a multitude of A&E missions. These types of commands may need several safety professionals assigned to explosives safety. The explosives safety mission may be distributed across several organizations such as mission elements, garrison and tenants.

The ESMP will need to state how the explosives safety mission is organized and distributed; who has the lead for explosives safety by appointment memorandum; how other organizations on the installation support the lead explosives safety office. The SC may determine that a tenant safety office is better fit to be the lead for explosives safety other than the SCs safety office. The ESMP needs to show that the explosives safety organizational structure and staffing is adequate to support the organization's mission.

Common Ammo Acronyms

A&E—Ammunition and Explosives (collectively referred to as “ammo” in this booklet)
AGM—Above Ground Magazine
AHA—Ammunition Holding Area
AR—Army Regulation
ASP—Ammunition Supply Point
ATHP—Ammunition Transfer and Holding Area
BLAHA—Basic Load Ammunition Holding Area
CEA—Captured Enemy Ammunition
CoRA—Certificate of Risk Acceptance
CSA—Corps Storage Areas
DA PAM—Department of the Army Pamphlet
DAC—Defense Ammunition Center
DDESB—Department of Defense Explosives Safety Board
DOD—Department of Defense
DODIC—Department of Defense Identification Code
ECM—Earth Covered Magazines
EOD—Explosive Ordnance Disposal
ES—Exposed Site
ESQD—Explosives Safety Quantity Distance
HC—Hazard Classes
HCD—Hazard Class/Division
HCL—Hazard Classification Listing
IBD—Inhabited Building Distance
ILD—IntraLine Distance
IMD—Intermagazine Distance
ISO—International Standards Organization

Explosives Safety Assistance

Some of these 16 focus areas can become extremely technical and difficult to understand, especially if an individual has not received extensive training and practical experience. The Army has military and civilian personnel trained in the technical aspects of explosives safety. These personnel are ammunition warrant officers, MOS 890A, Ammunition Technician, Safety Specialists and Quality Assurance Specialists (Ammunition Surveillance) (QASAS). These personnel are located on every Army installation with an ammunition training mission and many National Guard sites. The US Army Technical Center for Explosives Safety and the Defense Ammunition Center employs civilian personnel with extensive knowledge/ experience in explosives safety, ammunition logistics, surveillance and engineering.

If additional assistance is needed, contact the Command Safety Office and request assistance from the US Army Technical Center for Explosives Safety (USATCES) at:

usarmy.mcalester.usamc.list.dac-es
 DSN: 956-8919; 956-8737; 956-8745
 Commercial: 918-420-8737

Personnel

- Is the explosives safety organizational structure and staffing adequate to support the organization's mission?
- Are there clear, documented organizational responsibilities? Does the mission statement include explosives and explosives safety responsibility?
- Is there an organizational line to the Commander?
- Is there an assigned Explosives Safety Office/ Officer or functional equivalent?
- Is the explosives safety organizational staffing adequate to support mission. Are safety personnel on permanent assignment or collateral duty? Have personnel completed by formal training or OJT?

See AR 385-10, Army Safety Program, chapter 2

Personnel

Tenants

Each tenant on an Army installation must ensure their explosives safety posture meets, or is compatible with, the Army and SC requirements. The installation and tenant must have an MOA or policy that outlines the ESMP requirements and responsibilities to include reporting to the SC.

- Are A&E operations monitored, controlled and managed to ensure their explosives safety posture meets, or is compatible with, the Army and mission requirements of the organization?
- Are A&E operations identified? Are all tenant missions identified? Are tenant personnel identified and controlled?
- Are tenant functions monitored: explosives operations approved or permitted, site access, inspection or review of tenant explosives activities?
- Are tenant commands reporting ES posture to SC? Is tenant explosives safety program reviewed by command?
- Are MOUs, MOAs or other agreements in place for explosives safety responsibilities?

Compliance

Training

Commanders or directors on an installation will ensure all personnel who are involved in A&E operations, receive explosives safety training as required by Army policy and standards, including explosives risk management training for those responsible for the development and review of deviations and risk assessments. The minimum requirements for training are delineated in table 1-1 of DA Pam 385-64. Each Army installation will provide training for the 3Rs (Recognize, Retreat, Report) and UXO safety education training/ information will be provided to people living on the installation, including school aged children, or that work on or use the property.

- Does the organization require and provide available adequate resources for explosives safety training?
- Is a training program formally established, funded and tracked? Are training requirements established and in place? (NOTE: Mandatory for Risk Management)
- Is specialized and appropriate training being provided (i.e., chemical agents, lightning protection systems, explosives safety material handling, accident investigation, emergency responders, site planners, etc)?

Compliance

Records Management

The creation of records that adequately document the organization's functions, policies, and procedures is a necessary portion of any management program. Written procedures also provide for operational continuity during personnel rotation and turnover. The ESMP must state who, what and where explosives safety records will be stored and maintained.

- Are explosives safety records managed and maintained in accordance with Army and DoD requirements?
- Is continuity documentation maintained and available?
- Are inventory records managed to control NEW, HD, and compatibility requirements per site plans and licensing?
- Electronic site (GIS) data is consistent with installation documentation and records?

Records Management

Personnel

Contractors

All contracts involving A&E are required to include DFARS, clause 223.370. Clause 223.370 requires the use of the DoD contract safety manual and safety oversight. Also, this clause cannot be removed without authorization from the SC's safety director. All contracts involving A&E shall be coordinated with the garrison safety office to assure applicable safety requirements are addressed. Besides the DFARS clause, all A&E contracts on an installation should stipulate compliance with Army A&E safety requirements, accident reporting provisions and compliance with the installation ESMP as required by AR 385-10 and DA Pam 385-64.

- Are contractors monitored, controlled and managed to ensure their explosives safety posture meets, or is compatible with, the Army and mission requirements of the organization?
- Are contractors identified and controlled?
- Are contracts written to contain provisions requiring compliance with DoD explosives safety standards?
- Do contractors work to explosives safety levels no less stringent than DoD requirements?
- Do contractors report accidents and near-misses IAW DoD standard or contractor safety manual as appropriate?

Contractors

Facilities

Master Planning

Real Property master planning is a continual, collaborative, and integrated process, primarily performed at the garrison level, reflective of mission requirements. In order to maintain this process it is important that all installation activities use local policy when requesting changes or additions to the Real Property Master Plan (RPMP). The SC's designated representative (safety director) must participate in the installation Real Property Planning Board (RPPB) to ensure that all new construction is properly sited according to explosive safety standards. Any real property known or suspected to contain Munitions and Explosives of Concern (MEC), Unexploded Ordnance (UXO), or Recovered Chemical Warfare Materiel (RCWM) will be treated, handled and identified according to DoD and Army standards. Army guidance is contained in DA Pam 385-64, chapter 19. The Assistant Secretary of the Army for Installations, Energy and Environment provided interim guidance for Chemical Warfare Materiel Responses and Related Activities in April, 2009 that must be followed for RCWM related activities.

Compliance

Explosives Safety Issuances

Explosives safety issuances consist of, but may not be limited to, local policies (e.g., SOPs), Army regulations, pamphlets, and other publications. They also include compensatory measures to manage risk. These measures may be the closing of certain roads during operations or not conducting an operation while another is operational. These types of measures should be documented and controls in place to ensure compliance. The ESMP must describe the process for communicating and enforcing explosives safety procedures. Every Army facility must be aware of and take precautions with any Hazards of Electromagnetic Radiation to Ordnance (HERO) unsafe munitions on the installation. The ESMP must describe the process to be followed if a HERO unsafe munition is located or if a munition will be rendered HERO unsafe on the installation.

- Are explosives safety procedures and documents developed, updated, maintained, issued and enforced in accordance with Army, DoD and local requirements?
- Are compensatory explosives safety measures identified and enforced?
- Do local instructions, policies, and operating procedures include explosives safety review and approval?
- Are HERO exposures documented and controlled?

Compliance

Inspections/Evaluations/Audits

Inspections are a good management tool to ensure compliance with regulatory and operational requirements. The ESMP should provide guidance to ensure that the results of inspections are incorporated into action plans and lessons learned. Also, the ESMP should identify an internal explosives safety inspection process (self audit) to include frequency and tracking of corrective action taken.

- Are results of other inspections, evaluations, audits and surveillance efforts incorporated into action plans and lessons learned?
- Are results of higher headquarters, IG, DDESB evaluations/inspections being reviewed?
- Are action plans developed, assigned and tracked to remediate inspection deficiencies?
- Are lessons learned from inspections incorporated to prevent re-occurrence or improve performance?
- Is an appropriate inspection frequency in place to identify and track deficiencies?

Facilities

- Is there a documented and adequately managed master planning process responsive to explosives safety requirements and restrictions?
- Is a master planner or equivalent assigned and responsible for maintaining planning documents?
- Is the master planning review process incorporated into site planning, has chain of command involvement, and manages encroachment?
- Are explosives storage and operating areas accurately depicted on master planning documents?
- Are master planning documents maintained and updated to reflect changes to facilities and operations? Is a process in place for review and update of explosives safety installation maps?

See AR 240-1, Army Facilities Management
AR 210-20, Real Property Master Planning for Army Installations

Facilities

Site Planning

The DoD 6055.09-M, DoD Explosives Safety Standards requires the military services to submit required explosives safety submissions (RESSs) to the DDESB for review and approval. Additionally, it requires installations to maintain current installation maps showing approved explosives safety quantity distance (ESQD) arcs for approved explosives safety site plans (ESSPs) or risk-based evaluation distances and proposed ESSPs that are reconciled with the installation's master plan. Army guidance for ESSPs is found in AR 385-10, DA Pam 385-64, and DA Pam 385-65. Army ESSPs are submitted to USATCES for Army approval and forwarding to the DDESB. Coordination for ESSPs should include the following organizations: safety, explosives safety, master planning, operators/operating units, others involved with A&E operations, facility engineering, public works, logistics, environmental and health, security, fire department and any other stakeholder exposed to the proposed facility/operation.

Site Planning

Emergency Preparedness

Emergency Response

Emergency Planning establishes the procedures and processes that an organization will follow when responding to an emergency. The goal of emergency planning is to protect life, health, property, and to restore normal operations as soon as possible. DA Pam 385-10, chapter 10 provides general principles that should be followed when developing an emergency plan, as required in AR 385-10, chapter 19. DA Pam 385-10, chapter 11 outlines the process for preparing the Army response to and A&E emergency. The ESMP should provide guidance on who is in command during the response and who and when is command responsibility turned over to when response actions are complete. Also, the ESMP should designate an office or individual responsible for coordination with an Army Accident Investigation Team if required.

- Are adequate emergency response facilities, documentation, and training in place to support the explosives safety mission?
- Are fire department and cooperative agreements (if required) in place, and emergency response planning being conducted?
- Do firefighters have a thorough knowledge of the hazards associated with ammunition and explosives fires, expected reactions, and signage?
- Is appropriate equipment for responders in place and exercised?

Emergency Response

Emergency Preparedness

Accident Prevention Program

Explosive safety is an integral part of an accident prevention plan. The ESMP must require that an accident prevention program is managed to mitigate or eliminate explosives accidents and incidents, which lessons learned from mishaps (incidents) are being disseminated and, as appropriate, incorporated in training programs and operating procedures.

- Is there an accident prevention program managed to mitigate or eliminate explosives accidents and incidents?
- Are lessons learned from mishaps (incidents) being disseminated and, as appropriate, incorporated in training programs and operating procedures?
- Are explosives accidents evaluated to determine root cause and identification of preventative measures?
- Are accidents reported and documented for Army review?
- Does the organization promote a culture of safety (i.e., empowering personnel to stop operations that are unsafe, emphasize safe operations over scheduling, etc.)?

Facilities

- Is there a documented and adequately managed site planning process, responsive to explosives safety requirements, and meeting Army and DoD requirements.
- Is a site planning process in place? Is an automated site planning tool being used? Is an explosives site review process incorporated into master planning and chain of command involvement? Is an explosives safety council or equivalent in place for explosives safety reviews?
- Are leases for commercial use of government or military property and/or facilities permitted and approved?
- Are all explosive and exposed sites formally sited? Are "grandfathered" facilities in use and documented?

Facilities

Facilities Conformance

Explosives storage and operations facilities, as well as facilities exposed to them, must conform to the DA and DoD ESSP documentation. In addition, facilities must meet construction requirements as detailed in approved drawings including fire suppression and electrical standards, lightning protection, electrical dissipation systems, and consideration of glass hazards. Protective construction (i.e. barricades and substantial dividing walls) needs to be considered in the conformance evaluation.

Facilities Conformance

Emergency Preparedness

Risk Management

When DoD and Army explosives safety regulations and policies cannot be met on the installation, the procedures set forth in DA Pam 385-30, Mishap Risk Management will be followed. The ESMP should outline the process for organizations to follow when risk management and acceptance is required.

- Is there a risk management process that ensures the responsible use of resources in identifying, evaluating, managing (i.e., preventing, controlling, mitigating) the potential explosives and chemical agent safety risks?
- Are CoRAs or CCRs in place to address deviations from Army and DoD standards?
- Are hazards tracked, monitored, evaluated, and management controls adjusted as necessary?
- Is hazard control information transmitted to personnel (i.e., personnel are aware of explosives hazards, signage, farmers, grass cutters, hunters, fishing, etc.)?
- Are risk decisions made and accepted at levels per DA Pam 385-30?

Risk Management

Operations

Demilitarization/Destruction

Demilitarization or destruction of ammunition, explosives, and propellants will be accomplished only by reclamation, open burning / open detonation (OB/OD) incineration, or other approved methods. The ESMP needs to identify the organization designated as having the authority for emergency demilitarization and destruction of A&E on the installation. The garrison should be the single organization to contact the Explosives Ordnance Disposal (EOD) when EOD support is required. The SC's designated representative (safety director) should be notified about all EOD emergency operations.

- Are demilitarization and destruction operations conducted in accordance with Army and DoD requirements?
- Are net explosive weights (NEW) and hazard division (HD) limits and controls established for demilitarization and destruction operations?
- Are dedicated or special use facilities being utilized (i.e., chemical facilities, furnace, burn pans, robotic, mechanical disassembly areas, destruction chambers)?
- Is recycling of explosive and non-explosive materials controlled, certified and managed?
- Are certified personnel required to operate equipment or facilities?

Facilities

Facility Maintenance

Facility maintenance is an all-inclusive process to ensure explosives facilities are maintained in accordance with Army and DoD requirements. It is important to maintain explosives facilities, and the supporting facilities such as barricades, to ensure safe operations and the continuance of the mission.

- Ensure facility maintenance plans and schedules are in place for explosives related and supporting structures.
- Ensure action plans are in place for identifying, funding, and correcting facility deficiencies (repair, replacement, modification).
- Ensure periodic inspection and trend analysis are conducted on lightning protection systems
- Ensure specialized training and certification is provided (if required) to maintain explosives facilities.

Operations

Ranges

AR 385-63, Range Safety contains the requirements for all safety on Army ranges. The ESMP must identify that range operations are formally controlled (normally through a centralized Range Control organization), compliance with a range standard operating procedure, and surface danger/hazard zones are established and monitored. Also, required training and certification is provided to operators and users.

- Are explosives safety provisions enforced during range operations? Are DoD regulations being applied: DoD 4715.15 Operational Range Assessments; DoD 4140.62 Material Potentially Presenting and Explosives Hazard; DoD 3200.16 Operations Range Clearance, DoD 4515.11 Environment and Explosives Safety Management on Operational Ranges within the United States; DoD 4715.12 Environment and Explosives Safety Management on Operational Ranges outside the United States? Is AR 385-63 requirements being applied?
- Are range operations formally controlled? Are range hazard zones established and monitored? Is training provided operators and users? Are munitions and explosives controls in place?

Operations

- Is the scope of range operations addressed: EOD ranges, indoor firing ranges, outdoor training ranges (w/SDZ), underwater ranges, R&D test ranges, shoot houses, breaching facilities, munitions disposal, burning grounds?
- Is range cleanup on operational ranges being performed? Range cleanup on closed ranges being performed?
- Are explosives safety distances and risk management applied during use of operational, test, disposal and training ranges?