

VOLUME 8

MARINE CORPS EXPLOSIVES SAFETY MANAGEMENT PROGRAM

SUMMARY OF VOLUME 8 CHANGES

Hyperlinks are denoted by *bold, italic, blue and underlined font*.

The original publication date of this Marine Corps Order (right header) will not change unless/until a full revision of the MCO has been conducted.

The date denoted by *blue font* (left header) will reflect the date this Volume was last updated.

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**CANCELLATION**. The publication of this Volume cancels MCO 8020.10 and participation in OPNAVINST 8020.14, and MCO 8020.13A/OPNAVINST 8020.15A.

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MCSC (PMM-152)  
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**VOLUME 8: CHAPTER 1**

**ROLES AND RESPONSIBILITIES**

**SUMMARY OF SUBSTANTIVE CHANGES**

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<b>CHAPTER VERSION</b>	<b>PAGE PARAGRAPH</b>	<b>SUMMARY OF SUBSTANTIVE CHANGES</b>	<b>DATE OF CHANGE</b>

**CHAPTER 1**

**ROLES AND RESPONSIBILITIES**

**0101 OVERVIEW**

The storage, handling, transportation, and employment of military munitions is inherently hazardous. Therefore, it is imperative that a safety program designed to minimize the potential explosives hazards be aggressively pursued at all levels. This Volume provides policy and guidance for the implementation and oversight of the Marine Corps' Explosives Safety Management Program (ESMP) and the corresponding command responsibilities.

**0102 APPLICABILITY**

A. The Secretary of Defense has established basic explosives safety policies to be observed by Department of Defense (DoD) components in the performance of operations involving munitions in accordance with reference (a).

B. The provisions of this Volume shall apply when DoD munitions are located in overseas areas, except when compliance with more restrictive standards is mandated by International Agreement (IA).

C. Operations conducted at installations under the command of another Service shall be in accordance with an approved Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA).

D. In case of conflicting policies or regulations, contact Commander, Marine Corps Systems Command (COMMARCORSSYSCOM) for guidance.

E. Integrate risk management processes into the explosives safety management program per this Order.

**0103 RESPONSIBILITIES**

An effective Explosives Safety Management Program (ESMP) is dependent upon command support at all levels. The commands listed below have the following responsibilities that support the creation and maintenance of an effective ESMP, though this list, and the individual tasks they represent, is not to be considered all inclusive.

**010301. MARINE CORPS SYSTEMS COMMAND (MCSC)**

Generate, manage, and approve all guidance and policy for the storage, handling, transportation, and employment of munitions for the Marine Corps. The content within this Volume is owned and approved by MCSC. Safety Division (CMC SD) will facilitate its implementation and subsequent revisions as they become necessary.

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010302. COMMANDANT OF THE MARINE CORPS SAFETY DIVISION (CMC (SD))

Provide overall administration of the Marine Corps Safety Program, MCO 5100.29C and its associated volumes, facilitating necessary changes and revisions from the individual volume sponsors.

010303. CHIEF OF NAVAL OPERATIONS (CNO) DIRECTOR, ENERGY AND ENVIRONMENTAL READINESS (OPNAV N45)

Provide program resources for the execution of required munitions response at all Department of the Navy (DON) Environmental Restoration Program sites.

010304. DEPUTY COMMANDANT FOR AVIATION (DC A) (ASL-30)

A. Serve as the single point of contact for aviation operations Class V(A) explosives safety as delegated by CMC SD.

B. Provide amplifying instructions to policies involving the safe use of Class V(A) ordnance.

C. Coordinate with COMMARCORSYSCOM to provide aviation ordnance personnel to assist in executing the Marine Corps ESMP.

010305. DEPUTY COMMANDANT FOR INSTALLATIONS AND LOGISTICS (DC, I&L)

Coordinate operational and policy matters relating to Class V materiel with COMMARCORSYSCOM to ensure that specific explosives safety requirements are addressed.

010306. COMMANDING GENERAL MARINE CORPS COMBAT DEVELOPMENT COMMAND (CG MCCDC)

A. Provide/publish policy and procedures for Marine Corps range safety as delegated by CMC SD.

B. Serve as the single point of contact for range operations involving the use of Class V material.

C. Provide range certification/recertification oversight and range Technical Assistance Visits (TAVs).

D. Provide guidance on non-standard training.

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010307. COMMARCORSYSCOM

A. Provide/publish policy and procedures for the Marine Corps explosives safety program as delegated by CMC SD.

B. Assign two qualified individuals to serve as the Marine Corps voting members (one primary and one alternate) to the Department of Defense Explosives Safety Board (DDESB).

C. Assign a military representative to serve as the Marine Corps liaison to the DDESB.

D. Approve/endorse Marine Corps explosive safety deviations on Marine Corps installations involving facility planning or installation directed functions.

E. Approve/endorse explosives safety site plans at all Marine Corps installations or training/contingency locations.

F. Provide Marine Corps representation to the Weapons Systems Explosives Safety Review Board, and other joint service weapons safety working groups, for matters pertinent to ground ammunition and explosives (A&E) safety.

G. Provide Marine Corps representation to joint service and multi-national working groups or teams.

H. Provide assistance for explosives safety matters involving the Military Services, U.S. Coast Guard, foreign services, and other appropriate public and private agencies.

I. Manage the Marine Corps Munitions Response and Ordnance Environmental Programs.

J. Execute the Marine Corps Explosives Safety Inspection and Compliance Review Program.

K. Maintain an electronic repository of all Marine Corps explosives safety and environmental submissions.

L. Provide guidance, oversight, and verification of Marine Corps munitions response actions.

M. Provide guidance on managing Material Potentially Presenting an Explosives Hazard (MPPEH).

N. Provide/publish policy and procedures for the A&E personnel qualification and certification program.

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O. Monitor changes to explosives safety publications and directives that may affect the Marine Corps ESMP.

P. Communicate with the DDESB regarding explosives safety technical issues.

Q. Implement and manage the Radiological Affairs Support Program for the management of Marine Corps Depleted Uranium (DU) ammunition. Maintain the DU Naval Radioactive Material Permit, ensuring compliance with Nuclear Regulatory Commission, Naval Radiation Safety Committee, and Naval Sea Systems Command (NAVSEA) Radiological Affairs Support Office directives.

R. Participate in explosives mishap investigations.

S. Provide tactical explosives safety expertise and training in support of contingencies, combat operations, military operations, and associated training.

T. Participate on Explosives Safety and Munitions Risk Management and Consequence and Risk Identification assessments when requested by a Service Component Commander.

U. Coordinate, as required, all issues, plans and reports for munitions responses to ensure that explosives safety, land use, remediation, and other relevant issues are addressed.

010308. MARINE CORPS COMPONENT COMMANDERS, (MARINE FORCES COMMAND)

A. Provide management and oversight for all explosives safety matters within area of responsibility.

B. Conduct and approve Explosives Safety and Munitions Risk Management Assessments (MRMA) for Operational Forces munitions related activities at OCONUS locations within the area of responsibility whether on or off Marine Corps installations when assigned risk acceptance authority from the Geographic Combatant Commander (GCC).

C. Provide explosives safety expertise in support of contingencies, combat operations, military operations, and associated training.

D. Provide technical review, recommendations and endorsements on explosives safety site plan requests and explosives safety deviations for major subordinate commands.

E. Coordinate with COMMARCORSYSCOM on explosives safety issues.

F. Shall be designated in writing as the Command Explosives Safety Officer (ESO). The ESO shall be organizationally placed in the command safety office and have direct access to the commander on all matters pertaining to explosives safety.

G. Provide endorsements and/or approvals of explosives safety deviations as outlined in this Order.

010309. COMMANDER, MARINE CORPS INSTALLATIONS  
COMMAND

A. Provide management and oversight for all explosives safety matters via regional commanders.

B. Provide management and oversight of manning and resource management issues.

010310. NAVAL FACILITIES ENGINEERING COMMAND (NAVFACENCOM)

A. Develop Explosives Safety Submissions (ESS) for COMMARCORSYSCOM review and endorsement to the DDESB.

B. Develop safety and health plans, personnel qualification documentation, and quality assessment and control procedures that address explosives safety.

C. Coordinate munitions responses with the appropriate Explosives Safety Officer (ESO) and, when applicable, supporting Explosive Ordnance Disposal (EOD) personnel

D. Conduct munitions responses per the approved ESS, amendment, or correction as appropriate.

E. Amend or correct, as appropriate, approved ESSs to reflect changes in the selected munitions response and submit the amendments via COMMARCORSYSCOM to the DDESB and corrections to COMMARCORSYSCOM.

F. Amend as required, approved ESSs to reflect changes in the selected munitions response and submit the amendments via COMMARCORSYSCOM to the DDESB for approval.

G. Submit requests for an extension of approved ESSs to COMMARCORSYSCOM.

H. Prepare After Action Reports (AAR) for the selected or amended munitions response and provide to COMMARCORSYSCOM for review and submission to the DDESB or other entities as appropriate.

I. Prepare Navy land disposal, transfer and out lease, documentation packages addressing explosives safety criteria associated with the presence or possible presence of MEC or MPPEH and required protective measures such as notices, restrictions and conditions for MARCORSYSCOM's review and, as appropriate, endorsement to the DDESB for approval.



010311. MARINE CORPS INSTALLATIONS COMMAND (MCICOM) REGIONAL EXPLOSIVES SAFETY OFFICER

- A. Implement and maintain oversight of an effective regional ESMP.
- B. Review, endorse, and/or approve projects that may affect explosives safety.
- C. Establish a TAV Program to assist installations with explosives safety issues.
- D. Review, recommend, and endorse explosives safety site plans.
- E. Review, recommend, and endorse explosives safety deviations.
- F. Provide direct explosives safety support in the absence of an installation's Explosives Safety Officer (ESO).
- G. Coordinate operational and policy matters relating to Class V materiel with COMMARCORSYSCOM.

010312. INSTALLATION COMMANDER

- A. Establish an effective ESMP.
- B. Adequately staff and resource the explosives safety office to manage the explosives safety program.
- C. Designate, in writing, an individual either government civilian or military as the installation ESO. The ESO is considered the senior explosives safety professional (ESP) on the installation. The following guidance is provided regarding the ESO:
  - 1. The ESO shall be organizationally placed in the installation safety office.
  - 2. The ESO shall have direct access to the installation commander on all matters pertaining to explosives safety.
  - 3. Explosives safety should be the ESO's primary duty.
  - 4. The installation may have several explosives safety specialist to assist the ESO. However, only one individual will be designated as the ESO.

010313. EXPLOSIVES SAFETY OFFICER

- A. Serve as the senior explosives safety specialist.
- B. Develop, implement, and manage a robust explosives safety program that complies with the provisions of this Volume.

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- C. Implement a records management process that documents and supports the ESMP.
- D. Participate as an active member of the facilities planning Integrated Product Team (IPT) per reference (b).
- E. Maintain approved explosives safety site plan packages.
- F. Maintain the facility databases in the Environmental and Explosives Safety Web Portal with all potential explosives sites (PES) and exposed sites (ES).
- G. Develop written procedures to implement new and modified approved site plans.
- H. Ensure compensatory measures, either from deviations or explosives site plans, are addressed in the appropriate SOP or order and all commands affected are notified in writing of the requirements.
- I. Ensure that installation operations involving the transportation, storage, and handling of Class V materiel are conducted in compliance with applicable directives, and executed in a safe manner.
- J. Provide the installation commander with reasoned, informed advice regarding explosives safety levels of risk.
- K. Monitor and evaluate the explosives training of personnel involved with explosives operations to verify the effectiveness of the training.
- L. Conduct pre-operational checks of explosives operating lines, in conjunction with safety personnel trained to perform safety analyses, as new systems or processes are implemented.
- M. Ensure all A&E specific standard operating procedures (SOPs) meet the requirements of this Volume.
- N. Ensure commands have an effective qualification and certification program as required by reference (c).
- O. Inspect maintenance/repair operations involving hot work and issue permits as necessary.
- P. Monitor accountability of ordnance display items.
- Q. Conduct/support mishap investigations in accordance with reference (d). Maintain records per reference (e).
- R. Maintain the activity's explosives safety publications and directives.

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S. Assign safety observers to pier or wharf areas in accordance with reference (f) and this Volume.

T. Monitor the facility grounding/lightning protection program.

U. Conduct annual Explosives Safety Self-Assessments (ESSAs).

V. Provide notification of munitions of explosives concerns (MEC) or munitions potentially presenting an explosives hazard (MPPEH) discoveries to COMMARCORSYSCOM.

W. Provide oversight of munitions responses.

X. Establish and publish installation explosives laden vehicle routes.

Y. Verify a current review of all electronic transmitting equipment has been conducted to ensure compliance with respect to Hazards from Electromagnetic Radiation to Ordnance (HERO) and ensure installation has obtained the necessary reviews from Space and Naval Warfare Systems Command (SPAWARSYSCOM) and Naval Surface Warfare Center Dahlgren.

Z. Ensure the following reviews are conducted annually and documented. Unless otherwise indicated, these reviews can be documented by a Memorandum for the Record. Maintain copies of the current year and two previous year's documentation.

1. Magazine inspection to ensure compliance with explosives safety and construction standards.

2. Inspection of all active explosives operating buildings or workplaces.

3. Encroachment review.

4. Map review of explosives safety arcs to ensure all ESQD arcs and PESs and ESs within ESQD arcs are shown and accurate.

010314. COMMANDING OFFICERS (CO) AND OFFICERS-IN-CHARGE (OIC)

All COs and OICs that requisition, receive, handle, store, or transport munitions are responsible for the following:

A. Publish SOPs that govern explosives operations performed within their unit.

B. Ensure that all personnel involved in the storage, transport, handling, maintenance, receipt/issue, and use of munitions receive required training prior to their assignment to duties involving munitions.

C. Provide copies of all work requests for any work inside the 110% ESQD arcs to the ESO.

D. Provide copies of all Malfunction, Mishap, and A&E Reports to the ESO.

E. Assign an Explosives Safety Representative (ESR).

010315. EXPLOSIVES SAFETY REPRESENTATIVE

ESRs shall function as liaison between the unit and the installation ESO. ESRs will assist the installation ESO with the unit's explosives safety mission.

010316. MARINE CORPS EXPLOSIVES SAFETY COUNCIL

The council shall consist of, but not be limited to, the following permanent members: Environmental and Explosives Safety Branch, COMMARCORSYSCOM (Chair); CMC SD; HQMC (ASL-30); MARFORCOM; MARFORPAC; MARFORRES; MARCENT; MARFOREUR/AF; MCICOM; Marine Corps Installations East (MCIE); Marine Corps Installations West (MCIW); Marine Corps Installations Pacific (MCIPAC); and Marine Corps Installations National Capital Region (MCI-NCR).

A. Review and evaluate issues identified during the Executive Safety Board, chaired by the Assistant Commandant of the Marine Corps, which may affect the Marine Corps ESMP.

B. Review explosives mishaps and incidents, explosives safety inspections and ongoing explosives safety initiatives to evaluate impact to existing policies, programs, and investments.

C. Review and revise guidance, policy, and procedures governing the Marine Corps ESMP.

D. Review proposed or enacted updates to DoD and/or joint service explosives safety policy and provide requisite feedback to the initiating agency.

E. Review and provide recommendations on DDESB voting actions to the Marine Corps DDESB voting member.

**VOLUME 8: CHAPTER 2**

**GENERAL/MISCELLANEOUS**

**SUMMARY OF SUBSTANTIVE CHANGES**

Hyperlinks are denoted by ***bold, italic, blue and underlined font.***

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<b>CHAPTER VERSION</b>	<b>PAGE PARAGRAPH</b>	<b>SUMMARY OF SUBSTANTIVE CHANGES</b>	<b>DATE OF CHANGE</b>

**CHAPTER 2**

**GENERAL/MISCELLANEOUS**

0201 BACKGROUND

This chapter provides guidance on general requirements affecting the Marine Corps ESMP.

0202 DEFINITION OF TERMS

As used in this order:

- A. "Government" means U.S. Federal Government.
- B. "Naval" means both Navy and Marine Corps.
- C. "Commanding Officer" refers to the installation Commander or a Battalion/Squadron Commander and above.
- D. "Shall," "will," and "must" are directive in nature and require mandatory compliance.
- E. "Should" is advisory in nature. Advisory requirements shall be followed unless exempted by the CO.
- F. "May" and "can" are optional in nature.

0203 COMMUNICATIONS WITH EXTERNAL ORGANIZATIONS

- A. Unsolicited direct liaison from Marine Corps activities with DDESB and NOSSA is not authorized unless coordinated through COMMARCORSYSCOM.
- B. All policy guidance or interpretation questions will be addressed to COMMARCORSYSCOM.
- C. COMMARCORSYSCOM will be copied on all explosives safety correspondence from Marine Corps activities to external organizations.

0204 TENANT RELATIONSHIPS

- A. The installation Commanding Officer is responsible for the safety of all explosives activities aboard the installation. The installation ESO is responsible for providing explosives safety oversight of all commands and organizations aboard the installation.
- B. Marine Corps tenant commands and organizations will follow the installation's explosives safety regulations unless a Memorandum of Understanding (MOU),

Memorandum of Agreement (MOA), or Inter-Service Support Agreement (ISSA) is in place that outlines specific explosives safety roles and responsibilities.

C. All non-Marine Corps organizations or activities located aboard a Marine Corps installation will have an MOU/MOA/ISSA with the host installation commander. The MOUs, MOAs, or ISSAs will at a minimum outline the following:

1. Service specific documents providing explosive safety standards to be followed.
2. Explosives safety oversight and compliance responsibilities.
3. Routing and approval authority of explosives safety deviations.
4. Installation specific requirements.
5. Funding or other support.

#### 0205 MUNITIONS INERTING, DISPLAY, AND 3-D MANUFACTURING

##### A. Munitions Inerting

1. Inert munitions do not contain explosives, energetics, or other hazards. Only inert munitions shall be used for classroom training, training aids, or displays unless approved by COMMARCORSYSCOM.
2. Only Explosive Ordnance Disposal (EOD) personnel are authorized to conduct inerting and stripping operations in accordance with reference (g).
3. Inspection and marking of inert-filled and empty ordnance items shall be in accordance with this Volume.
4. Ammunition that is manufactured specifically for display purposes, empty or with inert material installed, does not require inert certification.
5. Ammunition that has had explosives material removed and left empty or replaced with inert material shall be certified inert. These items will be included in the master inert inventory.
6. An inert certification is a determination that the ammunition or component does not contain an explosive or energetic hazard. The examination may be visual or by a nondestructive testing method such as an X-ray. The certification shall be performed by EOD personnel or other personnel certified in writing by the CO as technically qualified to make such a determination. Activities shall maintain a record of all inerted ammunition. The following data, at a minimum, shall be recorded:

- a. Item description
- b. Assigned serial number
- c. Certifying official's name
- d. Certifying official's signature
- e. Date certified
- f. Method by which the item was certified inert
- g. Item location
- h. Final disposition

7. Data may be maintained electronically provided all requirements identified above are met. Electronic signatures are authorized. A sample form is provided in Chapter 2 of reference (f).

8. Items transferred from the certifying organization will be accompanied by a copy of the inert certification. The inert certification must be maintained with the item until the item is destroyed. The accompanying inert certification must contain a statement requiring the return of the inert item when no longer needed or a statement verifying the proper disposition of the item.

#### **B. Inerted Ammunition Markings and Identification**

1. The original color code, nomenclature, and other identification shall not be removed or altered without COMMARCORSYSCOM approval. Items that have had their color markings changed in accordance with earlier guidance are not required to have their original color and markings restored.

2. Items shall be identified by serial number. The serial number shall consist of the Unit Identification Number or Routing Unit Identification of the activity where the item was certified inert, and a unique identification number.

3. The serial number will be affixed to each item by metal engraving tool, steel stamping, indelible ink, or a locally produced label.

4. Four holes, 90 degrees apart, will be drilled in each item as a ready identifier that the item has been inerted. Exceptions to this requirement include:

- a. Items physically too small to drill.
- b. Items whose historical importance could be diminished by the drilling of holes (or metal stamping or engraving).



c. Items whose physical characteristics would be altered by the drilling of the holes.

5. ESO's will conduct and document audits of inert ordnance items as part of the annual ESSA.

C. Manufactured Inert Items

1. Ammunition that is manufactured for display purposes empty or with inert material installed does not require inert certification. All other ammunition that has had explosive material removed and left empty or replaced with inert material shall be certified inert in accordance with paragraph 0205A of this chapter.

2. Manufactured Inert ammunition items shall be accounted for via logbook or electronic means. At a minimum, the logbook or electronic accountability process will identify the manufactured inert munition by item description/nomenclature, quantity, and location.

3. Manufactured inert munitions transferred from one organization to another unit or organization will include a copy of the manufacturer's documentation or receipt of the item transferred. If manufacturer's documentation is not available, documentation of the items manufactured inert status from the owning unit is required.

4. 3-Dimension Printed Items

a. 3-Dimension (3-D) printed items are produced to duplicate the physical characteristics of munitions and improvised explosives devices (IED) used for display and training. 3-D printed items do not contain explosive or energetic material or other hazards.

b. 3-D printed items could potentially be mistakably identified as live items, 3-D printed munitions or items which are intended to be used as a training aid shall be clearly marked as a training aide or inert item and accounted for by the owner via logbook or recorded by electronic means. At a minimum, the logbook or electronic accountability process will identify the 3-D training or display aide by item description/nomenclature, quantity, location, and final disposition.

0206 CLEARING BARRELS

A. Clearing Barrel Locations. Clearing barrels will be provided at designated weapons clearing locations, which are generally located outside arms rooms and ranges. Commands must post positive control and procedural guidelines for all weapons at clearing barrels and ensure personnel use them during weapons clearing.

**B. Clearing Barrel Construction**

**1. Local construction**

a. A 30 to 50 gallon container, filled with pea gravel or sand. (Pea gravel has the greater projectile stopping ability.)

b. If sand is used, it must be dry and free of rocks and other debris. Properties of wet sand and rocks can cause ricochets. Place dry sand in a plastic bag and tie the bag closed prior to placing into clearing barrel.

c. Locally constructed clearing barrels will have ¾ inch plywood or thick rubber matting covering the interior surface diameter of the container fitted directly behind the lid to reinforce the lid against muzzle blast (not applicable to Commercial Off The Shelf (COTS)).

d. Locally constructed barrels will be at least 14 inches wide, 24 inches deep, and be mounted at a height and angle to permit safe and smooth firearms clearing.

e. Locally constructed barrels will have an aiming point in the center of the lid at least 4 inches in diameter.

f. Locally constructed barrels will be painted red with yellow 1-inch stenciling “Weapon Clearing Barrel” on two opposing sides and lid.

g. Owning unit is responsible for ensuring the clearing barrel is constructed, maintained, inspected and documented for serviceability in accordance with the requirements of this Volume.

h. Weapons clearing procedures for all weapons approved to be cleared at the designated point will be displayed prominently near the clearing barrel.

2. General Services Administration approved COTS clearing barrels may be used. If COTS clearing barrels are used, the owning unit will obtain and maintain product test and specification data from the manufacturer for as long as the clearing barrel is in use/service. COTS clearing barrels shall be securely mounted and oriented in a safe direction to preclude having individuals in the line of fire in the event of a negligent discharge. COTS barrels will be inspected and documented for serviceability and maintained in accordance with the manufacturers’ specifications.

**0207 AMNESTY PROGRAM**

A. The amnesty program is not intended to circumvent standard ammunition management procedures. Implementation of an amnesty program is at the discretion of the installation commander.

B. For an amnesty program to be effective, turn-ins should be made without fear of disciplinary action. Therefore, individuals making amnesty turn-ins are normally not subject to investigation.

C. Units discovering ammunition after having completed their turn-ins and having their accounts reconciled are not authorized to use the amnesty process. These units shall make amended turn-ins using the procedures set forth in reference (h).

D. All ammunition larger than .50 caliber small arms (with the exception of shotgun ammunition) is considered potentially hazardous and should be moved only by trained personnel. If an item's explosives safety status cannot be immediately determined, it will not be handled, and EOD must be contacted for assistance.

E. Small arms ammunition (up to and including .50 caliber), may be delivered directly to the ammunition supply point (ASP), station ordnance, or Provost Marshal Office.

F. Civilian ammunition must be managed per environmental management requirements and not the Designated Disposition Authority (DDA) process.

G. Amnesty days may be scheduled as often as deemed necessary. The installation ESO will establish collection points at locations that afford Inhabited Building Distance (IBD) levels of protection consistent with a reasonable estimation of the Hazard Class Division (HC/D) and Net Explosives Weight (NEW) expected to be received. To ensure that proper care is exercised, ammunition personnel must be available and on-hand to supervise amnesty turn-ins.

#### H. Siting of Amnesty Program Containers

1. Due to the hazardous nature of munitions, the use of amnesty containers is the least desirable method of supporting an amnesty program. If implemented, care must be exercised as to the physical location, numbers, and construction of amnesty containers.

2. Permanent off range locations for Hazard Class and Division (HC/D) 1.1, 1.2 (all subdivisions), 1.3, and 1.4 materials shall be explosively sited in accordance with reference (f), as above-ground unbarricaded magazines and provide IBD protection.

3. COs can approve containers intended for HC/D 1.4S small arms ammunition only. These containers do not require explosives siting. These containers will be provided 50 foot fire safety separation distance whenever possible.

4. Containers placed on operational ranges do not require an explosives safety site approval as long as the associated explosives safety arcs do not extend beyond the established range borders. These containers should be approved and monitored by the installation's range management organization.

I. Construction of Amnesty Program Containers

1. Amnesty program containers designed for small arms ammunition will be constructed of at least 10-gauge steel, permanently mounted, and secured with a lock in accordance with reference (i).

2. Slots in containers for HC/D 1.4S material will be sized to accept no larger than a .50 caliber cartridge. Containers shall be clearly marked "AMNESTY BOX FOR SMALL ARMS AMMUNITION ONLY-NO SMOKING WITHIN 50 FT."

J. Amnesty Program Containers Checks

1. Permanently sited amnesty containers will be checked daily and all munitions removed. Amnesty containers for HC/D 1.4S will be checked on a regular schedule as documented by the installation.

2. Personnel performing checks on permanently sited amnesty program containers must be qualified and certified in accordance with reference (c).

3. Personnel not qualified and certified in accordance with reference (c) may perform checks of small arms ammunition (HC/D 1.4S) amnesty program containers only.

4. Non-qualified/certified personnel conducting checks will contact EOD or qualified ASP personnel to remove unauthorized munitions contents in accordance with base procedures. All munitions recovered, deemed safe to move, shall be returned to the installation's ASP or station ordnance. Items that appear to be damaged or unsafe to move shall be left in place until examined by EOD.

K. Responsibilities

1. Commanders Responsibilities. Approve, in writing, all physical locations of amnesty program containers. One letter, listing all approved locations, is acceptable.

2. ESO Responsibilities

a. Ensure a copy of the CO's approval letter is maintained by the explosives safety office, the unit managing the amnesty program, and the ASP/Station Ordnance OIC.

b. Monitor execution of the amnesty program to ensure guidelines are being properly followed.

c. Ensure, if required, an A&E SOP has been developed that addresses the amnesty program for all permanent, off range, HC/D 1.1, 1.2, 1.3 and 1.4 locations. HC/D 1.4S small arms locations not covered by an SOP must be covered by documented procedures.

d. Periodically brief personnel on the existence and guidelines for the use of the amnesty program.

e. Ensure key control procedures have been implemented for amnesty program containers.

f. Ensure permanent amnesty box locations are identified on the installation's fire maps.

g. Inspecting Personnel. Personnel conducting amnesty program container inspections are responsible for the following:

1. Monitor amnesty program containers and remove any A&E material.

2. Respond to requests from personnel not qualified/certified to handle or transport munitions and remove any A&E material.

3. Ensure material is safe for transportation and storage. If the condition of the A&E material is in doubt, contact EOD for assistance.

4. Mark and package material for storage and transportation as required.

5. Ensure disposition instructions are requested from the DDA, or in the case of civilian ammunition, the installation's environmental office.

6. Document amnesty program inspections via locally developed log book. This book will, at a minimum, identify required inspection frequency, date inspected, the person conducting the inspection, and a list of the items found.

## 0208 VISITOR HAZARDS AWARENESS BRIEF

All personnel not part of the A&E operation will be provided a hazards awareness brief addressing the specific hazards and requirements prior to entering the area.

A. Below are examples of topics that should be addressed in the hazards brief. This list is not all inclusive, nor is it meant to indicate minimum requirements.

1. Applicable hazards of the explosives area or operation.

2. Prohibited items or actions.

3. Emergency actions (signals, escort, rallying points).

B. Hazards Awareness briefs provided to visitors will be documented and must include the visitor's signature. Documentation shall be retained for a minimum of 30 days.

**VOLUME 8: CHAPTER 3**

**EXPLOSIVES SAFETY DEVIATIONS**

**SUMMARY OF SUBSTANTIVE CHANGES**

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## **CHAPTER 3**

### **EXPLOSIVES SAFETY DEVIATIONS**

#### **0301 BACKGROUND**

Many situations involving contingency, readiness, and/or operational requirements can only be satisfied by deviating from established explosives safety criteria. The Secretary of the Navy has delegated authority to the CMC to issue deviations (waivers, exemptions, and event waivers) from explosives safety criteria contained in references (a) and (f) when strategic or other compelling reasons dictate.

#### **0302 WAIVERS**

A. A waiver is written authority to deviate from mandatory explosives safety requirements for temporary satisfaction of readiness or operational requirements. Waivers will not be granted without a corrective action plan.

B. Waivers are issued for a maximum of two years.

C. Waivers should be canceled upon completion of the corrective actions.

#### **0303 EXEMPTIONS**

A. An exemption is written authority to deviate from mandatory explosives safety requirements for the purpose of long-term satisfaction of readiness or operational requirements.

B. Exemptions are issued for a maximum of five years, but will not be granted for longer than required to correct the deficiency.

C. Exemptions will not be granted without a corrective action plan except where authorization to purchase real estate for sufficient ESQD clearances has not been granted; where it is in the best interest of the United States to grant agricultural leases of encumbered land; or where significant impairment of the defense posture of the United States would result.

#### **0304 REQUEST FOR WAIVERS OR EXEMPTIONS**

A. Marine Corps shore activities will submit all exemption and waiver requests for installation-directed operations which deviate from explosives safety requirements to COMMARCORSYSCOM for approval in accordance with Appendix D, or for activities reviewed during the Explosives Safety Inspection – Compliance Review (ESI-CR), in accordance with the ESI-CR report.

B. Explosives safety deviations for GCC or Service Component Commander (SCC) directed training and exercises on or off OCONUS Marine Corps installations will follow

the deviation processes contained in paragraphs 0307 and 0308 below, and will be submitted to the Command delegated risk acceptance authority.

C. All requests from installations for exemptions or waivers deviating from explosives safety quantity distance will include an assessment from Automated Safety Assessment Protocol Explosives (ASAP-X) or other COMMARCORSYSCOM approved hazard assessment tool.

#### **0305 RENEWAL OF WAIVERS OR EXEMPTIONS**

A. Activities requiring the renewal of either a waiver or exemption shall follow the procedures outlined in Appendix D.

B. The complete package should arrive at COMMARCORSYSCOM at least three months prior to the existing expiration date.

C. Activities that are reviewed during the ESI-CR will renew their waivers and exemptions through procedures contained in the ESI-CR report.

D. Waiver/Exemption renewal requests that do not include a plan of action and milestone for incremental correction or elimination of the deviation will not be processed. This does not apply to Exemptions in place per paragraph 0303C of this chapter.

E. When the renewal of a waiver or exemption is required, each activity shall validate the continuing operational necessity for the deviation.

F. Modifications, alterations, or additions to facilities covered under existing waivers or exemptions shall comply with current regulations, or a revised deviation shall be requested.

#### **0306 EVENT WAIVERS**

A. An event waiver is a deviation that addresses specific non-recurring short term operational requirements.

B. Event waivers will not be authorized as a matter of convenience.

C. Event waivers approved by COMMARCORSYSCOM will not be approved for more than one year. Event waivers required past their one year authorization must be resubmitted as a waiver/exemption.

D. Event waivers approved by the SCC will not be approved for more than one year. Event waivers required past their one year authorization or the operation is a reoccurring event, will be resubmitted as an MRMA per reference (j) to the Command delegated risk acceptance authority.



0307 REQUEST FOR EVENT WAIVERS

A. Marine Corps Activities

1. Marine Corps activities will submit event waiver requests to COMMARCORSYSCOM for approval in accordance with the requirements of Appendix D.
2. The first endorser will verify operational necessity as part of the endorsement.
3. Event waivers which deviate from explosives safety quantity distance requirements will include an assessment from the current version of ASAP-X or other COMMARCORSYSCOM approved hazard assessment tool.

B. Service Component Commanders (SCCs)

1. When delegated risk acceptance authority from the GCC, the SCCs (MARFORCOM, MARFORPAC, MARFOREUR/AF, MARCENT) can approve event waivers to meet operational needs on or off OCONUS Marine Corps installations.
2. SCC directed training and exercises on or off OCONUS Marine Corps installations will follow the deviation process contained in reference (j) and Appendix D.
3. All event waivers exceeding one year or the operation is a reoccurring event will be resubmitted as an MRMA per reference (j).

0308 MRMA FOR JOINT OPERATIONS, PLANNING, TRAINING, AND EXERCISES

A. Per reference (j), Functional Combatant Commanders (FCCs) and SCCs delegated risk acceptance decision authority by a GCC, can approve MRMA at overseas operating locations, on or off a Marine Corps installation that do not meet explosives safety criteria.

B. Marine Corps commands acting as the executive agent, Base Operating Support-Integrator (BOS-I), or delegated risk acceptance authority will prepare an MRMA package per reference (j) and Appendix D for risk decision authority approval.

C. When time does not permit the completion of an MRMA, an event waiver may be prepared and submitted for approval to the delegated risk acceptance authority prior to the operation. Event waivers may be approved for a maximum of one year. Event waivers required for more than one year or the operation is a reoccurring event will be resubmitted to the risk acceptance authority as an MRMA per reference (j) for approval.

D. The composition of an MRMA team will be established by the SCC. The team should consist of personnel familiar with explosives safety requirements (i.e., Explosives Safety Specialists, Ammunition, Aviation Ordnance, or EOD). Assistance can be requested from COMMARCORSYSCOM to augment the assessment team.

E. MRMAs will be evaluated by the risk decision approval authority at the periodicities contained in reference (j).

F. Copies of all MRMAs relating to Marine Corps explosives operations shall be forwarded to COMMARCORSYSCOM.

G. MRMA packages should be submitted to MARCORSYSCOM for technical review prior to approval by the Marine Corps risk decision authority.

#### 0309 SECRETARIAL CERTIFICATION

A. Secretarial Certifications are deviations that require approval by the Assistant Secretary of the Navy; as such, they are seldom requested and the operational necessity must be fully justified prior to submission.

B. Secretarial Certifications are required for all installation new or modified construction that cannot meet explosives safety requirements.

C. Construction in support of overseas training, exercises, or contingencies, unless exempted by paragraph 0309F below, off Marine Corps installations, where MILCON appropriated funds are required and the project does not meet explosives safety requirements of, or requires a Secretarial Certification or Exemption in accordance with reference (a), will follow the submission requirements of reference (j).

#### D. Request for a Secretarial Certification

1. A Secretarial Certification request must consider all available alternatives and be submitted in the same manner as a site approval request.

2. If none of the alternatives will achieve the desired result, and no other site is available where explosives safety criteria can be met, then the following guidance applies.

a. The activity or SCC will submit a Secretarial Certification request to COMMARCORSYSCOM via the chain of command, with endorsements from Naval Facilities Engineering Command and Commandant, Marine Corps (CMC) (LFL).

b. COMMARCORSYSCOM will review and endorse the submission to the Assistant Secretary of the Navy (ASN) (EI&E) for approval.

3. If approved, a certification letter will be sent to the DDESB stating that, in order to satisfy an operational requirement, a facility which does not meet all explosives safety criteria is authorized.

4. Requests for changes to a Secretarial Certification will be submitted in the same manner as an initial request.

E. Criteria for Secretarial Certification. The following information is required in order to prepare the memorandum to the Secretary of the Navy:

1. Full justification, including the complete background, to support the need to construct the facility at the proposed site, and certification that this is the only site where the facility can be constructed.

2. A detailed description of the operations to be conducted at the facility and the impact on operations and readiness if the facility is not constructed. A certification that an operational necessity exists must be included.

3. Advantages and disadvantages of:

a. Building the proposed facility.

b. All alternatives, including the reason why each was not recommended. A no-build alternative must also be addressed.

c. Complete information on all explosives safety considerations taken into account to provide maximum safety and protection for the facility and personnel. The following considerations should be included:

1) Exact distances from PES, quantities and classes of explosives present, and frequency of use.

2) The number of personnel who will be present inside ESQD arcs, with a breakdown of personnel by the categories: active duty, civilian employees, and civilian non-employees.

3) How long the personnel, by categories, will be within the arcs.

4) Any type of building hardening, window glazing, etc. proposed, as well as other considerations which improve safety.

5) Resource implications, to include the latest projected facility cost and the year in which it is budgeted.

6) A quantitative munitions risk assessment utilizing ASAP-X or other COMMARCORSYSCOM approved hazard assessment tool.

F. Review of Secretarial Certifications

1. Each secretarial certification will be reviewed during an ESI-CR. Activities reviewed during the ESI-CR will only need to submit a complete package during every other ESI-CR review. Those ESI-CR reviews in-between will only require submission of the CO's statement of compliance with the existing certification.

2. The secretarial certification review package will include:

a. A copy of the original secretarial certification request with endorsements and approval letters.

b. A letter, signed by the commanding officer, identifying any changes to the existing approval or verification that no changes have occurred.

G. Combatant Commanders (CCDRs) and subordinate commanders are not required to obtain Secretarial Certification or Exemption, as required by reference (a), for construction activities performed in support of contingency operations at contingency locations that violate explosives safety criteria of reference (a) but do not exceed the established MILCON low-cost threshold. The SCC in conjunction with the GCC will develop risk acceptance level and approval process for projects falling under this criteria.

#### 0310 NON-DOD AMMUNITION AND EXPLOSIVES STORAGE AUTHORITY

A non-DoD storage authority is the approval to handle or store commercial or foreign ammunition at Marine Corps installations. This authorization is not an approval for use. Exemptions and categories of non-DoD ammunition and explosives are contained in reference (f).

A. During peacetime, with the exception of safe haven storage, only formally DoD cataloged Class V material may be stored on Marine Corps installations or in a Marine Corps storage facility unless a non-DoD ammunition storage request is approved.

B. Required Information. All non-DoD storage requests must include the following:

1. Complete item description and National Stock Number or other identifying information, if known.

2. Item quantity.

3. HC/D and Storage Compatibility Group (SCG) or interim hazard classification documentation.

4. Net Explosives Weight (NEW).

5. Justification for and type of storage required.

6. Expected duration of storage.

7. Approved munitions retrograde plan for unexpended ammunition.

**0311 STORAGE AND DISPOSAL IN SUPPORT OF OTHER GOVERNMENTAL AGENCIES**

The temporary storage or disposal of non-DoD and/or foreign explosives is available in order to protect the public or to assist agencies responsible for Federal, State, or local law enforcement in storing or disposing of non-DoD and/or foreign explosives when no alternate solution exists. Storage or disposal authorizations are established in 10 USC 2692 in accordance with an agreement between the Secretary of Defense and the head of the Federal, State, or local agency concerned. These requests will be forwarded to COMMARCORSYSCOM who will, in turn, coordinate with DC (CD&I) and (I&L), and the ASN (EI&E) for approval.

**0312 CONSTRUCTION WORKER AUTHORIZATION (CWA)**

A CWA is required to temporarily allow construction personnel within unbarricaded intraline distance (K18) of a Potential Explosives Site (PES). A CWA may also permit the presence of temporary construction trailers used only by workers on-site. Any trailers used to house administrative personnel related to the construction must be located at inhabited building distance. CWAs are approved at the following levels.

A. Routine maintenance and repair work described in reference (f), does not require a CWA and may be approved by the installation. The installation will develop a process for requesting and approving routine maintenance and repair projects.

B. Maintenance and repair work conducted that is not routine and does not alter/modify the facility, Lightning Protection System and/or change the currently sited operation will be approved by the Regional Commander. The Environmental and Explosives Safety (EES) web portal will be used for submission and approval of CWAs at the regional level.

C. Maintenance and repair work CWAs that affects or modifies an explosives facility will be submitted to COMMARCORSYSCOM for approval.

**0313 SUBMISSION OF DEVIATION REQUESTS**

A. Marine Corps activities requesting an explosives safety deviation shall submit the request to COMMARCORSYSCOM, via the EES web portal. The chain of command (Region or MEF) shall provide operational necessity and endorsement of the deviation request. Alternate methods of submission must be approved by COMMARCORSYSCOM.

B. The GCC will identify the method of submission for OCONUS installations and training and contingency areas not located at Marine Corps enduring locations where no ESMP has been established.

**0314 EXPLOSIVES SAFETY DEVIATION APPROVAL AUTHORITIES**

A. ASN (IE&E) is the approval authority for Secretarial Certifications.

B. COMMARCORSYSCOM is the approval authority for all waivers, exemptions, non-DoD storage, and CWAs which affect installation specific explosives facilities or operations.

C. The SCC is the approval authority for event waivers and MRMAs when assigned as the lead service or BOS-I for the conduct of operations directed by the GCC or SCC on or off Marine Corps OCONUS installations.

#### 0315 JOINT BASING/INTER-SERVICE DEVIATION SUBMISSIONS

The lead service is responsible for establishing explosives safety policy on Joint DoD installations. Tenant activities must comply with the explosives safety regulations of the lead service unless exempted by MOU/MOA that specifies the applicable regulations. Copies of all deviations relating to Marine Corps explosives operations on joint bases and inter-service operations will be submitted to COMMARCORSYSCOM.

#### 0316 RISK MANAGEMENT

All deviations present an increased level of risk. Risk Management (RM) is a vital element when evaluating the risk associated with deviating from established explosives safety criteria. All deviations will include an RM assessment per reference (k). In addition to the RM assessment, ESQD deviations will include the DDESB approved ASAP-X worksheet or other RM tools approved by COMMARCORSYSCOM.

#### 0317 COMPENSATORY MEASURES

All compensatory measures associated with deviations, with the exception of event waivers, shall be incorporated into required issuances (SOPs, Base Orders, etc.) and updated regularly. Additionally, the EES web portal will be updated with the compensatory measure information.

**VOLUME 8: CHAPTER 4**

**EXPLOSIVES SAFETY REVIEWS**

**SUMMARY OF SUBSTANTIVE CHANGES**

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## **CHAPTER 4**

### **EXPLOSIVES SAFETY REVIEWS**

#### **0401 BACKGROUND**

The objective of the Marine Corps ESMP is to mitigate explosives mishaps and resulting losses in terms of injuries, deaths, property damage, and mission effectiveness. Root cause analysis of mishaps involving A&E provides methods of interrupting the chain of events, which leads to explosive incidents. Historical analysis has determined the majority of incidents could have been avoided had commands or individuals involved been effectively trained, inspected, supervised, or followed prescribed operational procedures. Accordingly, periodic evaluations, inspections, technical assistance, and self-assessments will be conducted and documented to assess the effectiveness of the Marine Corps ESMP at all command levels. Compliance evaluations/inspections serve as a means to ensure commands are aware of explosives safety criteria, apply lessons learned, transfer information, communicate problem areas to a higher authority, and identify root causes that may lead to an explosives-related incident or mishap.

#### **0402 EXTERNAL REVIEW BOARDS, SURVEYS, AND INSPECTIONS**

Representatives from DDESB and CMC will make periodic inspections and assistance visits to munitions storage and operating areas at Marine Corps installations to ascertain compliance with prescribed explosives safety regulations. All explosives safety inspections, surveys, and assistance visits to Marine Corps installations by agencies external to the Marine Corps will be coordinated through COMMARCORSYSCOM.

#### **0403 DDESB EXPLOSIVES SAFETY MANAGEMENT PROGRAM EVALUATION**

In accordance with reference (1), the DDESB Explosives Safety Management Evaluation Program evaluates the effectiveness of the Marine Corps ESMP. This is a Service-level evaluation that takes a programmatic approach in assessing explosives safety compliance. The evaluation identifies program strengths and weaknesses, analyzes root causes of explosives safety noncompliance, and recommends solutions to possible problem areas. This is accomplished through data point collection and evaluations of the headquarters element (COMMARCORSYSCOM), intermediate element (Regional Explosives Safety Offices), and installations.

#### **0404 EXPLOSIVES SAFETY INSPECTION - COMPLIANCE REVIEW PROGRAM**

COMMARCORSYSCOM will conduct Explosives Safety Inspections – Compliance Reviews (ESI-CR) per reference (m). The ESI-CR is designed to assess and validate the explosives safety program, explosives safety deviations, and installation master planning for explosives safety compliance per DoD, DON, and Marine Corps directives and technical criteria.



A. The ESI is an inspection conducted to assess and validate the explosives safety program for explosives safety compliance per DoD, DON, and Marine Corps directives and technical criteria.

B. The compliance review portion of the ESI-CR is an advisory review that works with local commands to achieve a proper balance between operational readiness and acceptable levels of safety. The compliance review will be conducted concurrently with the ESI and will:

1. Review and recommend the cancellation, modification, or continuation of any deviation in effect.
2. Review or validate Munitions Response sites.
3. Assess and re-validate all Safety Assessment for Explosives Risk (SAFER) issued explosives safety site approvals, on-base Public Traffic Routes (PTR) exposures, and roll-on/roll-off (RORO) operations.

C. Installation requirements during the ESI-CR are outlined in reference (m). These procedures require specific actions be taken to provide adequate command attention and support to the ESI-CR. Commanders of Marine Corps activities must direct all correspondence to the Commander, MARCORSYSCOM via the chain of command.

#### 0405 EXPLOSIVES SAFETY EVALUATIONS

COMMARCORSYSCOM will conduct ESMP evaluations of Marine Corps Operating Forces, Marine Corps Reserve Forces, and MCI Regional commands per reference (m). ESMP evaluations are programmatic and objectively assess the effectiveness of explosives safety responsibilities and will be evaluated concurrently with the installation ESI of the same geographic location.

#### 0406 EXPLOSIVES SAFETY SELF-ASSESSMENT (ESSA)

The ESSA is the formal program by which installations conduct on-going appraisals of A&E operations to determine the effectiveness of the installation ESMP. A complete ESSA will be conducted by each installation on an annual basis per reference (m).

#### 0407 TECHNICAL ASSIST VISITS (TAV)

An evaluation requested by the unit or directed by a senior commander and conducted per reference (m). TAVs are used exclusively for the purpose of training unit personnel and will not be used to compare or to provide the basis for an evaluation of past performance.

A. TAVs must be formally requested from COMMARCORSYSCOM or the appropriate regional command at least 60 days prior to the date of the intended visit. The request will include preferred and alternate TAV dates and will indicate the primary issues or questions to be addressed.

B. TAVs should not be scheduled 120 days before or after a scheduled ESI.

**0408 COMMARCORSYSCOM DIRECTED EVALUATIONS**

COMMARCORSYSCOM may elect to conduct an out of cycle evaluation with 14 days written notice to the installation commander.

**VOLUME 8: CHAPTER 5**

**EXPLOSIVES SAFETY SITE PLANNING**

**SUMMARY OF SUBSTANTIVE CHANGES**

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## **CHAPTER 5**

### **EXPLOSIVES SAFETY SITE PLANNING**

#### **0501 BACKGROUND**

Explosives safety standards contained in reference (a) and implemented by reference (f) and this Volume, apply to all U.S. titled munitions wherever they are stored unless more restrictive local standards are mandated by an IA. These standards must be considered the minimum, with greater protection provided when practical.

#### **0502 FACILITIES PLANNING**

Facility planners are responsible for preparing and routing all planned construction projects per reference (b), for both explosives and non-explosives facilities that may encumber or be encumbered by explosives operations or violate existing ESQD arcs. Projects will be routed through the installation ESO for review, recommendation, and concurrence. Planners are responsible for preparing and forwarding all documentation required for analysis, review, and approval of the site plan. The site approval process can be both complex and labor intensive. Facility planners should submit site approval requests as early as possible to avoid construction delays. No construction will occur prior to the receipt of an approved site plan.

#### **0503 INTEGRATED PRODUCT TEAM (IPT)**

An IPT will be established at all Marine Corps installations per reference (b). The following guidance will govern the IPT.

- A. The installation's CO or designated representative will establish the IPT in writing.
- B. All planned new facilities or modifications to existing facilities that are impacted by an explosives safety arc must be reviewed by the IPT.
- C. The IPT's decisions or recommendations will be documented in writing.
- D. The IPT should meet at regular intervals to discuss up-coming projects.
- E. At a minimum, the IPT shall include the facility planners, the Public Works Department, ESO, and, if required, a technical representative from the command conducting the explosives operations. As required, the team may also include representatives from Naval Facilities responsible for the facility's design. In cases where protective construction is required, a representative from the Naval Facilities Engineering Service Center and Expeditionary Warfare Center responsible for developing a basis-of-design for protective construction and review of protective construction design drawings may be required.

**0504 LOCATIONS REQUIRING SITE APPROVAL/PLANS**

An explosive safety site approval request (ESSAR) is required by references (a), (f), and this Volume for all locations where A&E is handled, manufactured, modified, or stored. This requirement includes permanently fixed containers located on ranges, containers used in conjunction with an amnesty program, exposed sites encumbered by explosives arcs, and those areas used for the storage and permitted treatment of waste military munitions.

**0505 EXPLOSIVES SAFETY SITING**

Explosives safety site plans are either quantity distance (QD) based safety submissions, risk-based safety submissions (RBSS), or hybrid safety submissions (HSS).

A. QD-based safety submissions evaluate the relationships between PESs and ESs to determine exposure, placement, and construction of PESs and ESs. Application of QD criteria does not provide for risk-free protection, nor does it quantify the assumed risk.

B. RBSSs address ESs and PESs that do not meet the deterministic QD criteria in reference (f), but meet DDESB-approved, risk-based siting acceptance criteria. RBSSs are prepared using a quantitative risk assessment tool such as the Safety Assessment for Explosives Risk (SAFER). Paragraph 0512 of this chapter contains information on preparation, review, and submission of RBSS.

C. HSSs address facilities and operations that do not completely conform to criteria or meet the risk-based criteria in reference (f). The non-conforming portion of the explosives site plan is accepted by the service through a deviation approval process, outlined in Chapter 3, and the conforming portions of the HSS are forwarded to the DDESB for approval.

**0506 ENCROACHMENT REVIEW**

A. Encroachment reviews of all non-ammunition related facilities encompassed by ESQD arcs will be conducted and documented annually.

B. Encroachment reviews may be documented using an MFR. The current and previous year's review will be maintained.

C. Encroachment issues will be reported to the installation commander, public works, and affected organizations.

D. Encroachment issues will be mitigated immediately and within 10 working days of identifying the encroachment issue, a plan will be implemented to eliminate the hazards.

**0507 EXPLOSIVES SAFETY SITE APPROVALS**

A. An approved explosives safety site plan is required for locations, regardless of the date of construction, where ammunition and explosives are handled or stored. The exception to this requirement is for ammunition temporarily, less than 24 hours, stored and handled in

direct support of training events on operational training ranges. These events are permitted by the Installation Range Control.

B. An explosives site plan must be approved before starting any new construction project (either planning or actual construction).

C. Requests for an expedited review of an ESSAR will be submitted using the standard Naval format. The letter will be addressed to COMMARCORSYSCOM, include the rationale for an expedited review, and be approved by the CO of the requesting activity/command. Expedited reviews should be reserved for urgent requirements and shall not serve as a substitute for lack of prior planning.

D. Munitions Response Explosives Safety Submissions (MRESS) address explosives safety requirements for munitions responses that involve either intentional physical contact with Munitions and Explosives of Concern (MEC) or ground-disturbing or intrusive activities in areas known or suspected to contain MEC. Chapter 7 of this Volume provides additional guidance to facilitate and enhance the development and review of MRESSs.

E. ESSAR approval for locations storing  $\leq 300$  pounds NEW of HC/D 1.2.2, 1.3, or 1.4 combined may be obtained from COMMARCORSYSCOM.

F. ESSAR approval for locations storing  $> 300$  pounds NEW of HC/D 1.2.2, 1.3 or 1.4, with the exception of 1.4S, or for any quantity of HC/D 1.1, 1.2.1, or 1.2.3 must be submitted to DDESB via COMMARCORSYSCOM for approval.

G. Any modification to existing facilities that are within 110% of existing IBD arcs requires evaluation by the IPT to ensure adequate safety measures are in place, especially for vulnerable facilities such as schools, medical facilities, housing, and dining facilities.

H. Construction of new facilities outside of IBD but within 110% of IBD requires approval from COMMARCORSYSCOM.

#### 0508 CONTRACTOR SITE PLANS

A. Government Owned/Contractor Operated facilities will submit explosives safety site plans to COMMARCORSYSCOM for review, endorsement/approval based on the Hazard Class/Division of the ammunition and explosives being developed, manufactured, or stored.

B. Contractor Owned/Contractor Operator facilities, when the Marine Corps is the Procurement Contracting Officer, will submit explosives safety site plans to COMMARCORSYSCOM per reference (n).

0509 STORAGE AUTHORITY FOR MARINE CORPS INSTALLATIONS

Installation commanders may approve AE storage as outlined below.

A. General Requirements

1. All storage must comply with fire protection, safety, and physical security requirements of references (f) and (i).

2. Storage approvals will be reviewed annually and updated as required. Storage approval reviews may be documented using a MFR.

3. Changes that affect the conditions of storage authorizations require a new approval letter.

4. Copies of storage approvals must be maintained at the storage location, and the data entered into the EES portal.

5. Deviation from these requirements requires approval from COMMARCORSYSCOM.

B. Safety and Security Ammunition

1. The storage authorization is only for safety and security ammunition, HC/D 1.3 and 1.4, designated specifically for the safety and security of the facility or installation.

2. The following storage authority limitations apply to all Marine Corps commands.

a. No more than 25 pounds NEW of HC/D 1.4 can be stored.

b. No more than 10 pounds NEW of HC/D 1.3 can be stored.

c. When combining HC/D 1.3, and 1.4, no more than 35 pounds total NEW can be stored, of which no more than 10 pounds NEW can be HC/D 1.3.

C. EOD Units. EOD units are authorized to store up to 50 pounds NEW of HC/D 1.3 and 1.4 in EOD operating buildings as part of the immediate response kit.

D. Bird Abatement Strike Hazard (BASH) Program. Storage of ammunition in support of the BASH Program using the guidance contained in subparagraph 0509A of this chapter.

E. Cartridge and Propellant Actuated Devices. The temporary storage of cartridge actuated devices, or propellant actuated devices is authorized for after working hour deliveries via approved commercial carrier.

F. Privately Owned Small Arms Ammunition. Limited quantities of privately owned ammunition are authorized to be stored in local armories. Private ammunition will be kept segregated from DoD stocks and be subject to locally written accountability/custody procedures.

#### 0510 HAZARD CLASS/DIVISION 1.4S STORAGE

Installation commanders or operational commanders training at host nation ranges may approve up to 3,000 pounds NEW of HC/D 1.4S ammunition. This storage authorization is not applicable to armories. Authorizations for storage must be documented through local procedures. Storage exceeding 3,000 pounds NEW of HC/D 1.4S requires approval from MARCORSSYSCOM or the GCC delegated risk decision authority in accordance with Chapter 3.

#### 0511 RISK BASED EXPLOSIVES SAFETY SUBMISSIONS

Risk Based Explosives Safety Submissions (RBESS) may be used in situations where the siting requirements of reference (f) cannot be met and all available options have been exhausted. DDESB has approved the use of risk assessment models, such as Safety Assessment for Explosives Risk (SAFER), in lieu of qualitative distances contained in reference (f). RBESS provide both acceptable risk criteria, and the statistical methodology necessary to calculate the probability of a fatalities through data input. RBESS that meet the criteria of reference (a) will be approved by DDESB without a waiver. RBESS will be reviewed and validated during explosives safety compliance reviews per reference (m).

A. Initial Submittal. The initial request for a RBESS siting will be developed by a user who has completed training in the latest version of the applicable risk management software. The following items must be specifically addressed and included in the package:

1. Elements of a standard site plan submission, to include maps showing the required ESQD arcs and all alternative locations considered.
2. A detailed written explanation of the situation which created the need to deviate from standard QD criteria, options considered, reasons for rejection of options, and all locations that are effected by the deviation (e.g., building number, usage, sited NEW).
3. The applicable datasheets generated by the risk management software.
4. Site plans will be submitted to the DDESB, via COMMARCORSYSCOM, for approval.

B. Recertification of RBESS. RBESS are valid for five years, provided there are no changes to conditions identified in the original submission. Recertification of RBESS is as follows:



1. Changes to the original submission require the installation to notify COMMARCORSYSCOM and, if required, develop a new RBESS. The new RBESS will be prepared using the latest version of the risk management software.

2. Recertification is required every five years. If, at the end of five years there have been no changes to the original submission and there have been no updates to the risk management software used to develop the original site plan; the installation commander will submit a letter to COMMARCORSYSCOM confirming no changes have occurred during the installation's explosives safety compliance review per reference (m).

3. If an updated version of the risk management software has been developed, a new package must be prepared, using the updated version of the risk management software, five years from the original approval date.

#### 0512 AUTOMATED SITE PLANNING TOOL (ASPT)

When implemented at the installation, the use of ASPT is required for the development of all explosive safety site plans.

#### 0513 JOINT BASE/OPERATIONS COORDINATION

The lead Military Service having the responsibility for joint base facilities and installation master planning will coordinate with all involved units and submit explosives safety site plans.

#### 0514 DOD MUNITIONS ON HOST NATION INSTALLATIONS

##### A. DoD Exposures from Host Nation PESs

1. An explosives safety site plan for a DoD PES or ES encumbered by a host nation's PES must contain enough information regarding the host nation PES to show that the DoD exposure is located at the minimum required separation distance from the host nation PES.

2. The service preparing the explosives safety site plan should request this information from the host nation responsible authority. When specific information is not available, an explanation regarding the lack of information plus any rationale for assumptions regarding the host nation PES should be included in the safety submission. The military service-level explosives safety office must include concurrence with those assumptions in the military service-approved explosives safety site plan that is forwarded to the DDESB for review and approval.

3. Per reference (j) the lead service will notify host nation government officials via the U.S. Embassy of the risk associated with DoD operations involving DoD military munitions. Notification to the host nation's responsible government authority should be made per applicable laws, state-to-state agreements, including Status of Forces Agreements and US Command policies. Every attempt should be made to obtain host nation concurrence. The

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responsible U.S. authority should consult legal counsel and, when necessary, the U.S. Department of State representative.

**0515 TRAINING**

All personnel responsible for preparing, reviewing, and endorsing explosives safety site approval requests are required to have completed AMMO-36 within the last 5 years.

**VOLUME 8: CHAPTER 6**

**EXPLOSIVES SAFETY SITE PLANNING**

**SUMMARY OF SUBSTANTIVE CHANGES**

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## CHAPTER 6

### MATERIAL POTENTIALLY PRESENTING AN EXPLOSIVE HAZARD

#### 0601 BACKGROUND

This chapter establishes criteria for processing and handling material potentially presenting an explosive hazard so it can be safely managed and disposed of.

#### 0602 SCOPE

This chapter establishes procedures used to handle, certify, and dispose of or recycle munitions and munitions related items. Requirements in this chapter apply to munitions responses.

#### 0603 MATERIAL STATUS

##### A. Material Potentially Presenting an Explosive Hazard (MPPEH)

1. MPPEH is material whose explosives safety status has not been determined. These items may contain a high enough concentration of explosives to represent an explosive hazard.

##### 2. MPPEH does not include:

a. Munitions within the Marine Corps munitions management system that are or can be used for their original purpose.

b. Items that are not munitions but may present an explosive hazard, such as gasoline cans or compressed gas cylinders.

B. Material Documented as Safe (MDAS). MDAS is material that has been documented as not presenting an explosive hazard.

C. Material Documented as Having an Explosives Hazard (MDEH). Material that cannot be documented as safe or that has been assessed and documented to present an explosive hazard.

D. Munitions and Explosives of Concern (MEC). Specific categories of military munitions that may possess unique explosives safety hazard/risks; includes UXO, Discarded Military Munitions (DMM) or Munitions Constituents (MCs) present in high enough concentrations to pose an explosive hazard.

#### 0604 REPORTING MPPEH INCIDENTS

Explosive incidents involving MPPEH or MDEH shall be immediately reported to COMMARCORSYSCOM. This requirement is in addition to requirements for reporting explosive mishaps and incidents.

0605 MPPEH MANAGEMENT

A. MPPEH Requirements Apply to:

1. Munitions/munitions debris and targets collected and removed during range clearance/munitions response activities.
2. Munitions containers and packaging material.

B. MPPEH Requirements do not Apply to:

1. Military munitions and munitions-related materials within the Marine Corps munitions management system.
2. Non-munitions-related material and solid metal fragments.
3. Subsurface material that has not been investigated.

0606 MPPEH PROCEDURES

A. MPPEH Processing. All munitions related material will be MDAS certified prior to being taken off the range or point of use. Expended munitions material downloaded from aircraft will be MDAS certified at the location where the items are downloaded. Other MPPEH processing locations must be explosively sited.

B. MPPEH Processing Locations

1. Will be sited as an ES, at not less than ILD from surrounding PESs.
2. Will be sited as a PES, when the MPPEH has not been certified.
3. DDESB site approval is not required for temporary locations on operational training ranges.
4. DDESB site approval is required for permanent processing locations on operational training ranges.
5. Will be managed as a restricted area until the MPPEH has been certified safe.

C. Authorized Inspection Personnel

1. Personnel, who are authorized to inspect MPPEH and document the explosives safety status, must be designated in writing by the CO or responsible individual.
2. The designation letter must list the personnel who are qualified and authorized to assess and document the explosives safety status of MPPEH, identify the type of

MPPEH they are authorized to inspect, and include sample signatures. This designation is valid for one year from date of authorizing signature.

3. Designated individuals will receive training or be knowledgeable about the items they are certifying.

4. A current copy of this designation letter must be on file and provided to the Defense Logistics Agency (DLA) Disposition Service or Qualified Recycling Program (QRP) receiving MDAS.

5. A copy of this designation letter will be maintained at each location where these items are accepted, processed, or stored.

0607 MDAS Inspection Certification and Documentation

A. Inspection

1. Must have two 100% independent visual inspections. Visual inspection completes the inspection process for pieces that have no cavities, holes, or other obscured features. For pieces with these features, paragraphs 0607A.2 through 0607A.4 apply.

2. Processed by a DDESB-approved technical method followed by a specified post-processing sampling inspection.

3. Expert knowledge may be used to determine MDAS status. Use of expert knowledge requires COMMARCORSYSCOM approval.

4. MDAS may contain residual explosives; however, these residues shall not be in concentrations or configurations sufficient to pose an explosive hazard.

B. Certification

1. Documentation for MDAS will consist of an Issue/Release/Receipt Document DD Form 1348-1A, or a local form as authorized by the CO. Each DD Form 1348-1A or local form must include the following statement:

“The material listed on this form has been inspected or processed by DDESB-approved means, as required by DoD policy, and to the best of my knowledge and belief does not pose an explosive hazard”.

2. The MDAS certification documentation must identify the material type. For example, expended small arms cartridge casings, empty ammunition containers, or expended Mk 76 practice bombs.

3. Documentation as MDAS requires dual signatures on the certification document by authorized individuals conducting the visual inspection. The first signature may be provided by either a DoD employee or DoD contractor. The second signature must be provided

by a U.S. citizen who may be either a DoD employee or a DoD contractor and independent of the first inspector.

4. Each of the two signatures must be directly above the typed or clearly stamped or legibly printed full name, rank/rate/grade, complete organization name and address, and phone numbers (commercial and DSN) of the respective inspector.

5. If the required documentation is incomplete or lost or if the chain of custody is compromised, this material is no longer considered MDAS and reverts back to MPPEH and must be rescreened or handled as an explosives operation.

6. MDAS may be released for further demilitarization (e.g., mutilating, crushing, smelting) only if the integrity of the containers and the chain of custody is maintained. The explosives safety status documentation must accompany the material during transfer within or release from Marine Corps control.

#### 0608 MDEH CERTIFICATION AND DOCUMENTATION

A. Certification documentation for MDEH will consist of a DD Form 1348-1A, Decontamination Tag (DD Form 2271), or a local form as authorized by the CO.

B. Documentation as hazardous requires a 100% visual inspection. When an initial inspection by a qualified and authorized person determines that the material is hazardous, a second independent inspection is not required, and the certification shall be prepared by the inspector.

C. Items may also be designated as MDEH if:

1. There are potential internal cavities or devices that contain explosives.
2. The material has not been 100% inspected.
3. The certification process has not been completed to the point of documentation with dual signatures.
4. The certification document must provide the following information:
  - a. Type of explosive hazard or contamination.
  - b. Presence of un-vented cavities.
  - c. Estimated NEW.

d. MDEH certifications shall include the following statement:

"This certifies that the material potentially presenting an explosive hazard listed has been 100 percent properly inspected and to the best of my knowledge and belief presents an explosive hazard". The MDEH certification statement may be modified or augmented as required.

e. Each signatory must ensure that the chain of custody was maintained before signing the certification documentation.

f. If the required documentation is incomplete or lost or if the chain of custody is compromised, this material is no longer considered MDEH and reverts back to MPPEH.

#### 0609 DOCUMENTATION RETENTION

A. Legible copies of documents identifying the explosives safety status of the material will be retained for a minimum of three years from the date of certification.

B. Documentation of the material's explosives safety status must accompany release from Marine Corps control.

#### 0610 CONTAINERS AND MARKINGS

A. Empty ammunition containers will have all markings covered or obliterated to indicate they no longer contain explosive material. Empty containers that remain in an inventory-controlled facility, or its immediate external storage area, that are to be re-used for their intended purpose do not require obliteration;

1. These empty containers shall be segregated so as not to be confused with loaded containers.

2. Exception only applies to containers intended to be reused after completion of weapons/container maintenance, containers retained for re-containerization of captive carry items, containers to support ship offloads, gun downloads, range turn-ins (on the range), or similar applications.

3. Empty containers which remain after asset expenditure or containers held pending disposition are not exempted from the empty container marking requirement.

B. Locations used to store screened small arms ammunition must be covered to prevent water spreading contamination from the expended brass.

C. Containers storing material that has a documented explosives safety status will have material and status information in permanent marking/labeling on the outside of the container. These containers must either be locked, secured with container seals identified on the supporting documentation, or sealed with type I/II traceable seals. If used, type I/II traceable seals shall follow procedures similar to those for ordnance container traceable seals.



0611 STORAGE OF DOCUMENTED ITEMS

A. Documented procedures will be developed by the unit/organization storing munitions. Procedures will identify measures that prevent the commingling of certified and uncertified material. Additionally, procedures to recertify the material if commingling does occur will be developed.

B. If commingling of certified and uncertified material occurs, the items must immediately be rescreened. If commingled items are not immediately rescreened, they will be considered MPPEH and must be handled and stored in an explosively sited location.

C. MDAS documentation will be kept for every certified item. Multiple items may be listed on the same document. A single area may contain multiple groups of MDAS certifications as long as the items are segregated (i.e., separate banded pallets, marked off locations). If commingling occurs, the entire area will be considered unscreened and will require immediate recertification/rescreening.

D. MDAS certified expended small arms cartridge casings may be consolidated in single containers. MDAS certification must account for all items placed in the container.

E. Screening documentation must be maintained on-site.

0612 MOVEMENT AND/OR TRANSPORTATION

Prior to on-site movement, MPPEH must be evaluated and determined to be safe to move as follows:

A. Movement. Movement on a munitions response site will be based on the potential explosive hazard. MPPEH must be evaluated by one of the following, as authorized by the commanding officer.

1. Explosive Ordnance Disposal (EOD)
2. UXO-qualified personnel
3. Technically qualified and authorized personnel

B. Transportation

1. MDAS may be shipped over public traffic routes as inert material. Documentation of its explosives safety status must accompany the shipment.

2. MDEH shall not be transported over public traffic routes unless determined safe for transport by qualified and authorized personnel. A signed "safe to transport" certification must accompany the shipment.

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3. Hazard classification assignments are required to accompany shipments of MDEH material when identified in Table 6-1 below. Table 6-1 also provides guidance on transportation certifiers. Interim hazard classification (IHC) may be obtained from NOSSA.

Table 6-1: Interim Hazard Classification

Recovered Item	Certifier	C/D	Vehicle Type	IHC Required
UXO	EOD Only	1.1	Military	No
UXO	EOD only	1.1	Commercial	Yes
UXO	EOD only	Other than 1.1	Commercial	Yes
DMM/MC	EOD or UXO Tech III (or higher)*	1.1	Military	No
DMM/MC	EOD or UXO Tech III (or higher)*	1.1	Commercial	Yes
DMM/MC	EOD or UXO Tech III (or higher)*	Other than 1.1	Military	Yes
DMM/MC	EOD or UXO Tech III (or higher)*	Other than 1.1	Commercial	Yes
Other MDEH	EOD or UXO Tech III (or higher) or other designated technically qualified personnel	1.1	Military	No
Other MDEH	EOD or UXO Tech III (or higher) or other designated technically qualified personnel	Other than 1.1	Military	Yes
Other MDEH	EOD or UXO Tech III (or higher) or other designated technically qualified personnel	1.1	Commercial	Yes
Other MDEH	EOD or UXO Tech III (or higher) or other designated technically qualified personnel	Other than 1.1	Commercial	Yes

\*UXO Technician standards are defined in DDESB TP 18

**0613 SPECIAL CONSIDERATIONS**

**A. Expended Small Arms Cartridge Casings**

1. Expended small arms ammunition cartridge cases may be processed as a non-explosive operation prior to being assessed as MDAS, provided they are screened before processing. Screening is intended to ensure only .50-caliber and smaller expended cartridge cases are present, and to remove live rounds.

2. Screening will be done by locally determined methods developed in approved written operating procedures.

3. After expended small arms cartridge cases have been screened, they must be segregated from MDAS and unscreened small arms cartridges and kept in a controlled location, but they do not need to comply with storage or siting requirements.

4. Expended small arms cartridge cases not screened or documented as safe prior to transport or storage are subject to the transportation, storage, and siting requirements of reference (f).

5. Personnel screening small arms cartridge casings do not require participation in the qualification/certification program outlined in reference (c).

B. Expended Shotgun Shells. Expended shotgun shells that do not exhibit hazardous waste characteristics may be disposed of as general trash provided they are 100 percent visually screened for the presence of unfired rounds.

C. Cardboard, Plastic, and Plywood Containers and Packaging Material. These items may be discarded as general trash provided the following procedures are followed:

1. The items are 100% visually screened for the presence of munitions by two different individuals.

2. All previous ammunition and explosives markings are removed or obliterated.

3. The items are broken down or otherwise deformed so that they may not be used for their original purpose.

4. There are no environmental regulations precluding such disposal.

5. The items are certified as MDAS on a DD Form 1348-1A or a local form as authorized by the commanding officer and:

6. A chain of custody is maintained until the MDAS leaves the restricted area (i.e, areas where munitions operations or MPPEH generation is occurring) and enters the facility's solid waste stream.

D. Empty Container Repurposing. Containers that previously held ammunition and/or explosives may be repurposed to another use supporting operational needs if:

1. The containers are 100% visually screened for the presence of munitions.

2. All markings associated with the original contents are obliterated.

#### 0614 QUALIFIED RECYCLING PROGRAM

A. Material that can be recycled through a QRP includes:

1. Expended small arm cartridge casings (up to and including .50 caliber) and mixed metals made no longer recognizable as having been munitions or munitions debris (e.g., crushed, shredded, smelted).

2. Unserviceable ammunition cans that cannot be reused.

B. Material that cannot be recycled through a QRP

1. Items that must be demilitarized at any time during its life cycle, except for expended small arms cartridge casings and mixed metals as noted above.

2. Munitions List Items.

3. Cans, if they can be reused by the government as ammunition cans.

4. All other scrap metals from MPPEH even if certified safe, must be sold through the DLA.

C. QRP Guidelines. Prior to accepting MDAS, a QRP must:

1. Have the CO designate a QRP manager in writing.

2. A written explosive Mishap Risk Assessment (MRA) will be developed or RM assessment in accordance with reference (k) will be performed before any QRP may receive MDAS. The results of the MRA or RM assessment will be used to develop approved written procedures for processing MDAS prior to transfer to the QRP. The MRA or RM assessment will identify:

- a. The nomenclature and description of the MDAS that can be accepted.

- b. The potential explosive hazard associated with any MDAS that has been incorrectly certified.

- c. The adequacy of the QRP training, oversight, record keeping, processing methods, equipment, and storage facilities.

- d. The MRA or RM assessment will be reviewed by the installation ESO for approval at the command level.

3. Develop an SOP or written procedures that:

- a. Identifies the types of MDAS that is acceptable for transfer to the QRP.

- b. Outlines procedures for verifying the MDAS being turned in has been certified in writing, either by DD 1348 or local form, and that the item was inspected and contains no explosives hazard.

- c. Outline immediate action procedures if MPPEH is found in the QRP.

- d. Outlines specific procedures for accepting permitted material.

e. Details the mechanism for tracking and maintaining records of the types and amounts of material handled.

f. Identifies the requirement to crush, shred, or otherwise mutilate all expended small arms cartridge casings prior to sale.

g. Identify handling procedures that facilitate maintaining chain of custody until final disposition.

h. Specifies incident reporting procedures in the event of an unintended explosives hazard incident.

4. QRP personnel who receive expended small arms ammunition cartridge cases or mixed metals gleaned from range clearance must be trained at a minimum to do the following:

a. Recognize QRP eligible material.

b. Verify signatures on all turn-in documents, such as Disposal Turn-in Document DD Form 1348-1A, against the current list of personnel authorized to certify as safe.

c. Visually inspect certified QRP eligible material, and recognize potential explosives safety hazards.

d. Respond properly if an unsafe condition is identified.

5. Verify letter of personnel who are qualified and authorized to document MDAS in accordance with paragraph 0606C.

**0615 DEFENSE LOGISTICS AGENCY (DLA)**

A. DLA can only accept MPPEH that has been certified as MDAS in accordance with reference (o).

B. DLA will maintain a list of personnel authorized to turn in MDAS material.

C. DLA will implement controls to prevent the comingling of uncertified munitions with MDAS certified items.

**VOLUME 8: CHAPTER 7**

**MUNITIONS RESPONSE**

**SUMMARY OF SUBSTANTIVE CHANGES**

Hyperlinks are denoted by ***bold, italic, blue and underlined font.***

The original publication date of this Marine Corps Order (MCO) Volume (right header) will not change unless/until a full revision of the MCO has been conducted.

All Volume changes denoted in **blue font** will reset to black font upon a full revision of this Volume.

<b>CHAPTER VERSION</b>	<b>PAGE PARAGRAPH</b>	<b>SUMMARY OF SUBSTANTIVE CHANGES</b>	<b>DATE OF CHANGE</b>

## **CHAPTER 7**

### **MUNITIONS RESPONSE**

#### **0701 BACKGROUND**

A munitions response is conducted at Munitions Response Sites (MRS) to address explosives safety, human health, or environmental risks posed by munitions and explosives of concern (MEC).

#### **0702 SCOPE**

A. Establishes criteria to protect people and real property from explosive hazards associated with real property known or suspected to contain MEC or MPPEH.

B. This chapter focuses on explosives safety and environmental requirements of a munitions response.

C. This chapter does not address munitions responses involving Chemical Agents (CA) or military munitions containing CA. Contact COMMARCORSYSCOM, Program Manager for Ammunition (PM AMMO), for specific guidance regarding these items and associated munitions responses.

#### **0703 MUNITIONS RESPONSE APPLICABILITY**

A. A munitions response is required for:

1. Real property known or suspected to contain MEC and/or MPPEH prior to its transfer from DoD control.

2. Change of land use to an activity that is incompatible with the presence of MEC and/or MPPEH.

3. Former Marine Corps sites that are no longer under the control of the DoD and are known or suspected to contain MEC and/or MPPEH, but have been determined not to be eligible for the Army's Formerly Used Defense Sites (FUDS) program.

4. Areas where combat operations or acts of war occurred when current or future land uses are incompatible with the presence of MEC and/or MPPEH.

5. Areas on operational ranges where military munitions burial sites are located.

6. Other MEC and/or MPPEH locations not on an operational range.

7. Construction on an operational range which includes ground intrusive activities not associated with operational range maintenance or clearance as defined in reference (p).

B. A munitions response is not required for:

1. Maintenance or clearance of operational ranges per reference (p).
2. Explosives or munitions emergency responses.

#### 0704 REAL PROPERTY

Real property consists of land, buildings, and installed equipment. Real property may contain MEC and/or MPPEH as the result of research, development, testing, evaluation, storing, handling, training, treatment, disposal (including burial), loss, abandonment, or waste collection.

A. Real Property Known To Contain MEC and/or MPPEH. MEC and/or MPPEH have actually been found on the property and there is reason to believe that additional MEC and/or MPPEH are present beyond that found.

B. Real Property Suspected To Contain MEC and/or MPPEH. MEC and/or MPPEH have not been found, but other evidence indicates with a high degree of certainty that MEC and/or MPPEH exists on the property.

#### 0705 MATERIAL POTENTIALLY PRESENTING AN EXPLOSIVES HAZARD

During munitions responses, MPPEH is frequently encountered on-site. Although MPPEH is not known with certainty to present an explosion hazard, MPPEH must be managed as presenting an explosive hazard until it is visually inspected and/or processed and documented as safe.

#### 0706 DISPOSAL

The disposal, such as burying or dumping, of military munitions on land or in the water, except when specifically authorized by the Secretary of the Navy and in compliance with applicable regulatory requirements, is prohibited. However, this prohibition does not preclude:

A. The covering of munitions with earth to control fragments and noise during authorized destruction by detonation.

B. The use of in-situ capping of MEC and/or MPPEH when implemented as an engineered remedy under an authorized response action.

#### 0707 RECORD KEEPING

A. Installations will identify all ammunition and explosives storage and operating locations and all areas known or suspected to contain MEC and/or MPPEH on installation master plans and maps.



B. Installations must maintain permanent records concerning known or suspected MEC/MPPEH locations. These records must include:

1. Former munitions-related activities at the site including, but not limited to, EOD incident reports, range firing records and manuals, Open Burn/Open Detonation (OB/OD) treatment records, and other records involving ammunition and explosives.

2. Site characterization activities such as record searches, geophysical investigations, and intrusive investigations.

3. Munitions responses, including:

a. Site investigations.

b. No DoD Action Indicated (NDAI).

c. Construction support.

#### 0708 ACCESS TO REAL PROPERTY

Limit access to real property containing MEC and/or MPPEH by:

A. Risk-based actions to prohibit and prevent unauthorized access to real property containing MEC and/or MPPEH. These actions can include posting warning signs, establishing access controls such as fences, entry/exit points, or roving security patrols, and public education.

B. Allowing personnel to enter property known to contain MEC and/or MPPEH only after full consideration of the type, amount, and location of MEC and/or MPPEH present and the activities for which entry will be authorized. As necessary, provide safety briefings prior to entry and escorts who are trained in identifying and handling MEC and/or MPPEH.

#### 0709 RESIDUAL RISK

A. Due to technology limitations and site conditions, it is not possible to certify that MEC and/or MPPEH has been removed with 100% certainty. Although residual risk can be managed by land use controls, munitions response sites will assume to pose some degree of residual risk after the response has been completed.

B. The extent to which MEC and/or MPPEH removal is undertaken depends largely on the current, determined or reasonably anticipated future land use. When MEC and/or MPPEH cannot be removed to the degree necessary to safely allow the current, determined or anticipated future land use, the land use must be changed or restricted accordingly.

C. When the Marine Corps does not control the land and the imposition of an LUC is not possible (such as transferred, non-FUDS sites), the property owner and any tenants

shall be provided written notification of the potential residual explosive hazards and the risks inherent in any use of the property inconsistent with the potential hazards.

#### 0710 EXCLUSION ZONES (EZ)

Munitions responses often involve the storage, handling, processing, and excavation of MEC and/or MPPEH. All munitions response-related operations and storage locations must be shown on ESQD maps. The ESQD arc, established around a processing, handling, or intrusive MEC and/or MPPEH work area is called an exclusion zone (EZ). Unlike a standard site approval that is associated with a fixed process or structure and remains in effect indefinitely, a MEC EZ is created by a response operation that may move within defined boundaries, can be suspended, and will be cancelled upon project completion. For example, the EZ that results from an excavation process moves with the excavation equipment as it operates on the site. If excavation operations are not occurring, the excavation EZ is not in effect. All EZs must be cancelled via an AAR when the project is completed.

#### 0711 STORAGE

The storage of donor explosives, recovered MEC, and MPPEH must comply with applicable explosives safety requirements for the storage of ammunition and explosives.

#### 0712 HANDLING

The handling of MEC and/or MPPEH produces an EZ based on the munition with the greatest fragmentation distance (MGFD) or the maximum credible event (MCE), as appropriate.

#### 0713 PROCESSING

The applicable EZ's for MEC and/or MPPEH processing is based on whether the operation is mechanized or not. Mechanized operations are divided into high-input or low-input activities.

A. High-Input. High-Input processing operations (e.g., shredding or crushing) are intended to physically deform material, including any MEC or MPPEH being processed, and certain excavations or dredging operations depending upon the risk assessment.

B. Low-Input. Low-Input processing operations (e.g., on-site transport, dumping, screening, raking, spreading, sifting, or magnetically separating) are not intended to intentionally deform material, including any MEC or MPPEH being processed, and certain excavations or dredging operations depending upon the risk assessment.

#### 0714 EXCAVATION

Due to the unique nature of excavation operations, the application of EZs to these operations differs from other operations. Excavation operations generally fall into two categories, manual or mechanical. The use of mechanical excavation is not necessarily considered a mechanized MEC process.

0715 ACCESS

In general, access to EZ's is limited to personnel essential to the operation being conducted. However, under specific conditions and on a case-by-case basis, authorized visitors may be granted access to the EZ when operations are being conducted. In addition to general munitions response site access requirements, formal written procedures addressing EZ access, including authorized visitor access, must be developed in support of response actions involving MEC and/or MPPEH and must address the following requirements:

A. The Unexploded Ordnance Safety Officer (UXOSO) may grant EZ access to authorized visitors with concurrence from the responsible project manager. Access to the site will be based upon the operational risk analysis of the scheduled MEC and/or MPPEH operations and availability of escorts, as well as a demonstrated visitor need and subsequent completion of visitor safety briefings. Access to an EZ while munitions response operations are occurring is limited to essential personnel and authorized visitors.

B. The UXOSO is responsible for conducting a risk management assessment prior to initiating response actions involving MEC and/or MPPEH. In addition, the UXOSO must determine the maximum number of persons (essential personnel and authorized visitors) that can be in the EZ at one time. The ratio of UXO-qualified escorts to visitors will be determined by the UXOSO based on this site-specific operational risk analysis.

C. Based on the risk management assessment, the UXOSO may determine that access to the EZ is unsafe for visitors. However, reasonable efforts should be made to accommodate authorized visitors.

D. Persons requiring access to the EZ must demonstrate a legitimate need for access and obtain authorization from the responsible project manager and UXOSO. At a minimum, the request for authorization will include names of the individual requesting access, the identification of emergency contacts for these individuals, purpose of visit, task(s) to be performed, and rationale to support EZ access. Persons requesting access must submit their request to the responsible project manager and UXOSO prior to the proposed date of the site visit. This advance notice will allow time for the UXOSO to support the visit request by assigning a qualified escort, conducting an operational risk analysis on the operations planned for the date of the site visit, and preparing a visitor site-specific safety briefing for the planned operations.

E. Prior to entry, all authorized visitors must receive a site-specific safety briefing describing the specific hazards and safety procedures to be followed within the EZ for operations underway that work day. Each authorized visitor must acknowledge receipt of this briefing in writing.

F. Authorized visitors to the EZ must be escorted at all times by a UXO-qualified person assigned to the project.

G. Any authorized visitor that violates the established safety procedures will be immediately escorted out of the EZ and/or site for their own protection and to protect essential personnel working at the site.

0716 TRANSPORTATION

A. Destruction-in-place is considered the safest approach to MEC.

B. Based on site-specific conditions, a response action may include on-site movement or off-site transportation of recovered MEC or MPPEH. MEC or MPPEH transported off-site for any purpose other than recycling must follow applicable environmental regulations.

C. On-Site Movement of MEC AND/OR MPPEH. Prior to on-site movement, MEC and/or MPPEH must be evaluated and determined to be safe to move as follows:

1. For MEC, including suspect munitions items, items must be certified by one of the following:

a. EOD

b. Qualified and authorized UXO contractor personnel serving as the Senior Unexploded Ordnance Supervisor (SUXOS) and UXOSO must determine that the risk associated with movement is acceptable and that the movement is necessary for the efficiency of the activities being conducted or the protection of people, property or critical assets. In such cases, the responsible SUXOS and UXOSO must agree with the risk determination and document this decision prior to movement of the MEC or munitions item.

2. For all other MPPEH, items can be certified by one of the following:

a. EOD

b. UXO-qualified personnel.

c. Technically qualified and authorized personnel.

D. The non-emergency transportation of recovered MEC or other MDEH over public traffic routes must comply with applicable guidelines as well as the following:

1. The transportation of MPPEH off-site is not authorized. All items must be certified and documented as either MDAS or MDEH prior to transportation.

2. As specified in Table 6-1, EOD, UXO contractor personnel, or designated technically qualified personnel must evaluate recovered MEC and/or MPPEH items, assess and document its explosive status, and determine if it is safe to transport. If the item is assessed and determined to pose an explosive hazard, it must be considered MDEH and managed accordingly. Prior to transport, EOD, specified UXO contractor personnel, or designated technically qualified personnel, as appropriate, must certify in writing that the item is safe for transport.

E. All recovered MEC items, with the exception of small arms ammunition, shall be transported and stored as hazard C/D 1.1 with appropriate Compatibility Group assigned by EOD or UXOSO for the project and will be stored separately from serviceable ammunition. If a reduced classification is warranted, contact MARCORSYSCOM for additional hazard classification guidance.

F. UXO contractor personnel who, by contract requirement, are tasked with the responsibility of transporting or preparing shipments of MEC or other MDEH for transport over public roads must meet all training requirements of 49 CFR Part 172 and applicable state requirements.

G. The packaging of MEC or other MDEH for transportation must meet Department of Transportation requirements. Contact MARCORSYSCOM for additional guidance required by Navy Packaging, Handling, Storage and Transportation (PHS&T) Center, Naval Surface Warfare Center, Indian Head Explosive Ordnance Disposal Technology Division (NSWCIEODTD), Detachment Picatinny, Picatinny Arsenal, NJ.

H. A manifest must be prepared in accordance with 49 CFR 172.205 and 40 CFR 262.20 when transporting MEC or other MDEH over public traffic routes in non-emergency situations, as appropriate.

I. Personnel who are tasked to sign shipping papers must be trained and be given signature authority by their command in accordance with the requirements of Defense Transportation Regulations 4500.9-R (series).

#### 0717 SELECTION AND DESIGN OF MUNITIONS RESPONSES

The selection and design of a munitions response may vary from site to site. The selected response must provide an adequate level of protection that is consistent with the current, determined, or reasonably anticipated future land use. The design of a response must also consider the following site-specific information.

A. Historical Information. Information gathered through records search and interviews. The following information is required:

1. Boundaries of the response area. For munitions responses, the Munitions Response Area (MRA) boundaries and, when appropriate, the boundaries of any Munitions Response Sites (MRS) within the MRA such as firing points, impact areas, and/or munitions burial sites are required. Boundaries can often be ill defined and should not be taken to represent the absolute limits of MEC or MPPEH contamination.

2. Type(s) of MEC and/or MPPEH known or suspected to be present based on the munitions-related operations, training, or testing previously performed in the MRA or MRS.

B. Land Use. Land use is the current, determined or reasonably anticipated future use of real property. Anticipated future land usage is a major factor in determining the

degree of munitions response to be implemented. Because portions of the response area (such as the MRA or MRS) might be used differently, different response actions (such as surface removal, subsurface removal, no removal, remedial response) may be appropriate within any given response area.

1. Where the land use is, or will be, limited only to surface activities, the munitions response may only involve removing MEC and/or MPPEH on the ground surface. This removal may include the use of geophysical instruments.

2. When the land use allows intrusive activities, the response will normally require a subsurface removal and may require follow-on construction support. Where the current, determined or reasonably anticipated land use is compatible with the explosive hazards present or suspected, a removal action may not be necessary.

3. Where a response would adversely impact natural or cultural resources, a removal action may not be practical.

C. Results of On-Site Investigation. The results of on-site investigations should be used to validate and augment information discovered during the historical review and to determine the boundaries of the response area.

D. Analysis. A detailed analysis of available records, technical data, and the results of on-site investigations shall evaluate, at a minimum:

1. The types of MEC and/or MPPEH, known or suspected to be present, including technical characteristics (e.g., filler, fuzing) and estimated distribution.

2. The potential explosive hazards present.

3. Physical site characteristics (e.g., flora, fauna, geological, topographical, hydrological).

4. Persons or property potentially endangered.

5. Information from previous or current responses.

E. Special Considerations

1. Explosives soil. Because of past munitions-related activities, such as the use of settling ponds or explosives sumps at munitions production or demilitarization facilities, concentrations of explosives in soil (such as sand, sludge, clay) can exist in high enough concentrations that the mixture itself presents an explosive hazard. Such mixtures are referred to as "explosive soil."

2. Land Transfer

a. Real property known or suspected to contain MEC and/or MPPEH will not normally be transferred or leased from Marine Corps control until a munitions response consistent with the determined or reasonably anticipated land use has been completed in accordance with a DDESB-approved Explosives Safety Submission (ESS).

b. Real property known to contain or suspected of containing explosive hazards may not be transferred out of DoD control (other than to the Coast Guard) until the DDESB has approved measures to ensure the recipient of the property is fully informed of the hazards relating to the presence or possible presence of explosives and restrictions or conditions placed upon the use of the property.

3. Construction Support. Construction support may, based on site-specific data, be required during:

a. Intrusive activities (such as building construction, laying utilities, road improvements) on property known or suspected to contain MEC, MPPEH, or residual explosives hazards.

b. The removal or remediation of debris or soil in areas where there is a probability of encountering MEC and/or MPPEH.

c. Low Probability of MEC/MPPEH. When a determination is made that the probability of encountering MEC and/or MPPEH is low, “on-call” construction support must be provided by EOD or UXO-qualified personnel. A low determination may only be assigned to those areas for which a search of available historical records and Archive Search Reports and/or on-site investigation data indicates that the likelihood of encountering MEC and/or MPPEH is low. Locations where MEC or UXO have been discovered will not be classified as low probability prior to the completion of a munitions response. Munitions-related activities that may merit a low determination include, but are not limited to, the following former uses:

1) Small arms ranges used exclusively for testing or training with small arms ammunition.

2) Maneuver training, to include maneuver training involving the use of smokes, pyrotechnics, and simulators.

3) Firing points.

4) Munitions inspection, handling, storage or transfers, including inert storage yards.

5) Areas where previous munitions responses have been completed.

6) The discovery of MEC and/or MPPEH on low probability sites requires an immediate reassessment of the level of construction support required.

d. Moderate to High Probability of MEC/MPPEH. When a determination is made that the probability of encountering MEC and/or MPPEH is moderate to high (that is, the likelihood of encountering MEC and/or MPPEH is considered probable), on-site construction support must be provided by EOD or UXO-qualified personnel. EOD or UXO-qualified personnel must remove explosive hazards in the construction footprint, in accordance with a DDESB-approved ESS, before intrusive construction or other intrusive activities occur. A moderate to high determination may be assigned to those areas for which a search of available historical records and/or on-site investigation data indicates that, given the military or munitions-related activities that occurred at the site, there is more than a low probability that MEC and/or MPPEH are present. Munitions-related activities that may merit a moderate to high determination include, but are not limited to, the former uses:

- 1) Ranges where live-fire training or testing was conducted using munitions other than small arms ammunition.
- 2) Operational training range high hazard impact areas.
- 3) Munitions OB/OD sites.
- 4) Munitions burial sites.

#### 0718 ANOMALY AVOIDANCE

Anomaly avoidance techniques shall be employed at locations known or suspected to contain MEC and/or MPPEH to allow the activities listed below while avoiding surface MEC and/or MPPEH and, when necessary, subsurface anomalies. Anomaly avoidance is used when:

- A. Collecting environmental samples, conducting cultural resource studies, or performing other activities that require access to the site.
- B. Conducting intrusive work such as drilling environmental monitoring wells, installing fences, etc.
- C. During anomaly avoidance:
  1. Escort support must be provided by EOD or UXO-qualified personnel.
  2. Discovered surface MEC and/or MPPEH must be avoided and the location noted and reported to appropriate authorities.
  3. Detected subsurface anomalies must not be investigated, but shall be marked, when appropriate, and avoided.



0719 NATURAL PHENOMENA

Naturally occurring phenomena can cause MEC and/or MPPEH to move and should be considered.

A. Frost heave occurs when three conditions are met: freezing temperatures are present in the soil column; the soil is frost susceptible; and there is sufficient moisture present in the soil to cause soil movement upon ice crystal formation. These three factors will be evaluated to assess the likelihood of frost heave moving residual MEC and/or MPPEH upward through the soil column. Where frost heave may have such an effect, procedures must be implemented to monitor the effectiveness of response actions for the affected area.

B. Other naturally occurring phenomena such as earthquakes, erosion, or tidal changes could necessitate similar monitoring.

0720 EXPLOSIVES SAFETY SUBMISSION (ESS)

A. ESS Required. An ESS is required for:

1. Placement of explosives on a site.
2. Intentional physical contact with MEC and/or MPPEH.
3. Ground-disturbing or other intrusive activities in areas known or suspected to contain MEC and/or MPPEH when anomaly avoidance techniques are not employed.
4. Change of land use to one incompatible with the presence of MPPEH.
5. Transfer of land, known or suspected to contain MPPEH, from DoD control.
6. Finding that no further action (NFA) is required for munitions response activities.

B. ESS Not Required. An ESS is not required for:

1. Explosives or munitions emergency responses.
2. Maintenance and clearance activities on operational ranges that do not address identified munitions burial pits. See paragraph 0703A.7. of this chapter for when an ESS is required on an operational range.
3. Construction or non-munitions response activities in an area not known or suspected to contain MEC and/or MPPEH.
4. Demolition of magazines where there is no evidence of residual MEC contamination or a historical record of explosives spills.

5. Operation, maintenance, or cleanup of ammunition and explosives operating buildings in an active, standby, or layaway status.

C. An ESS may not be required for operations taking place in areas known or suspected to contain MEC and/or MPPEH when the likelihood of encountering them is low. Operations in these areas may only proceed with COMMARCORSYSCOM approval of an ESS Determination Request (ESSDR). Examples of such operations include:

1. On-call construction support or on-site construction support when included as a conservative measure.

2. Ground disturbing activities on former ranges used exclusively for testing or training with small arms ammunition.

3. Anomaly avoidance techniques employed during vegetation reduction, cultural/natural resources survey, Preliminary Assessment (PA) Site Investigation (SI), sign or fence installation, or similar activities not involving intentional physical contact with MEC and/or MPPEH.

4. Demolition of magazines where there is evidence or a historical record of a spill or other residual MEC, but where the spill or contamination was removed.

#### 0721 EXPLOSIVES SAFETY SUBMISSION DETERMINATION REPORT

A. Project managers will submit an ESSDR to COMMARCORSYSCOM for action through the EES web portal. The ESSDR will contain the following information:

1. Site name/number: Name of Activity, City and State.

2. Date submitted.

3. Project Manager and ESO: Name and contact information.

4. Project description and scope of work.

5. Site history: Describe past MEC and/or MPPEH use at the site.

6. MEC and/or MPPEH known or suspected to be present. Identify quantity, type/ nomenclature, and condition.

7. Identify any encumbering explosives arcs and how they will be mitigated.

8. Provide justification of low likelihood of encountering MEC and/or MPPEH.

B. COMMARCORSYSCOM will provide the project manager a written response within two weeks of receiving the ESSDR.

C. ESSDR responses do not expire and remain in effect as long as conditions have not changed under which the determination was made.

D. A Small Arms Range No Further Action (NFA) ESSDR may be prepared for former ranges where only small arms ammunition were used.

1. To qualify for a Small Arms Range NFA ESSDR, the former range must have been used exclusively for training with small arms ammunition and have received regulatory NFA concurrence. In addition, the site must not have had previous munitions response actions executed on it under an approved ESS.

2. All submittal, review, and response details described under an ESSDR apply to a Small Arms Range NFA ESSDR.

#### 0722 SITE IDENTIFICATION AND NOTIFICATION

A. When MEC and/or MPPEH are first encountered at a site where its presence was previously unsuspected, the on-site supervisor shall immediately suspend all operations and notify the project manager.

1. The project manager shall contact the installation EOD unit, who will mitigate the immediate explosives hazards.

2. The installation/project manager shall submit an ESSDR to COMMARCORSYSCOM for determination of future actions.

B. If MEC or MPPEH is discovered at locations where its presence was previously unsuspected, the munitions coordinator will submit either an “emergency response incident report” or pertinent information to COMMARCORSYSCOM via the installation’s ESO.

C. COMMARCORSYSCOM will maintain submitted reports concerning found MEC or MPPEH.

#### 0723 ESS DEVELOPMENT AND SUBMISSION

##### A. General

1. An ESS details how explosives safety and environmental requirements will be applied to a specific munitions response. An approved ESS is required before munitions response actions may begin.

2. The project manager may submit one or more ESSs for each munitions response site.

3. A Project Plan, Work Plan, Standard Operating Procedure (SOP), Quality Control Plan (QCP), Quality Assurance Project Plan (QAPP), may not be submitted in lieu of an ESS. Conversely, the ESS shall not be used in the field as a substitute for these documents. The

Project Plan, Work Plan, SOPs, QCP, QAPP, etc., shall not contain less stringent requirements than those prescribed in the ESS.

4. An ESS expires three years from the date of the latest approval. A project manager may request to extend the three-year period by submitting an extension request and an analysis of the ESS against current explosives safety and environmental criteria. If the project scope and applicable criteria have not changed the ESS can be extended for three years. The extension does not require DDESB approval.

B. ESS Types

1. MRS investigation/characterization.
2. NFA. An NFA ESS may be used to change the status of a site in the MRS site inventory.
3. Time-Critical Removal Action.
4. On-site construction support where the likelihood of encountering MEC and/or MPPEH is determined to be moderate or high.
5. Selected munitions response.

C. ESS

1. Format

- a. The project manager shall prepare an ESS in accordance with Appendix C, "Guide for Preparing an Explosives Safety Submission."
- b. An ESS should be submitted a minimum of 60 days prior to the anticipated project start date.

2. Processing

- a. The ESS shall be submitted via the EES Web Portal with a formal cover letter to the DDESB. This letter should be from the installation CO, or if not on an active installation, from the project manager.
- b. While awaiting DDESB approval, COMMARCORSYSCOM is authorized by reference (a) to provide written interim approval when circumstances warrant and are requested by the installation or the project manager. A request for interim approval must be made via formal letter to COMMARCORSYSCOM. Although interim ESS approval authorizes the project manager to proceed, the project manager is accepting the risk that the DDESB may impose different or additional conditions.

D. ESS Changes and Corrections. With the exception of corrections; once an ESS is approved, no changes can be made to any part of the munitions response.

1. Changes/Amendments to an Existing ESS

a. A new ESS shall be prepared when proposed changes would increase explosives safety hazards/risks, identify additional or increased explosives safety controls, or ESQD arcs are enlarged. All munitions response activities will be halted until the new ESS has been approved.

b. The new ESS will be submitted under the same EES portal number as the original submission.

2. Corrections

a. An ESS can be corrected when a proposed change does not increase explosives safety hazards/risks, identify requirements for additional or increased explosives safety controls, or enlarge an approved ESQD arc. Munitions response activities are not required to be halted for corrections to the ESS.

b. ESS corrections shall be submitted to COMMARCORSYSCOM.

0724 OVERSIGHT

COMMARCORSYSCOM provides project execution oversight through MRS audits, Explosives Safety Inspections-Compliance Reviews, and TAV programs.

A. Audits. COMMARCORSYSCOM shall audit selected MRSs to assess the extent to which the project complies with applicable environmental, safety, and occupational health requirements related to the management of MEC and/or MPPEH. Per reference (m), an audit of active MRS projects will be conducted during the ESI-CR. The project manager may also request an MRS audit in order to satisfy a specific project goal.

1. Notification. Normally at least 30 days in advance of an MRS audit, COMMARCORSYSCOM will provide the project manager, and the applicable installation, notification of the upcoming MRS audit. Included in this notification will be specific areas of interest and topics to be reviewed. Once notified, the project managers shall coordinate the MRS audit with the UXO contractor or other munitions response personnel.

2. Scope

a. Audits will review the following, as applicable: ESS; Project Plan; Work Plan; SOPs; QCP; QAPP; etc.; site-specific health and safety plan; environmental protection plan; and UXO worker qualification and certification documents.

b. Audits will observe the following operations and procedures, as applicable: general explosives safety practices; explosives transportation and storage;

occupational safety and health practices; quality control (QC) and quality assurance (QA) programs; exclusion zone (EZ) management; environmental compliance; geophysical instrument checkout and use; anomaly detection and identification; manual/ mechanized MEC and/or MPPEH removal; MEC treatment/disposal; MPPEH management; and data management.

3. Report

a. Within 30 days of the MRS audit, an audit report will be provided to the project manager.

b. The MRS audit report will document each finding and rate the project as SATISFACTORY or UNSATISFACTORY. Each finding will be analyzed using Risk Management (RM) concepts per Volume 2 of this Order. A risk assessment code (RAC), based on the potential explosives safety hazard severity and explosives mishap probability, will be assigned to each finding. The resulting RAC code will assist the audit team in determining the overall severity of the finding and will be considered during the rating criteria process.

c. The Audit Report is considered a document internal to the Marine Corps. Distribution is limited to protect UXO contractor business-sensitive information (including proprietary data, documents, and personnel records) from unauthorized disclosure.

4. Audit Response. Within 30 days of receipt of the MRS audit report, the project manager shall submit a written response to COMMARCORSYSCOM. The response shall address each discrepancy, including corrective actions taken. Failure to address the MRS audit will result in COMMARCORSYSCOM taking appropriate actions ranging from halting the munitions response to not providing munitions response verification.

B. MRS TAVs. The project manager may request an MRS TAV to assess the level of project compliance. MRS TAVs are most beneficial when conducted early in the project.

C. Formal Verification. A formal verification of the munitions response may be requested from the installation or project manager. The formal verification is a written acknowledgment that the munitions response was conducted in accordance with the approved ESS. This verification is based upon, but not limited to, a review of the approved ESSs and AARs, QC and QA reports, MRS audit and or MRS TAV reports (including responses to MRS audit findings), Record of Decision or similar decision document, Remedial Action Completion Report, Finding of Suitability of Transfer, and proposed deed language addressing any remaining MEC and/or MPPEH contamination. The formal verification does not provide a guarantee that no residual hazards remain.

0725 AFTER ACTION REPORT (AAR)

An AAR for completed munitions responses is required per reference (a) and shall be submitted within six months of completion. The purpose of the AAR is to document that explosives safety aspects of the selected response have been completed per the approved ESS. It allows

cancellation of all ESQD arcs and permits the DDESB to close out their site file. AARs must provide the following information as shown in the following sample AAR format.

1. A brief description of the site to include:
  - a. Identification of the site (e.g., name, unique identifier).
  - b. Site location.
2. A request to cancel any EZ or site approval established in the ESS.
3. A summary of the MEC and/or MPPEH found.
4. A description of the relative effectiveness and any limitations of the technologies used during the munitions response and the effects on residual risk relative to that originally projected.
5. A summary of the QC and QA reports for the response.
6. Maps that include:
  - a. Areas from which MEC and/or MPPEH was removed.
  - b. Areas within the site where response actions were not performed and the rationale for not addressing those areas.
  - c. The known or reasonably anticipated end use of each area.
7. A summary of the land use controls that were implemented, if any, and the areas to which they apply.
8. A summary of provisions for long-term management.
9. If applicable, a copy of either the NDAI or NFA decision document, or a brief synopsis of the rationale for the NDAI or NFA determination (an electronic link to the decision document is acceptable).
10. An AAR shall be submitted using the same procedures and guidelines as those previously identified for an ESS.
11. The AAR will be submitted via the Environmental and Explosives Safety web portal.

**0726 TRANSFER OF REAL PROPERTY**

A. Real property known or suspected of containing explosive hazards may not be transferred out of DoD control (other than to the U.S. Coast Guard) until:

1. COMMARCORSYSCOM has formally verified that the final munitions response was completed in accordance with the approved explosives safety documentation.

2. DDESB has approved the munitions response portions of the Finding of Suitability for Transfer.

3. The recipient of the property is fully informed of both the actual and potential hazards relating to the presence or possible presence of explosives, and restrictions or conditions placed on the use of the property to avoid harm to users due to the presence of explosives.

B. Formal verification of the munitions response is based upon, but not limited to, a review of the approved ESSs and AARs, QC and QA reports, MRS audit and or MRS TAV reports (including responses to MRS audit findings), Record of Decision or similar decision document, Remedial Action Completion Report, Finding of Suitability of Transfer, and proposed deed language addressing any remaining MEC and/or MPPEH contamination. The project manager shall submit these documents as part of the land transfer request.

**0727 TECHNICAL RESOURCES**

COMMARCORSYSCOM will maintain all munitions response related correspondence and documents. This repository is not intended to be a substitute for other required document repositories, (e.g., the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) administrative record).

**0728 EMERGENCY RESPONSE**

Both expected munitions and specific site conditions are usually known prior to implementing a munitions response. However, there may be exceptions, (e.g., an encounter with a munition with an unknown liquid fill, an encounter with an unexpected munition, an unexpected encounter during munitions response actions where intrusive or ground disturbing activities were not planned, or an encounter with a munition that cannot be safely addressed at the MRS), that will require an explosives or munitions emergency response.

A. As part of a munitions response, potential emergency responses will be addressed in the ESS, and the work plan or site safety and health plan and coordinated with EOD, environmental regulators, and safety officials.

B. If an explosives or munitions emergency occurs during a munitions response at an MRS, the munitions response manager will implement the procedures outlined in the work plan or site safety and health plan.



**VOLUME 8: CHAPTER 8**

**EXPLOSIVES SAFETY TRAINING AND CERTIFICATION REQUIREMENTS**

**SUMMARY OF SUBSTANTIVE CHANGES**

Hyperlinks are denoted by ***bold, italic, blue and underlined font.***

The original publication date of this Marine Corps Order (MCO) Volume (right header) will not change unless/until a full revision of the MCO has been conducted.

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<b>CHAPTER VERSION</b>	<b>PAGE PARAGRAPH</b>	<b>SUMMARY OF SUBSTANTIVE CHANGES</b>	<b>DATE OF CHANGE</b>

## **CHAPTER 8**

### **EXPLOSIVES SAFETY TRAINING AND CERTIFICATION REQUIREMENTS**

#### **0801 BACKGROUND**

An effective ESMP is dependent upon explosives safety personnel who fully understand all aspects of explosives safety. Formal training/experience in a variety of disciplines is necessary to achieve this understanding. Marine Corps Explosives Safety Professionals (ESPs) should also be familiar with DoD explosives safety requirements/policies, Service specific requirements, and when deployed, North American Treaty Organization (NATO) regulations.

#### **0802 SCOPE**

Competency in the 0017 career field requires extensive training and work experience in explosives safety. The Department of the Navy Explosives Safety Career Management Plan and the contents of this chapter provide ESOs with a roadmap for career development. This information provides a framework for developing competencies required of personnel in the 0017 job series from entry to senior level positions and to support career path progression in support of workforce accession, sustainment, and succession. Installations hiring for a 0017 job series position must incorporate explosives safety skills and competencies in recruitment and retention tools contained in the Explosives Safety Career Management Plan and this chapter as a baseline standard for assessment of explosives safety candidates. The DON Explosives Safety Career Management Plan can be accessed from the Environmental and Explosives Safety SharePoint site <https://mcscviper.usmc.mil/sites/pmammo/ees/SitePages/Home.aspx>.

#### **0803 EXPLOSIVES SAFETY TRAINING**

A fully trained ESO is a skilled military or civilian professional that has been trained to understand and implement explosives safety regulations and, if necessary, evaluate the risks and hazards associated with conventional A&E.

A. A variety of training is available, including on-the-job training (OJT), formal classroom instruction, and seminars. Acquiring learning credits through additional instruction can greatly supplement work experience. Industry training seminars and certification preparation are available through programs accredited by the International Society of Explosives Engineers, such as the Explosives Academy. Reference (t) contains a list of available industry programs.

B. Training Requirements. Training requirements for ESOs are outlined below. Specific courses and periodicities are contained in this chapter. Completion of the explosives safety courses and continuing professional training is required to ensure the requisite level of knowledge is maintained at all levels.

1. Installation ESOs, regional explosives safety program managers, and explosives safety compliance inspectors will meet all training requirements contained in this chapter and those required by reference (f).

2. Supervisors of explosives safety personnel are encouraged to complete the training contained within this chapter.

3. Tactical safety specialists (TSS) are highly encouraged to complete the training contained in this chapter. A TSS who will be assessing explosives operations must meet all ESO training requirements.

C. Deployment Training. The following courses should be completed prior to deployment by personnel who will be assigned explosives safety responsibilities.

1. AMMO-69 Shipboard Explosives Safety. The applicable module must be selected based on the ship platform.

2. AMMO-105-DL Explosives Safety Awareness in Multi-national Operations for Technical Staff.

3. AMMO-107, Introduction to Explosives Safety management for Safety professionals.

4. Tactical Explosives Safety Workshop. This workshop is provided by COMMARCORSYSCOM as required.

D. Supplemental Training. Additional training requirements, for other than ESO certification, are contained in reference (f).

E. Conferences and Seminars. All ESOs should actively participate in DoD, DON, and Marine Corps explosives safety seminars and workshops. Attendance at a seminar/workshop will count as continuing training.

#### 0804 MARINE CORPS ESO CERTIFICATION

The goal of the Marine Corps ESO certification program is to develop personnel trained to serve as explosives safety subject matter experts. Certification will be provided from COMMARCORSYSCOM only to those personnel designated in writing as an ESO. TSSs may receive certification when they meet the requirements of Chapter 11, paragraph 1118 of this Volume. The certification program incorporates formal training, OJT, developmental assignments, and self-development activities. Certification will only be granted when both course work, and OJT, if required, has been satisfactorily completed. All recommendations for ESO certification will be uploaded into the Environmental and Explosives Safety web portal. The recommendation letter must be signed by the installation Safety Director or immediate supervisor. ESO Certification will remain valid for 5 years.

A. Personnel Requirements. A combination of experience and training must be met prior to certification. This combination of training and experience is required due to the unique hazards associated with explosives and the multiple disciplines of an ESMP. Personnel

assigned explosives safety responsibilities are required to perform various duties and functions and should have at a minimum, experience in the following areas:

1. Developing, implementing, and managing an ESMP to reduce risks and mitigate the potential consequences of an intentional or unintentional detonation of A&E.
2. Identifying and eliminating hazardous conditions arising from the loading, handling, assembly, transportation, and shipment of A&E.
3. Ensuring ESQD, lightning protection, grounding, and bonding standards are in compliance.
4. Preparing facilities explosives site approval documents and requests for deviations from established explosives safety standards.
5. Ensuring compliance with applicable explosives safety policies and regulations throughout those aspects of the A&E life cycle addressed by the installation or activity ESMP to protect human health, property, and the environment.
6. Developing correspondence and administrative skills: experience with Naval correspondence; proficiency with basic computer programs; and ability to prepare and present informational briefs.

**B. Personnel Without Experience.** Personnel selected as an ESO and not possessing the requisite background and experience in explosives safety management identified in paragraph 0804A of this chapter should be required to gain this experience under the direct supervision of a certified ESO.

1. The length of this apprenticeship will be, at minimum, of sufficient duration to encompass one ESSA and one ESI-CR.
2. Performance of duties, as outlined in this Order during the period of apprenticeship will be assessed by the supervising ESO as “Satisfactory” or “Unsatisfactory.” The apprenticeship may be extended until such time as a demonstrated satisfactory rating is attained for all assigned duties/responsibilities.
3. The supervising ESO will notify the trained ESO’s immediate supervisor in writing when satisfactory performance is attained. This assessment must be submitted with the ESO request for certification.

**C. Required ESO Training.** The following paragraphs outline the training required for an ESO to attain certification. Upon completion of both the mandatory training courses and OJT (if required), COMMARCORSYSCOM will issue a Letter of Certification stating that the individual has met all basic experience and training requirements for certification as a Marine Corps ESO.

D. Training Extensions. In special circumstances, requests for extension may be granted. Requests for extension must contain justification and be forwarded to COMMARCORSYSCOM for approval prior to the scheduled certification award date.

E. Training Requirements. Within 24 months of designation, an ESO will meet the minimum level of training required to be certified. Course and registration information for web-based training/computer-based training (WBT/CBT) or instructor-led training and current year training schedule can be found on the NOSSA Restricted Web-Site: <https://nossa.dc3n.navy.mil/nrws3/> > Login > Programs > Explosives Safety Operations > Training.

F. COMMARCORSYSCOM will regularly review the training requirements to ensure they meet current and future requirements.

1. Initial Training. The following courses must be completed within 24 months of appointment to ESO:

- a. AMMO-36, Explosives Safety for Naval Facility Planning (initial course, instructor led).
- b. AMMO-45, Introduction to Ammunition (WBT).\*\*
- c. AMMO-76, Identification of Ammunition (WBT).\*\*
- d. AMMO-49, Naval Explosives Safety Managers/ Supervisors Orientation (WBT).
- e. AMMO-67, HAZMAT Familiarization and Safety in Transportation (WBT).
- f. AMMO-68, Military Munitions Rule (WBT).
- g. AMMO-74, Explosives Safety Officer Orientation Course (instructor led). All of the above courses must be completed prior to registering for AMMO-74.

\*\* Not required for personnel having completed the Ground Ammunition Managers Course, Aviation Ordnance Officer Career Progression Level I or equivalent, or the basic EOD course.

2. Follow-on Training. The following courses must be completed within 48 months of appointment to ESO:

- a. AMMO-29, Electrical Explosives Safety for Naval Facilities (initial course, instructor led if conducting the actual test, or WBT if overseeing the program).
- b. AMMO-43, Intermodal Dry Cargo Container/CSC Re-inspection.\*

c. AMMO-51, Naval Motor Vehicle and Railcar Inspection (initial course, instructor led).

\* Only required for personnel who have a responsibility to inspect Intermodal containers.

### 3. Refresher Training

a. Unless otherwise directed in this Volume, all explosives safety courses that have a recertification requirement per reference (f) must be completed at the specified periodicity to maintain an ESO certification. ESOs not completing refresher training will not be recertified until refresher training has been completed.

b. AMMO-29 refresher training is mandatory for all personnel conducting electrical testing of ammunition facilities. WBT may be utilized for refresher training.

4. Continuing Training. Explosives safety personnel who have received certification will complete at least one additional explosives safety or professional development course per year. This course is separate from any course that requires periodic recertification. The Defense Ammunition Center Course Catalog and reference (t) contain multiple courses that will benefit career progression and professional development. Additionally, the DON Explosives Safety Officer Community Management Plan (CMP) identifies courses and educational requirements for progression within the 0017 community. The DON CMP can be located at <https://mcscviper.usmc.mil/sites/pmammo/ees/SitePages/Home.aspx>.

G. Certification Documentation. All documents associated with ESO certification must be loaded into the EES Web Portal under the ESO Overview section. All appointment letters, recommendation letters, and training certificates will be uploaded into the portal. Contact COMMARCORSYSCOM for courses currently not contained within the portal for inclusion.

H. Recertification. Prior to the certification expiration date, ESOs will request recertification through their Safety Director or immediate supervisor. All recommendations for ESO recertification will be uploaded into the EES web portal. The recommendation letter must be signed by the installation Safety Director or immediate supervisor. ESO recertification will remain valid for 5 years.

I. Decertification. ESOs may be decertified by COMMARCORSYSCOM for:

1. Failure to complete mandatory continuing and refresher training without COMMARCORSYSCOM concurrence.

2. Failing to adequately manage the installation's explosives safety program.

J. Revocation. Revocation is an action taken to permanently remove an individual as a certified ESO. In the event of a revocation, administrative action must be taken to ensure the individual is not certified as a Marine Corps ESO per this chapter. ESO

certification will be revoked for failure to satisfactorily perform the duties and responsibilities of an ESO and whenever such action is determined to be in the best interest of safety. Revocation of certification is mandatory in the event an explosive mishap is caused by gross deliberate acts of negligence, flagrant disregard of procedural and/or safety precautions, or other behavior indicating incompetence or unreliability. In this regard, it should be recognized that incidents and mishaps can and do happen through inadvertent acts, carelessness, and minor rule infractions. Revocation may be made by COMMARCORSYSCOM in consultation with the installation commander and the ESO's immediate supervisor.

**0805 ASSISTANT ESO**

In the event that the size of the installation, diversity of mission, operational tempo, or other circumstances require more than one ESO, all training and certification requirements apply. ESOs are responsible for establishing and carrying out the installation explosives safety program in accordance with provisions of this chapter and reference (f), and for providing supervision, direction, and guidance to subordinate personnel.

**0806 UNIT/TENANT EXPLOSIVE SAFETY REPRESENTATIVE (ESR)**

Unit/Tenant commanders (Battalion/Squadron or higher) having an explosives mission will appoint an ESR. When appointed, the ESR will conduct all applicable aspects of the unit explosives safety program and serve as liaison between the unit/tenant and the installation ESO. The installation ESO will advise and monitor these representatives on their conduct of, and compliance with, the explosives safety program. ESRs will require a level of training to competently assist the installation ESO in implementing the installations explosives safety program. ESRs, not having previous explosives safety training (i.e., 2300 or 6500 MOS granting school) and experience, must complete AMMO-18 (Basics of Naval Explosives Hazard Control), AMMO-45 (Introduction to Ammunition), and AMMO-76 (Identification of Ammunition). ESRs will not receive an ESO certification letter.

**0807 COMMARCORSYSCOM RESPONSIBILITIES**

A. Establish training/certification requirements for personnel involved in the implementation, oversight, management, or compliance of an ESMP.

B. Maintain the training application in the EES web portal.

C. Review and update, as required, all training curriculum listed in this chapter, and associated ESO training.

D. Issue a Letter of Certification to Marine Corps ESOs upon completion of the mandatory ESO requirements outlined in this chapter.

E. Issue Letters of Recertification for ESOs who maintain their refresher and continuing training requirements.

**MARINE CORPS EXPLOSIVES SAFETY MANAGEMENT PROGRAM**

F. Issue a Letter of Decertification to Marine Corps ESOs who fail to maintain currency in training requirements without cause.

G. Revocation of certifications for ESOs who fail to satisfactorily perform the duties and responsibilities of an ESO, as defined in this chapter.

Table 8-1: Training Requirements

	On the Job Training (Note 1)	Initial Training (Note 2)	Follow on Training	Refresher Training (Note 3)	Continuing Training
ESO	At a minimum participate in one ESSA and one ESI.	AMMO-36 AMMO-45 AMMO-76 AMMO-49 AMMO-67 AMMO-74 AMMO-68	AMMO-29 AMMO-43 AMMO-51 AMMO-69 AMMO-105-DL*	AMMO-29 AMMO-36 AMMO-43 AMMO-51	A minimum of one course per year related to professional development.
ESR	N/A	AMMO-18 AMMO-45 AMMO-76	N/A	N/A	N/A
TSS	N/A	AMMO-69 AMMO-105 AMMO-107 TESO Workshop*	N/A	N/A	N/A

Note 1. OJT is only required for personnel not having the basic qualifications and experience identified in Chapter 8, paragraph 4 of this Order.

Note 2. All courses should be completed prior to registering for AMMO-74.

Note 3. Refresher training will be completed at intervals specified in Appendix D of reference (f).

\* Contact COMMARCORSYSCOM for availability. Requirement will be put in abeyance until available.



**VOLUME 8: CHAPTER 9**

**INSTALLATION EXPLOSIVES SAFETY PROGRAM**

**SUMMARY OF SUBSTANTIVE CHANGES**

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**CHAPTER 9**

**INSTALLATION EXPLOSIVES SAFETY PROGRAM**

**0901 BACKGROUND**

An effective ESMP ensures the Marine Corps is capable of meeting its warfighting requirements, while protecting personnel and facilities from potentially unsafe operations.

**0902 INSPECTION PROGRAM**

Both periodic and random inspections will be conducted and documented to assess the effectiveness of the ESMP. Inspections are primarily performed and documented by unit personnel. ESOs are responsible for reviewing the inspection process and conducting independent inspections as required. All inspections will be performed utilizing an approved or locally developed guide. The current ESI evaluation guide can be found on the Marine Ammunition Knowledge Enterprise (MAKE) library located at <https://make.nswc.navy.mil>. Inspection results and corrective actions must be documented and incorporated into the ESO's ESSA.

A. Magazine, Magazine Area, and Storage Inspection. All facilities and locations used for storage or handling of ammunition and explosives will be inspected per reference (f).

1. Contingent upon available manpower, munitions storage and handling locations with high rates of activity and those remote from the main ammunition storage area should be inspected on a more frequent basis, as identified in reference (f). Unit personnel may perform these inspections utilizing the required inspection SOP and checklist. The ESO will review unit inspections and document the review as part of the ESSA.

2. Unsafe conditions will be identified, tracked, and mitigated and work orders/repairs submitted to correct the unsafe condition.

a. Record of work orders will be maintained and tracked by the responsible unit.

b. After 90 days, a report of uncompleted work orders, not involving major construction/renovation, will be submitted to the ESO.

c. Results will be documented and a summary report generated for inclusion in the installation commander's ESSA report via the chain of command.

3. Records of all inspections and actions taken to correct any identified deficiencies must be maintained in the installation Explosives Safety Office.

B. Physical/Visual Inspection of Lightning Protection and Electrical Bonding/Grounding Systems. All facilities, locations, and equipment used to store, maintain,

handle, or transport munitions will require an inspection of all lightning protection and electrical bonding/grounding systems per reference (f).

C. Fire Safety Inspections.

1. All locations/facilities involved in the storage, issue/receipt, transport, maintenance, and handling of munitions will conduct regularly scheduled inspections for compliance with fire safety and fire protection equipment requirements. Guidance and inspection criteria may be found in Chapter 4 of reference (f). ESOs will monitor units and fire departments to ensure regular inspections are conducted.

2. This monitoring may be performed in conjunction with other inspections. Failure of units or fire departments to conduct regular inspections will be reported by the ESO, in writing, to the installation commander with copies furnished to the unit commander and to the organization responsible for performing the inspection. ESOs will maintain a file copy of these reports in accordance with Record Schedule 8000-14.

D. Review of Qualification/Certification Program. ESOs will monitor A&E Qualification/Certification (Qual/Cert) Programs for compliance with reference (c).

E. Conduct Annual Explosives Training. ESOs will ensure annual explosives safety training has been provided to all personnel involved in the storage, receipt/issue, transport, handling, or maintenance of munitions. ESOs are not required to provide this training.

1. Training will be documented via entries in individual training or equivalent records.

2. The following topics are recommended, but are not all inclusive, for incorporation into training:

- a. Statement/explanation of the explosives safety program goals.
- b. Explanation of Hazard Class/Division.
- c. Review of Storage Compatibility Groups.
- d. Review of fire/chemical hazard symbols, firefighting procedures, and evacuation distances.
- e. Review of storage, handling, and transportation requirements.
- f. Review of sources of information on explosives safety and requirements.
- g. Discussion of SOPs relative to safety warnings, cautions, and equipment.
- h. Discussion of Qual/Cert Program.

i. Discussion of procedures for handling MPPEH or other munitions found on the installation.

F. ESSA. ESOs will conduct a complete ESSA on an annual basis. The ESSA is a formal program for installations to conduct appraisals of ongoing munitions operations to determine the effectiveness of their explosives safety program. ESSAs emphasize the importance of a proactive approach to explosives safety issues. ESSAs will be performed in accordance with reference (m).

#### 0903 FILES, RECORDS, AND REPORTS

A. Records Management. Records contribute to the strength and success of program management. They provide documentation to support trend analysis, training requirements, justification for fiscal and manpower requirements, and tracking corrective action processes. Some records are mandatory, as they directly relate to ESI or other regulatory requirements. Others, although not mandatory, provide significant assistance in program management. It is the ESO's responsibility to establish how the documentation is to be maintained. Unless otherwise regulated, either paper or electronic copy is authorized. Electronic copies must have the appropriate electronic signature if one is required. Regardless of how the records are maintained, they must be readily accessible to the ESO.

B. Records Retention. Copies of mandatory records and reports must be retained in accordance with reference (u).

C. Mandatory Documentation. At a minimum, the following reports/records must be maintained, or be accessible, by all ESOs. Some records/reports may be maintained by individual units and reviewed by the ESO as part of normally conducted inspections as determined by local conditions or requirements, and be subjected to review during explosives safety inspections-compliance reviews.

1. Annual Magazine/Storage Facility Inspection Reports. These reports are required for ESI review and contain elements to support other areas, such as SOPs, site plans, and accountability. Maintain these records in accordance with Record Schedule 8000-14.

2. Visual Inspections/Tests of Lightning Protection and Electrical Grounding Systems. Visual inspection data shall be stored in a data file for retrieval for use as required for trend analysis or for use during compliance evaluations and inspections. These records will be maintained per reference (f).

3. Site Inspections. These inspections contain elements for review during compliance evaluations/inspections, such as storage authorization letters, Qual/Cert review, and SOP review. Maintain these records in accordance with Record Schedule 8000-14.

4. Fire Safety Inspection Reports. All locations/facilities involved in the storage, issue/receipt, transport, maintenance, and handling of munitions will conduct regularly scheduled inspections for compliance with fire safety and fire protection equipment

requirements. ESOs will monitor units and fire departments to ensure regular inspections are conducted. Maintain these records in accordance with Record Schedule 8000-14.

5. Hazards of Electromagnetic Radiation to Ordnance. Ensure the communications organization responsible for radiation emitting devices maintain the surveys and emissions control bills.

6. Log of Inert Training/Display Munitions. Inert training/display munitions log must be maintained per Chapter 2 of this Volume.

7. ESI-CR Reports and Corrective Action Plans. Maintain reports and plans in an approved electronic database.

8. ESSA Inspections. Maintain ESSA reports for three years from date of inspection.

9. Explosives Safety Site Approvals. Site approvals will be maintained for each facility, as required by reference (f), for as long as the facility is used for storage, handling, manufacture, maintenance, or modification of munitions. Should the facility be removed from service as a munitions site, a site approval request to remove the ESQD arcs must be submitted. This final site approval will be archived, not destroyed.

10. Comprehensive Installation Maps. Comprehensive installation maps or sets of maps will be developed using GeoFidelis GIS/enterprise mapping system.

a. Maps must show locations and ESQD arcs, storage/operating facilities and locations, explosives vehicle traffic routes, any easements and environmentally sensitive areas, and emergency evacuation routes.

b. Maps will be reviewed annually for correctness and the review documented by a Memorandum for the Record (MFR). Maintain these records in accordance with Record Schedule 8000-14.

11. Annual encroachment review of ESQD arcs by non-ammunition related activities. Annual encroachment reviews may be documented via the same MFR prepared for the map review.

12. PES/(PES/ES). All PESs and ESs within explosives arcs will be maintained in the EES web portal.

D. The following reports/records must be uploaded, routed and archived via the EES Web portal:

1. DDESB Evaluation Reports and Corrective Action Plans.

2. Explosives Safety Submissions, ESSDR, and AARs.

3. Explosives Safety Event Waivers.
4. Non-DoD Ammunition Storage Requests.
5. Roll-on/Roll-off (RO/RO) Site Approval Requests.
6. Installation Facility Data.
7. Installation Commander Storage Authorization Letters.
8. Explosives Safety Inspection - Compliance Reports and CAPS.
9. Explosives Safety Training Certifications.

**0904 PUBLICATIONS AND REFERENCES**

Installation ESOs must have access to current reference documents required to support explosives safety. ESOs are encouraged to use electronic web sites to ensure only the latest version of the publication is being referenced. If hard copy publications are being maintained:

- A. Publications will include the latest changes/revisions.
- B. Reviews will be conducted semi-annually to ensure latest changes/revisions have been incorporated.

**VOLUME 8: CHAPTER 10**

**STANDARD OPERATING PROCEDURES**

**SUMMARY OF SUBSTANTIVE CHANGES**

Hyperlinks are denoted by ***bold, italic, blue and underlined font.***

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**CHAPTER 10**

**STANDARD OPERATING PROCEDURES**

**1001 BACKGROUND**

SOPs are procedural documents used to ensure compliance with technical, explosives safety, personal protective equipment, federal, state and local environmental protection, and physical security requirements during explosives operations.

**1002 SOP APPLICABILITY**

A. SOPs are required for A&E handling, storage, and transportation operations not conducted in accordance with technical directives, approved checklists, or Field Manuals (FMs). This requirement includes DoD and non-DoD tenants, as well as contractors when in support of Marine Corps operations and should not be confused with SOPs/desktop procedures for non-explosives operations.

B. SOPs, along with applicable reference publications, shall be kept in the work area with the procedures readily available for use when performing the operation.

C. SOPs are not required for units who solely transport, store, and handle limited quantities of HC/D 1.4S.

**1003 APPROVAL AUTHORITY**

The process owner's CO (battalion/squadron level) is responsible for approving all A&E SOPs for processes under their cognizance. SOPs may be approved and signed by individuals in an "Acting" capacity or those with "By Direction" authority or a designated representative.

**1004 ROLES AND RESPONSIBILITIES**

A. The Process Supervisor is responsible for:

1. Ensuring everyone assigned to a process has read and understands the requirements of the SOP.
2. Stopping a process if unexpected safety, health, or environmental hazards are found, or if significant deviations from the SOP are necessary in order to conduct the process.
3. Continuously reviewing SOPs during recurring processes to ensure that they are changed as necessary to reflect current procedures, and changes to reference documents.

B. The SOP user (worker/operator) is responsible for reading, understanding, and following the SOP. If the user identifies a hazard or operation, not addressed in the SOP, or does not understand an operation, the user will stop the process and notify the supervisor of the problem.



C. Contractors are responsible for the development, review, validation, approval, and use of SOPs for A&E operations wholly under their control. Marine Corps personnel shall provide appropriate oversight as specified in contractual requirements.

## 1005 SOP DEVELOPMENT

A&E SOPs shall be developed and formatted as follows.

A. Title Page. Page at the beginning of the SOP that identifies the SOP title and includes a unique copy control number for SOP tracking and version control (e.g., (1 of 4)).

B. Record of Changes. Page documenting the SOP change number, change date, and brief description of the change.

### C. SOP Review and Validation Process Documentation

#### 1. SOP Review

a. The following personnel will review SOPs prior to initial use at Marine Corps activities/tenant commands:

1) Personnel responsible for the technical requirements and execution of the process (e.g., the process supervisors).

2) Personnel responsible for support of the process in accordance with sections of the SOP, including mishap responses.

3) Occupational safety and health, medical (e.g., industrial hygiene), and environmental personnel if the process involves or may potentially involve any applicable procedures.

4) ESO.

b. For contractor operations, the equivalent levels of review would be, for example, Site Health and Safety Supervisor or Senior Unexploded Ordnance Supervisor and Site Superintendent of the contractor.

#### 2. SOP Validation

a. Prior to approval, the SOP shall be validated and signed by the person or persons responsible for the execution of the process.

b. Validation is accomplished by executing the process in accordance with the SOP, verifying the diagrams, ensuring equipment lists are accurate and items are available, verifying emergency response procedures are correct and executable, and all hazards are identified. The supervisor will oversee the performance of SOP validations with the necessary

workers/operators and other personnel to ensure complete understanding at all levels. The supervisor should request assistance from other authorities when needed.

c. Validation will be documented, signed, and dated by the person that performed the validation.

d. Whenever a new supervisor is assigned to a process covered by an existing SOP, the new supervisor shall review and validate the SOP by conducting a dry run of the process and signing the Supervisor's Statement.

3. SOP Approval. After the SOP has been reviewed and validated by the required personnel, the SOP shall be approved and signed by the CO or designated representative.

4. Continuous Review. SOPs shall be continuously reviewed and changed as necessary, but at a minimum, a review of the SOP will be documented annually. The person responsible and/or supervisor of the process must document the date of annual review in the annual review section of the SOP.

5. Change Review. All changes must be documented in the record of change and SOP subjected to review, validation, and approval if significant changes to the procedures are made. Strictly administrative changes do not require review, validation, and approval.

6. Baseline Review. SOPs expire four years from the date of approval. SOPs must be updated and reviewed, validated, and reapproved four years from the date of the current approval signature.

D. Table of contents. A concise list of elements within the SOP.

E. Statements

1. Supervisor's Statement. This statement provides a record of the signature and date of the supervisor(s) responsible for managing the operation. These supervisors are responsible for making sure that the SOP is up-to-date. This record maintains the list of qualified people with up-to-date training. A suggested supervisor's statement follows:

“I have read and understand this SOP. To the best of my knowledge, the processing described within this SOP can be done in a safe, healthful and environmentally sound manner. I have made sure all persons assigned to this process are qualified, have read and understand the requirements of this SOP, and have signed the worker's/operator's statement for this process. I will ensure the SOP has current procedures. If a major change to the SOP is necessary, I will ensure that the process is stopped until the SOP is revised and approved. If unexpected safety, health, or environmental hazards are found, I will make sure the process is stopped until the hazards have been eliminated.”

\_\_\_\_\_  
Supervisor's Name                  Signature                  Date

2. Worker's/Operator's Statement. This statement indicates that the worker/operator clearly understands his/her duties regarding the operations in the SOP. The worker/operator and supervisor must review the SOP and sign and date the statement to be authorized to work under the SOP. A suggested Worker's/Operator's Statement follows:

“I have read this SOP and I have received adequate training to perform the process according to the SOP. I will follow the SOP unless I identify a hazard not addressed in it, or encounter an operation I cannot perform according to the SOP. If that occurs, I will stop the process and notify my immediate supervisor of the problem.”

\_\_\_\_\_  
Worker/Operator's Name                  Signature                  Date

\_\_\_\_\_  
Supervisor's Name                  Signature                  Date

F. References. A complete listing of current and applicable references.

G. Risk Management (RM). As part of SOP development, the RM process shall be conducted in accordance with reference (k), and the resulting hazard analysis and risk assessment shall be used as a basis for developing the SOP and the SOP Hazard Control Brief. The RM process analysis developed for the SOP must be included as an element of the SOP.

H. Hazard Control Briefing

1. A hazard control briefing will be prepared for the operations covered by the SOP, taking into account the results of the hazard analysis and RM assessment. The briefing will be given to all employees using the SOP prior to initial use of the SOP. The briefing may be repeated as often as necessary based on the work supervisor's analysis of its effectiveness. The current briefing will be a permanent part of the SOP. The Hazard Control Brief must be up-to-date and be derived from the hazard analysis results. The hazard control briefing will also be given to all visitors and other transients/observers to the A&E, MPPEH, and/or MEC operations. Records documenting recipients of the hazard control briefings shall be maintained in accordance with Record Schedule 8000-14.

2. At a minimum, hazard control briefings will address the following:
  - a. Hazardous materials used, consumed, or produced in the process.
  - b. The ways in which exposure to hazards and hazardous materials are avoided or minimized, including the use of personal protective equipment.
  - c. Signs of unacceptable exposure to the worker/operator/visitor, or damage to the equipment, from the hazardous materials being processed.
  - d. First aid or other actions to be taken immediately should exposure to an unacceptable hazard or hazardous materials occur.
  - e. SOP hazard analysis results.

I. Procedures. This is the most important section of the SOP. The procedures should be written so that a person unfamiliar with the operation could perform a validation of the process.

1. Provide the worker/operator with clear and concise instructions for performing the process.
2. Do not include instructions for operations not relevant to the SOP.
3. The worker/operator must not be required to leave the work area to locate other references nor jump from section to section in the SOP to perform the process safely and correctly. The entire process will proceed logically and sequentially, with all required references on-hand or written into the process.
4. Use of technical manuals as part of the procedures is encouraged.
5. Always use warnings, cautions, and notes at the first occurrence of critical steps. The word "WARNING" shall be used in cases of potential personnel death or injury. The word "CAUTION" shall be used in cases of potential equipment or facility damage. The word "NOTE" shall be used in cases that affect product or process quality.
6. Applicable compensatory measures contained in site approvals that affect the operation or operating/storage locations involved with the process must be included in the SOP.
7. If applicable, include procedures for routine decontamination and restoration of equipment and facilities to a safe working condition should the process have been stopped due to an unacceptable hazard or other unforeseen event.
8. Include procedures for disposition and management of any scrap or wastes, including waste military munitions, which may be generated by the operation.

J. Diagrams

1. Building or Site Diagram

a. A diagram of the building or site showing the location of operation related items is to be included in the SOP (see next paragraph for exception). The diagram shall include location of safety related items, such as fire extinguishers, fire suppression systems, eye wash stations, emergency showers, first aid kits, spill cleanup kits, ventilation systems or stations, and emergency breathing devices. The diagram must illustrate explosive and personnel limits, evacuation routes, and emergency exits.

b. Building diagrams are optional for inclusion in the SOP if a diagram approved by the process supervisor is posted at the facility.

c. Site diagrams must be included in the SOP for temporary and/or field operations to include explosives routes if applicable.

2. Processing Diagrams. This includes any information needed to clarify or amplify the information provided in the procedures. Often this will take the form of diagrams to indicate steps in the operation. Illustrations showing details of processing, material handling, excavating, and other equipment, block diagrams of processing and workflow and other illustrative graphic materials are appropriate.

K. Equipment Lists

1. Equipment and Supplies List (if applicable). Provide a list of all the special and/or critical tools, equipment, and supplies used in the process.

2. Safety Equipment List. Provide a list of all the special or mandatory safety equipment (including personal protective equipment) and systems, which must be in place and working properly in order to protect the safety of personnel, equipment, facilities, and the environment during the processing.

L. Emergency Procedures. The required hazard analysis of a process will identify any potential fire, spill, explosion, runaway reaction, release of hazardous vapors, mechanical failure, injury, etc., that could occur during processing and which would require immediate action to control. Procedures for responding to these emergency events will be provided as procedures, and used for rehearsal of emergency response. The emergency response procedures (which may be incorporated as part of the instructions for the process) include:

1. A single point of contact to notify in case of an incident.
2. Initial and follow-up actions that the worker/operator must take in case of an incident.

**VOLUME 8: CHAPTER 11**

**OPERATIONAL EXPLOSIVES SAFETY**

**SUMMARY OF SUBSTANTIVE CHANGES**

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**CHAPTER 11**

**OPERATIONAL EXPLOSIVES SAFETY**

**1101 BACKGROUND**

The Marine Corps continuously trains and deploys with A&E. The hazards associated with the storage, handling, transportation, and employment of A&E are compounded in an operational environment. This chapter provides explosives safety information to support the operational plans of commanders. The information in this chapter is intended to:

- A. Assist commanders and personnel in making the best possible and logical use of the limited facilities available for the safe storage and handling of A&E.
- B. Enhance the survivability and dependability of A&E.
- C. Reduce the hazards involved in handling and storing A&E.
- D. Provide explosives safety personnel the tools to identify, communicate, and mitigate risk.
- E. Identify at what level risk can be accepted.

**1102 APPLICATION OF EXPLOSIVES SAFETY REQUIREMENTS**

The following identifies the explosives safety criteria that must be applied, depending on the type of operation, participating members, and location:

- A. When OCONUS; comply with host nation, Multi-National (MN), or U.S. explosives safety standards, whichever is more stringent, unless standards applicability is mandated in an International Agreement.
- B. Within the U.S., comply with the requirements contained in reference (f) and this Volume.
- C. Reference (v) advises commanders of US forces operating as part of a MN (alliance or coalition) military command that they should follow MN doctrine and procedures ratified by the U.S. For doctrine and procedures not ratified by the U.S., commanders should evaluate and follow the MN command's doctrine and procedures, where applicable and consistent with U.S. law, regulations, and doctrine.
- D. U.S. Forces participating in NATO operations should use the explosives safety guidelines found in references (w) and (x) to develop mutually agreeable standards for application of explosives safety regulations.
- E. Reference (y) may be mandated for use in an IA or as part of a MN operation.

1103 APPLICABILITY

Reference (a) provides the minimum criteria for explosives safety and munitions risk management in operational planning, training, and execution.

1104 EXPLOSIVES SAFETY MUNITIONS RISK MANAGEMENT (ESMRMA)

ESMRMA must be integrated into the planning and execution process as required by reference (j). Integrating ESMRMA into combined, joint, coalition, and partner nation plans, exercises and missions is required unless the GCC determines strategic or compelling operational needs mandate otherwise.

1105 ASSET PROTECTION

The protection of assets in an operational environment is paramount and can be the difference between mission success and failure. Depending on the operational value of the assets, greater protection may be warranted than required by explosives safety criteria. The placement of mission critical assets near A&E storage/operating areas should be avoided whenever possible. Two levels of asset preservation are defined below and should be applied dependent on the nature of the assets.

A. Minimum Separation Distance. Minimum separation distance is the required explosives safety distance contained in the applicable tables of reference (f). At this distance from the PES, mission capability will likely be impaired or delayed in the event of an explosives incident. This distance should prevent prompt propagation; however, delayed propagation between PESs is possible.

B. Asset Preservation. Asset preservation is a distance greater than the minimum separation distance contained in reference (f). At this distance from a PES, assets are expected to be usable and mission capable following an explosives incident. Asset preservation distance, normally Public Transportation Route (PTR) distance, should prevent propagation between PESs.

1106 EXPLOSIVES SAFETY SITE PLANS

All locations where military munitions are present, or forecasted to be present, shall have an approved explosives safety site plan. Areas that cannot meet ESQD criteria must have an approved deviation per Chapter 3 of this Volume.

A. Examples of locations that must be considered for explosives safety site plan approval are contained in reference (a) and (j).

B. For Combat Operating Bases (COBs) and Combat Out-Posts (COPs), the GCC must provide specific guidance on risk and consequence management from military munitions at these locations and determine site approval requirements.

1107 MILCON APPROVAL PROCESS



For consequence acceptance decisions that require MILCON projects that cannot meet explosives safety requirements of reference (a), the GCC must provide an endorsement to the appropriate Military Service Secretary for MILCON funding and project approval, prior to construction start. The endorsement and submission package must contain the information contained in Chapter 3 of this Volume for a Secretarial Certification.

#### 1108 DEVIATIONS

For locations that cannot meet explosives safety siting requirements, a deviation must be developed and submitted to the appropriate approval authority.

A. Deviations for installation directed training on Marine Corps CONUS and OCONUS installations will be submitted per Chapter 3 and Appendix D of this Volume.

B. Deviations for A&E operations conducted at another service's installation or joint installation will be submitted to the owning/responsible service for approval. The submission process will be governed by the owning/responsible service's process. If required, the operational necessity statement will be provided by the submitter's higher command.

C. Deviations from explosives safety criteria when directed by the SCC or GCC at OCONUS locations, will be developed and submitted in accordance with Chapter 3 and Appendix D of this Volume, and reference (j).

#### 1109 LIMITED QUANTITIES OF HC/D 1.2.2, HC/D 1.3, OR HC/D 1.4

For reasons of operational necessity, limited quantities not to exceed 50 lbs. NEW of a combination of HC/D 1.2.2, HC/D 1.3, or HC/D 1.4 may be stored and used in operations, to include armored vehicles located outside a Basic Load Ammunition Holding Area or an Ammunition Holding Area, without regard to QD and DoD explosives safety site approval. The amount of HC/D 1.4S is not included in the limits identified above, however no more than 3,000 lbs. NEW of HC/D 1.4S can be stored. These areas must be approved in writing by the installation commander or operational commander at host nation locations and meet all fire, security, and lightning protection system requirements of references (f) and (i).

#### 1110 FIELD STORAGE

Field storage is primarily intended for situations that require limited amounts of A&E munitions to be stored away from the standard storage environment to support specific training or for small units operating in austere environments during combat missions. The following guidelines will govern temporary storage at these facilities/sites:

A. Field storage is authorized for up to 90 days on certified Marine Corps operational ranges and host nation ranges approved for Marine Corps use to meet training requirements. The explosives arcs from the field storage site must be contained within the parameters of the established range. Explosives arcs that exceed range parameters will require an event waiver from COMMARCORSYSCOM or GCC delegated risk decision authority in

accordance with Chapter 3 of this Volume. Field storage on operational training ranges of another service will be conducted in compliance with that service's requirements.

B. Storage at COBs and COPs. The GCC shall provide specific guidance on risk and consequence management from military munitions at these locations.

C. Storage sites for training operations not located on Marine Corps certified ranges/training areas or approved host nation range/training areas shall be formally sited or have an approved MRMA or event waiver prior to any explosives operation per Chapter 3 of this Volume.

#### 1111 FORWARD ARMING AND REFUELING POINT (FARP) OPERATIONS

All FARPs, in which explosives operations are conducted, must be approved at the appropriate level of command, as outlined below prior to conducting operations.

A. Training evolutions involving FARP operations, conducted on U.S. controlled operational training areas/ranges, to include host nation training areas, approved for the type munitions being used may be approved by the installation/operational commander. When a FARP operation is established at locations other than on approved operational training areas/ranges, formal DDESB site approval or an MRMA is required prior to the conduct of operations. All FARP training operations shall be established in accordance with the separation distances specified in Table 11-1. Units conducting FARP operations shall conduct all operations per current Naval Air Training and Operating Procedures, manuals, and weapons/stores loading checklists.

##### B. FARP Operations

1. Permanent FARP sites that are used for contingency operations must be sited per reference (f). FARP sites that are established in situations where advance notice is not possible shall be approved by the GCC or designated SCC.

2. Contingency FARP sites shall be established in accordance with the separation distances specified in Table 11-2. The separation distances shown are the minimum required to prevent prompt propagation of explosive sites. However, subsequent reactions resulting in death of exposed personnel and substantial damage to assets are possible and expected. Aircraft and equipment will not be usable following such an incident. In order to prevent propagation or reaction between explosives sites, greater separation (asset preservation) distances should be provided. PTR separation distances should afford this level of protection.

**MARINE CORPS EXPLOSIVES SAFETY MANAGEMENT PROGRAM**

Table 11-1: Training Forward Arming and Refueling Point Operation Separation Distances

To:	From:	Armament Pad	Ordnance Staging Area	Ordnance Buildup Area	Ordnance Storage Area	Red Label Area	Sling Out Area
Armament Pad (Note 4)		IMD	IMD	ILD	2	IMD	2
Ordnance Staging Area		IMD	IMD	IMD	IMD	IMD	2
Ordnance Buildup Area		ILD	IMD	ILD	ILD	ILD	2
Ordnance Storage Area		IMD	IMD	IMD	IMD	IMD	2
Red Label Area		IMD	IMD	IMD	IMD	IMD	2
Sling Out Area		IMD	IMD	ILD	IMD	IMD	2
Refueling Point (5K gal or Less)		100'	IMD 100' MIN	ILD	ILD	ILD	2
Bulk Fuel Storage (>5k gal)		IBD	IBD	IBD	IBD	IBD	IBD
Billeting Bivouac Area		IBD	IBD	IBD	IBD	IBD	IBD
Runway/Taxiway (DoD use)		1	PTR	PTR	PTR	1	1
Runway/Taxiway (Joint use)		IBD	IBD	IBD	IBD	IBD	IBD
Inhabited Building		IBD	IBD	IBD	IBD	IBD	IBD
Public Trans Route		3	3	3	3	3	3

Notes:

1. No ESQD applies, however, applicable NAVAIR airfield safety criteria shall be met.
2. K30 used for HC/D 1.1 items only. Use applicable PTR distance for non-mass detonating explosives.
3. PTR distance based on traffic density (low, medium, high).
4. A&E to support the next A/C load may be staged at the armament pad.

**MARINE CORPS EXPLOSIVES SAFETY MANAGEMENT PROGRAM**

Table 11-2: Contingency Forward Arming and Refueling Point Operation Separation Distances

To:	From:	Armament Pad	Ordnance Staging Area	Ordnance Buildup Area	Ordnance Storage Area	Red Label Area	Sling Out Area
Armament Pad (note 3)		IMD	IMD	ILD	IMD	IMD	IMD
Ordnance Staging Area		IMD	IMD	IMD	IMD	IMD	IMD
Ordnance Buildup Area		IMD	IMD	ILD	ILD	ILD	ILD
Ordnance Storage Area		IMD	IMD	IMD	IMD	IMD	IMD
Red Label Area		IMD	IMD	IMD	IMD	IMD	IMD
Sling Out Area		IMD	IMD	ILD	IMD	IMD	IMD
Refueling Point (5K gal or Less)		100'	100'	100'	100'	100'	100'
Bulk Fuel Storage (>5k gal)		IBD	IBD	IBD	IBD	IBD	IBD
Billeting Bivouac Area		IBD	IBD	IBD	IBD	IBD	IBD
Runway/Taxiway (DoD use)		K4.5	K4.5	K4.5	K4.5	K4.5	K4.5
Runway/Taxiway (Joint use)		IBD	IBD	IBD	IBD	IBD	IBD
Inhabited Building		IBD	IBD	IBD	IBD	IBD	IBD
Public Trans Route		2	2	2	2	2	2

Notes:

1. Where asset preservation is a primary concern, use K24/30 separation for HC/D 1.1, and PTR separation distance for HC/D 1.2, 1.3, or 1.4. Applies wherever IBD is not specified.
2. PTR distance based on traffic density (low, medium, high). Refer to reference (f), Chapter 7.
3. A&E to support the next A/C load may be staged at the armament pad.

1112 CAPTURED ENEMY AMMUNITION (CEA)

A. The purpose of this paragraph is to provide basic guidance for commanders involved in CEA handling, transportation, and storage operations. The major cause of CEA accidents involves untrained personnel handling foreign ordnance. Contact the nearest EOD unit for additional information on the identification, reporting, and disposition of discovered CEA. Careful planning, risk management, and the use of trained personnel will help mitigate the hazards of CEA operations.

B. CEA operations pose a significant threat to operating forces. There are many unknowns associated with CEA, such as net explosives weight (NEW), fuzing mechanisms, markings, and fillers. CEA operations are inherently dangerous; thus, the storage, handling, transportation, and destruction of CEA present a challenge. Operations involving CEA will be assessed using the five-step risk management process to provide maximum protection to personnel and property from an unintentional detonation. CEA operations should ensure that only the minimum numbers of personnel are exposed to the minimum quantity of CEA for the minimum amount of time.

C. Retrograde Operations. A cache of CEA retrograded to an ammunition supply point/munitions storage area (ASP/MSA) should be inspected by qualified EOD personnel to ensure the CEA is safe to handle and transport prior to movement and storage. CEA must be stored in a designated secure area within the ASP/MSA, but at a minimum PTR distance from any areas containing U.S. munitions. Regardless of its condition, CEA shall not be intermingled with U.S. munitions stocks. When PTR distance cannot be met, at a minimum, CEA must be placed at inter-magazine separation distance from DoD stocks and the risk accepted in accordance with reference (j).

D. Receipt, Storage, Segregation, and Issue of Captured Enemy Ammunition

1. Receipt of Captured Enemy Ammunition. CEA arriving at an ASP/MSA that has not been inspected by EOD must be inspected as soon as possible after receipt to determine its explosives safety condition, type, and caliber. Only trained and certified EOD personnel shall perform the inspection of all CEA stocks prior to storage. If EOD personnel are unavailable, UXO-qualified/certified civilian personnel meeting the requirements listed in reference (z) may perform the inspection. However, ASP/MSA personnel will identify these stocks as requiring inspection by EOD personnel. Ammunition Technicians should not perform inspections on CEA, as they are not trained in the characteristics of foreign munitions. The inspection of CEA shall take place only at designated sites that meet a minimum of PTR distance from all other areas within the storage area. No CEA will be placed into storage without a safety assessment.

2. Storage of Captured Enemy Ammunition. CEA will be stored in a separate area within the ASP/MSA from serviceable and unserviceable DoD munitions. When CEA is placed in storage, protective measures should be taken (e.g., separation distances, use of barricades, fire breaks) to protect DoD serviceable assets. CEA will be stored at PTR distance from DoD munitions. When PTR cannot be met, CEA will be stored no closer than IMD.

Serviceable and unserviceable CEA should be separated from each other in storage. When space permits, CEA should be stored in multiple small stack quantities. This type of storage is preferred over larger, more volatile stacks.

E. Captured Enemy Ammunition Storage Compatibility Group. Prior to placing in storage and if possible, CEA should be assessed to determine its Storage Compatibility Group (SCG). Qualified explosives personnel (i.e., EOD, UXO-qualified civilian personnel) will assess the CEA and determine the SCG. Factors used in determining the CEA SCG are caliber or size, filler, fuzing mechanisms, and NEW. Once the SCG has been determined, stocks of CEA will be segregated according to the SCG chart located in reference (f). In the event no SCG can be determined, the CEA must be assigned to SCG "L."

F. Determining the Net Explosive Weight of Captured Enemy Ammunition. The NEW of CEA will be calculated using a service publication on foreign munitions or by using the NEW of a similar type and caliber munitions in the DoD inventory. A source for foreign ordnance NEW can be obtained from the Naval EOD Technology Division, Indian Head, MD.

G. Fire Prevention. The same method used to prevent fires for DoD stocks will be employed in preventing fires for CEA stocks. However, due to the unknown hazard factors associated with CEA, storage areas containing CEA stocks should additionally identify the location of CEA on their fire plan.

H. Serviceable Captured Enemy Ammunition. Serviceable CEA will be retained for security, intelligence, research, development, test and evaluation, training, demilitarization or other purposes when authorized by the headquarters exercising operational control of the discovering unit's operation. CEA used for any of the above operations shall be clearly marked as "Serviceable."

I. Unserviceable Captured Enemy Ammunition. Unserviceable CEA stored in the same storage magazine, pad, or container as serviceable CEA will be clearly marked as unserviceable and separated (i.e., sandbagged or placed in other barricaded area). Serviceable and unserviceable CEA will be separated from DoD munitions by PTR distance.

J. Handling. Trained munitions personnel will supervise the handling of all CEA. No CEA will be handled without certification from EOD that the CEA is safe for movement.

K. Captured Enemy Ammunition Accountability. CEA will be accounted for as follows:

1. CEA that has been inspected, certified, or cleared by EOD or qualified UXO civilian explosives safety inspectors must be receipted, inspected, and accounted for in the same way as DoD munitions. Once CEA is identified, it is inventoried for accountability and control. Local stock numbers will be assigned to CEA. Assignment of local stock numbers and accurate accountability should be done as soon as possible after receipt. Reporting and disposition instructions for CEA are the same as for DoD munitions.

2. CEA shall be accounted for using a method that ensures accountability. A preferred method is using Ordnance Information System (OIS), or NAVMC 10774 cards; however, spreadsheets, log books, or any means of tracking is acceptable. The preferred method of accounting for CEA is by the piece; however, accounting for CEA by gross weight is also an acceptable method.

L. Transportation. The following requirements pertain to the transportation of CEA:

1. Transporting Captured Enemy Ammunition. CEA should not be transported with DoD ammunition. When possible, CEA should be placed in an unoccupied trailer, and not in the bed of the conveyance. When an armored vehicle is available, it should be used to tow a trailer loaded with CEA to provide additional protection to personnel.

2. Inspections of Loaded Conveyance

a. Inspection at Origin. Before moving or loading CEA into any conveyance, an EOD or Technical Escort Unit (TEU) team must certify that it is safe to handle and transport. When possible, an ammunition shipping inspector should be consulted about safe loading and tie-down procedures. The EOD or TEU team should provide the driver with any firefighting instructions.

b. Inspection at Destination. Vehicles loaded with CEA should not be taken directly into the ASP. Vehicles arriving with CEA should be directed to a holding area for inspection by EOD or TEU personnel. Following the transport of CEA, any change noted in the condition of the CEA (e.g., the discovery of a missing safety pin, explosives filler exudation, or other unusual conditions) will be reported to EOD personnel for a new assessment prior to removal from the transport vehicle.

c. Blocking and Bracing. Due to the unknown factors associated with CEA, protection against unintentional detonation associated with the stress of movement is critical. CEA loaded into a conveyance must be secured to prevent movement and its impact with other CEA during transport. Packaged CEA should be secured using cargo straps to prevent movement. Tie down procedures will be followed. Unpackaged CEA should be placed into wooden boxes and then secured to the vehicle. When packaging is not available, the bed of the conveyance can be covered with sand to prevent movement. When using this technique the load should be constantly checked to verify the amount of sand is sufficient to prevent movement and contact with the conveyance. During loading, consideration must be given to protecting exposed fuzes, primers, initiators, and safety devices.

M. Security. CEA will be controlled and safeguarded in the same manner as that prescribed for DoD munitions of similar hazard classification, SCG, Security Risk Code (SRC), and caliber and type (e.g., SRC Category (CAT) 1-like CEA will be handled as CAT 1 DoD munitions).

N. Demilitarization and Disposal. Only EOD or UXO-qualified personnel are authorized to dispose of CEA in non-emergency situations. CEA disposal operations conducted by untrained personnel have the potential to cause unnecessary battlefield contamination, personnel injury, collateral damage, and destruction of items required for intelligence.

### 1113 MULTINATIONAL (MN) A&E

MN ammunition may be stored with DoD A&E only if it has been hazard classified in a manner equivalent to DoD explosives hazard classification procedures as outlined in reference (a).

A. MN A&E with a DoD-equivalent hazard classification that is stored with DoD A&E:

1. May be stored in the same storage structure or on the same storage pad, but must be separated from DoD A&E.

2. May be stored in the same storage structure or on the same storage pad together with DoD A&E provided the risk is accepted by the appropriate authority. The acceptance of risk must be documented per applicable GCC instructions and must consider the surveillance, propellant stability controls, packaging, transportation, handling, and operational practices of such A&E.

B. MN A&E, either without a DoD-equivalent hazard classification or when the equivalency of the hazard classification procedures is uncertain, will be separated from DoD A&E by intermagazine distances (IMD).

C. A&E Operations. The explosives safety separations between an A&E operation and a storage site depends on several factors including the hazard class present, the net explosives weight present, and the level of protection required. The following are the minimum required levels of protection when A&E operations are involved.

1. Concurrent DoD and MN A&E operations (e.g., ammunition issues, returns, inspections) will be separated by a minimum of intraline distance (ILD).

2. Non-concurrent DoD and multinational A&E operations may be performed on the same pad, site, or facility provided the A&E of the first party is removed prior to the second party beginning A&E operations.

D. A&E operations (US or MN) at risk from A&E storage sites (US or MN) will be given ILD level of protection from that storage site.

E. A&E storage sites (US or MN) at risk from A&E operations (US or MN) will be given IMD level of protection from that A&E operation.

F. MN A&E storage or operations will be separated by IBD and/or PTR distance from non-A&E facilities or locations.



G. Where mission necessity or operational constraints will not allow minimum separation distances to be maintained, a deviation from the appropriate command level, or when required, from the GCC, is required. During MN operations, if foreign A&E encumbers DoD personnel or resources, the deviation will be coordinated with the MN units involved. Mitigating measures may include a MOA to allow the affected Commander to inspect MN A&E sites for compliance with safe storage and operating practices. Such agreements will be coordinated in accordance with GCC policies and instructions.

#### 1114 PROTECTIVE CONSTRUCTION DESIGNS

Protective construction designs have been proven, through testing, to prevent prompt propagation at reduced separation distances. These designs are very specific regarding the conditions, limitations, and construction requirements which must be followed to achieve a reduced maximum credible event (MCE). Reference (aa) contains approved protective construction designs which will assist operational field storage personnel in mitigating or eliminating hazards from A&E based on their unique situations.

#### 1115 FUEL STORAGE

Fuel storage criteria is contained in reference (a).

#### 1116 RISK ASSESSMENT TOOLS

Several tools are available to assist explosives safety personnel in assessing hazards associated with ESQD non-compliance. These tools are available at the DDESB web site or by contacting COMMARCORSYSCOM.

A. Automated Safety Assessment Protocol Explosives (ASAP-X). ASAP-X is a Microsoft Excel spreadsheet designed to assess hazards associated with ESQD non-compliance. Directions for use of ASAP-X can be found in reference (ab). ASAP-X is required for use to support deviations involving ESQD-related risk.

B. Safety Assessment for Explosives Risk (SAFER). This software is used to perform risk-based explosives safety site planning in accordance with reference (ac). Contact COMMARCORSYSCOM to obtain assistance using this program.

#### 1117 TACTICAL SAFETY SPECIALIST (TSS)

A TSS is available to provide commanders with tools to compliment force preservation efforts and ensure safety in the operational environment. The TSS supports commanders in protecting forces and assets from potential incidents that could adversely affect current and future missions and/or operations within their areas of responsibility. A TSS, when trained in explosives safety, can provide explosives safety expertise in theater, which is generally not available to GCCs during combat and contingency operations. Paragraph 0803 of this Volume outlines the requisite courses for TSSs that are assigned duties to assess operations involving A&E.

**1118 TSS CERTIFICATION**

TSSs requiring ESO certification will follow the certification process for ESOs contained in Chapter 8 of this Volume. Upon completion of the required initial courses and OJT (if required), a TSS will have their immediate supervisor submit a request for ESO certification to COMMARCORSYSCOM. The request will contain all certificates of completion of the required courses and a signed letter stating the TSS has participated in an ESSA and an ESI-CR. The request will be forwarded to COMMARCORSYSCOM with a recommendation for certification as an ESO. Requests not containing the above elements will be returned without certification. Once certified, the TSS must continue to complete all mandatory refresher training and continual training to maintain certification. The certified TSS will be entered into the ESO Training Database and all training tracked. Any TSS who fails to complete mandatory refresher or continual training will be decertified.

**1119 TACTICAL ASSISTANCE VISIT**

Tactical explosives safety support is available from COMMARCORSYSCOM during all contingency and training evolutions as well as all MRMA assessments. Requests for explosives safety TAVs should be submitted to COMMARCORSYSCOM at least 60 days prior to a CONUS operation and 90 days for an OCONUS operation. Requests should identify the length of time the support is required and the type of support required (e.g., site plans, evaluations, waivers, etc.).

**1120 TACTICAL EXPLOSIVES SAFETY WORKSHOP**

Due to the unique situations that are encountered in an operational environment, COMMARCORSYSCOM has developed a tactical explosives safety workshop. This workshop provides personnel with explosives safety responsibilities and the tools to assist Commanders in identifying risks and mitigating efforts associated with the storage, handling, and transportation of A&E. This workshop can be requested through COMMARCORSYSCOM.

**VOLUME 8: CHAPTER 12**

**WEAPON SYSTEMS EXPLOSIVES SAFETY REVIEW BOARD (WSESRB)**

**SUMMARY OF SUBSTANTIVE CHANGES**

Hyperlinks are denoted by ***bold, italic, blue and underlined font.***

The original publication date of this Marine Corps Order (MCO) Volume (right header) will not change unless/until a full revision of the MCO has been conducted.

All Volume changes denoted in **blue font** will reset to black font upon a full revision of this Volume.

<b>CHAPTER VERSION</b>	<b>PAGE PARAGRAPH</b>	<b>SUMMARY OF SUBSTANTIVE CHANGES</b>	<b>DATE OF CHANGE</b>

**Chapter 12**

**WEAPON SYSTEMS EXPLOSIVES SAFETY REVIEW BOARD (WSESRB)**

1201 PURPOSE

To define the responsibilities of the DON WSESRB with respect to the introduction of new or modified weapon/weapon systems into service, as directed by references (ad) through (ag).

1202 BACKGROUND

Following several aircraft carrier mishaps, the CNO established the WSESRB to serve as independent oversight of a weapon program's safety effort, ensuring that required explosives safety criteria and weapons-related environmental considerations are incorporated in the design of the weapon or explosives system.

1203 POLICY

A. The WSESRB shall serve as the DON designated independent authority on weapon system safety. The NOSSA shall provide the Chairperson and the permanent Secretariat. Other members of the WSESRB board include OPNAV (N411), DON Systems Commands, and the Fleet. OPNAV and COMARCORSYSCOM may provide other ex-officio members as desired. Procedures for conducting a WSESRB review shall be developed and issued by COMNAVSEASYSCOM in reference (ag).

B. The WSESRB safety oversight responsibility includes energetic systems, weapons, to include user aspects of non-lethal weapons, Directed Energy Weapons, weapon devices, and those systems (software, firmware, or hardware) that manage and control weapons used, handled, stored or tested on or by a Naval Unit, regardless of origin of the item.

C. All Program Executive Officers (PEO), Program Managers (PM), weapon system designers, producers, processors, packaging designers, or users of A&E or weapon system shall be accountable and responsible for explosives safety as directed in reference (ag). All weapon system programs, regardless of Acquisition Category (ACAT) status or source, shall obtain an appropriate WSESRB review before proceeding to low rate initial production and/or Deployment/Fielding. WSESRB approval is required for any shipboard testing of developmental weapons or weapon systems.

D. Changes, alterations, product improvement programs, engineering change proposals, ordnance alterations or ship change documents to previously approved weapon systems, including software or firmware, that can affect the safety of the platform, A&E, weapon or combat system, or other related systems shall obtain WSESRB review. This requirement includes non-developmental/non-ACAT programs.

E. The milestone decision authority, PEO, and PM shall consider WSESRB concurrence with the system safety plan development and its implementation as one of the exit

criteria for a program completing each acquisition phase and advancing to the next acquisition phase or cycle.

F. All non-developmental or commercially available ordnance items, weapons, or control systems, including foreign weapons, shall satisfy the same weapon system safety and weapon-related environmental requirements as developmental items. This includes all interface elements required to adapt the items for DON use.

**1204 JOINT SERVICE WEAPONS SAFETY REVIEW (JSWSR)**

A. Any weapon, weapon system or munition that obtains a JSWSR and concurrence, in accordance with references (ad) and (ag) shall have met the requirements of obtaining a WSESRB review/concurrence, reference (b), noting any restrictions imposed by the Navy as part of that review/concurrence.

B. Criteria for determining whether a weapon, weapons system or munition should obtain a JSWSR in lieu of a WSESRB review are provided below:

1. All weapon and laser systems development, acquisition, and test and evaluation programs when two or more DoD Components will be using the weapon or laser system.

2. Fielded legacy systems (weapon, laser, or other appropriate system) that were not originally joint service systems, but which have become joint through multi-DoD Component use.

3. Design changes or modifications to legacy weapons that have an effect on the safety of the warhead, propulsion system, and related fuzing and ignition systems.

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**APPENDIX A: REFERENCE DOCUMENTS**

AASTP - 1	NATO Guidelines for the Storage of Ammunition and Explosives
AASTP - 5	NATO Guidelines for the Storage, maintenance and Transportation of Ammunition and Explosives on Deployed Missions or Operations
CJCSI 4360.01	Explosives Safety and Munitions Risk Management for Joint Operations Planning, Training, and Execution
DDESB TP - 15	Approved Protective Construction
DDESB TP – 16	Methodologies for Calculating Primary Fragment Characteristics
DDESB TP – 18	Minimum Qualification for Unexploded Ordnance (UXO) Technicians and Personnel
DESR 6055.09	Defense Explosives Safety Regulation Edition 1
DoDI 4140.62	Material Potentially Presenting an Explosives Hazard
DoDI 6055.16	Explosives Safety Management Program
DoDM 4145.26-M	DoD Contractors’ Safety Manual for Ammunition and Explosives
DoDM 4160.21-M	Defense Materiel Disposition Manual
DoDM 4160.28-M	Defense Demilitarization Manual
DoDM 4715.26-M	DoDM Military Munitions Rule Implementation Policy
DESR 6055.09	DoD Ammunition and Explosives Safety Standards
Deputy Secretary of Defense	Deputy Secretary of Defense, “DoD Enduring Location Master List (S)”
MCO 3571.2	Explosive Ordnance Disposal (EOD) Program
MCO P4030.19	Preparing Hazardous Materials for Military Air Shipments
MCO P4400.151	Intermediate-Level Supply Management Policy Manual
MCO P5102.1	Navy and Marine Corps Mishap and Safety Investigation Reporting and Record Keeping Manual
MCO 8010.13	Class V(W) Administration and Management Program
MCO 8011.5A	Class V(W) Ammunition Policies, Procedures and Information for Training, Programmed Testing, and Security
MCO 8015.3A	Marine Corps Class V(W) Physical Inventory Control Program (PICP)
MCO 8025.1E	Malfunction Investigation and Reporting
MCO 8020.1	Handling, Transportation, Storage, Reclassification and Disposal of Class (V) (W) Materiel
MCO 8023.3	Personnel Qualification and Certification Program for Class V Ammunition and Explosives
MCO 11240.66	Standard Licensing Policy for Operators of Military Motor Vehicles

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MIL-STD 1320	Truck Loading of Ammunition and Explosives
MIL-STD 1322	Unit Loads of Ammunition and Explosives for Domestic and Overseas Shipments
MIL-STD 1324	Palletizing Amphibious Loads
MIL-STD 1325	Railcar Loading of Hazardous Materials
MIL-STD 1386	Loading Hazardous Materials I MILVAN Containers
NAVFAC P-80	Facility Planning Criteria
NAVFAC P-307	Maintenance and Certification Management of Weight Handling Equipment
NAVSUP P-724	Conventional Ordnance Management Policy and Procedures (Volume I, Ashore and Volume II, Afloat)
NAVSUP P-801	Ammunition Unserviceable, Suspended and Limited Use
NAVSUP P-804	Stock List of Navy Ammunition Data Supplement
NAVSUP P-805	Receipt, Segregation, Storage, Issue, and Fleet Sentencing
NAVSEA OP 4	Ammunition and Explosives Safety Afloat
NAVSEA OP 5 Volume 1	Ammunition and Explosives Safety Ashore
NAVSEA OP 5 Volume 3	Ammunition and Explosives Safety Ashore For Contingencies, Combat Operations, Military Operations Other than War, and Associated Training
NAVSEA OP 2173 Vols 1 and 2	Approved Handling Equipment for Weapons and Explosives
NAVSEA OP 3565 Vols 1 and 2	Electromagnetic Radiation Hazards
NOSSAINST 8020.22	Explosives Safety Site Approval Documentation Requirements: Submittal, Review, Approval, and Oversight
SW020-AC-SAF-010	Transportation and Storage Data for Ammunition, Explosives, and Related Hazardous Materials
SW020-AD-SAF-010	Explosives Safety Accidents and Lessons Learned
SW020-AG-SAF-010	Navy Transportation Safety Manual for Ammunition, Explosives, and Related Hazardous Materials
SW023-AG-WHM-010	On-Station Movement of Ammunition and Explosives by Motor Vehicle
DTR 4500.9-R	Defense Transportation Regulations
NFPA 780	Installation of Lightning Protection Systems
29 CFR 1910	Occupational Safety and Health Standards
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities

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49 CFR	Shippers – General Requirements for Shipments and Packaging
10 USC 2710	Inventory of Unexploded Ordnance, Discarded Military Munitions and Munitions Constituents at Defense Sites (other than Operational Ranges)



**MARINE CORPS EXPLOSIVES SAFETY MANAGEMENT PROGRAM****Volume 8 Appendix B****MCO 5100.29C****5 AUG 2021****APPENDIX B: ABBREVIATIONS, ACRONYMS, AND DEFINITIONS****ABBREVIATIONS AND ACRONYMS**

AA&E	Arms Ammunition and Explosives
AAR	After Action Report
AEDA	Ammunition, Explosives, and Dangerous Articles
ASAP-X	Automated Safety Assessment Protocol Explosives
ASU	Ammunition Storage Unit
AWG	American Wire Gage
BATF	Bureau of Alcohol Tobacco and Firearms
BOS-I	Base Operating Support Integrator
BUMED	Bureau of Medicine and Surgery
C&RI	Consequence and Risk Identification
CA	Chemical Agent
CAD	Cartridge Activated Device
CALA	Combat Aircraft Loading Area
CATM	Captive Air Training Missile
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CETASM	Canine Explosive Training Aid Storage Magazine
CFR	Code of Federal Regulations
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
COMLANTFLT	Commander, US Atlantic Fleet Command
COMMARCORSYSCOM	Commander, Marine Corps Systems Command
COMPACFLT	Commander, US Pacific Fleet Command
COMUSNAVCENT	Commander, US Naval Forces Central Command
COMUSNAVEUR	Commander, US Naval Forces Europe Command
CONUS	Continental United States (United States territory, including the adjacent territorial waters, located within North America between Canada and Mexico.)
CWA	Construction Worker Authorization
DASN	Deputy Assistant Secretary of the Navy
DDA	Designated Disposition Authority
DDESB	Department of Defense Explosives Safety Board
DERP	Department of Defense Environmental Restoration Program
DLA	Defense Logistics Agency
DMM	Discarded Military Munitions
EMCON	Emissions Control
EOD	Explosive Ordnance Disposal
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ES	Exposed Site
ESD	Electrostatic Discharge

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ESI	Explosives Safety Inspection
ESMP	Explosives Safety Management
ESO	Explosives Safety Officer
ESQD	Explosives Safety Quantity-Distance
ESS	Explosives Safety Submission
ESSA	Explosives Safety Self-Assessment
ESSDR	Explosives Safety Submission Determination Request
ESSOLANT	Explosives Safety Support Office Atlantic
ESSOPAC	Explosives Safety Support Office Pacific
FUDS	Formerly Used Defense Site
GCC	Geographic Combatant Commander
GIS	Geographic Information System
GSE	Ground Support Equipment
HERO	Hazards of Electromagnetic Radiation to Ordnance
HFD	Hazardous Fragment Distance
I&L	Installation and Logistics
IA	International Agreement
IBD	Inhabited Building Distance
IDS	Intrusion Detection System
IL	Intraline Distance
IMD	Intermagazine Distance
ISSA	Inter-Service Support Agreement
JHCS	Joint Hazard Classification System
LPS	Lightning Protection System
LUC	Land Use Controls
MARCORSYSCOM	Marine Corps Systems Command
MC	Munitions Constituents
MCE	Maximum Credible Event
MDAS	Material Documented as Safe
MDEH	Material Documented as an Explosives Hazard
MEC	Munitions and Explosives of Concern
MEQ	Mission Essential Quantity
MGFD	Munitions with the Greatest Fragmentation Distance
MHE	Material handling Equipment
MHz	Megahertz
MILCON	Military Construction
MILVAN	Containerized Cargo Van
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPF	Maritime Prepositioning Force Ships
MPPEH	Material Potentially Presenting an Explosives Hazard

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MR	Munitions Rule
MRA	Mishap Risk Assessment or Munitions Response Area
MRIP	Munitions Rule Implementation Policy
MRMA	Munitions Risk Management Assessments
MRS	Munitions Response Site
MSC	Military Sealift Command
MSD	Minimum Separation Distance
MN	Multi-National
MWD	Military Working Dogs
NAR	Notice of Ammunition Reclassification
NATO	North American Treaty Organization
NATOPS	Naval Air Training and Operating Procedures Standardization
NAVAIRSYSCOM	Naval Air Systems Command
NAVFAC	Naval Facilities Engineering Command
NAVSEASYSYSCOM	Naval Sea Systems Command
NDAI	No DoD Action Indicated
NEQ	Net Explosive Quantity (in kilograms)
NEW	Net Explosives Weight (in pounds)
NEWQD	Net Explosives Weight for Quantity-Distance
NFA	No Further Action
NFESC	Naval Facilities Engineering Services Center
NFPA	National Fire Protection Association
NOSSA	Naval Safety and Security Activity
NSWC	Naval Surface Warfare Center
NSWCIHEODTD	Naval Surface Warfare Center Indian Head Explosives Ordnance Disposal Technology Division
NWP	Naval Warfare Publication
OBA	Oxygen Breathing Apparatus
OB/OD	Open Burn/Open Detonation
OCONUS	Outside Continental United States (includes Alaska and Hawaii)
OHE	Ordnance Handling Equipment
OIS	Ordnance Information System
OPM	Office of Personnel Management
OPNAV	Office of the Chief of Naval Operations
OPNAVINST	Office of the Chief of Naval Operations Instruction
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
PAD	Propellant Actuated Device
PES	Potential Explosives Site
PHS&T	Packaging, Handling, Storage, and Transportation
POL	Petroleum, Oils, and Lubricants
PPE	Personal Protective Equipment
PTR	Public Traffic Route

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QA	Quality Assurance
QC	Quality Control
QRP	Qualified Recycling Program
RAC	Risk Assessment Code
RCRA	Resource Conservation and Recovery Act
RDT&E	Research, Development, Test and Evaluation
RI/FS	Remedial Investigation/Feasibility Study
RM	Risk Management
RORO	Roll on-Roll Off
RP	Red Phosphorous
RSS&I	Receipt, Storage, Segregation, and Inspection
RSL	Ready Service Locker
RSP	Render Safe Procedure
RUC	Routing Unit Identification Code
SAFER	Safety Assessment for Explosives Risk
SAR	Site Approval Request
SCBA	Self-Contained Breathing Apparatus
SCC	Service Component Commander
SCG	Storage Compatibility Group
SDR	Supply Discrepancy Report
SOFA	Status of Forces Agreement
SOLAS	Safety of Life at Sea
SOP	Standard Operating Procedures
SPAWARSSYSCOM	Space and Naval Warfare Systems Command
SRC	Security Risk Code
SUXOS	Senior Unexploded Ordnance Supervisor
SWL	Safe Working Load
SWOP	Special Weapons Ordnance Publication
T&E	Test and Evaluation
TAV	Technical Assist Visit
TCRA	Time Critical Removal Action
TEU	Technical Escort Unit
TSD	Team Separation Distance
UIC	Unit Identification Code
USNS	United States Navy Ship (civilian manned)
UXO	Unexploded Ordnance
UXOSO	Unexploded Ordnance Safety Officer
WMM	Waste Military Munitions
WSESRB	Weapon System Explosives Safety Review Board

**DEFINITIONS**

Aboveground Magazine - Any open area or any structure not meeting the requirements of an ECM that is used for explosives storage.

Aboveground Storage - Storage in magazines with or without earth cover or in open stacks at surface level.

Accident - Any unplanned act or event which results in damage to property, material, equipment or cargo, or personnel injury or death when not the result of enemy action.

Administration Area - The area in which administrative buildings functioning for the installation as a whole are located. This excludes those offices located near and directly serving components of explosives storage and operating areas.

Ammunition Lot - A quantity of ammunition which has been assembled from uniform components under similar conditions and which is expected to function in a uniform manner. Each ammunition lot is assigned a number.

Ammunition Storage Unit - All types of explosives storage magazines including outdoor, indoor, open storage areas, sheds, bunkers, and earth-covered and aboveground magazines.

Anomaly Avoidance - Techniques employed by EOD or UXO-qualified personnel at sites known or suspected to contain MEC in order to avoid contact with potential surface or subsurface explosive hazards.

Auxiliary Building - Any building accessory to or maintained and operated to serve an operating building, line, plant, or pier area. Explosive materials are not present in an auxiliary building. Examples: power plants and change houses, paint and solvent lockers, and similar facilities.

Barricade - An intervening barrier, natural or artificial, of type, size, and construction intended to limit the effect of an explosion on nearby buildings or exposures.

Blast Impulse - The product of the overpressure from the blast wave of an explosion and the time during which it acts at a given point (that is, the area under the positive phase of the overpressure versus time curve).

Blast Overpressure - The pressure, exceeding the ambient pressure, manifested in the shock wave of an explosion.

Bravo Flag - A red flag that flies at a facility when explosives and personnel are present.

Cargo Ammunition Ships - The following vessels, when carrying ammunition and explosives as cargo, are cargo ammunition ships:

- a. Fleet cargo ammunition ships (T-AOE, T-AKE, and AS class and maritime prepositioned ships).

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- b. Tenders (AD and AS classes).
- c. Military Sealift Command chartered ships.
- d. Any ship entering a DON controlled port.
- e. Any DON controlled ship regardless of location.
- f. Lighters and barges.

Cartridge Actuated Devices - This term collectively represents and is synonymous with cartridges, cartridge actuated devices (old meaning), aircraft detonating cords and cartridge associated hardware.

Chain of Custody - The activities and procedures taken throughout the inspection, re-inspection and documentation process to maintain positive control of MPPEH to ensure the veracity of the process used to determine the status of material as to its explosive hazard. This includes all such activities from the time of collection through final disposition.

Combat Aircraft Loading/Parking Area - Any area specifically designated for:

- a. Aircraft loading or unloading of combat configured munitions.
- b. Parking aircraft loaded with combat configured munitions.

Combatants - All DON controlled ships not classified as explosives support ships.

Commanding Officer or Officer-in-Charge - The senior officer who has overall responsibility for operations. For purposes of this manual, Commanding Generals, Installation Commanders, Officers-in-Charge, and Activity Commanders are synonymous with commanding officer. Unit commanders of battalion/squadron level or above.

Compatibility - Ammunition or explosives are considered compatible if they may be stored or transported together without significantly increasing either the probability of an accident or, for a given quantity, the magnitude of the effects of such an accident.

Conditional Exemption - An exemption from the regulatory definition of hazardous waste (and therefore from compliance with specific environmental requirements pertaining to the storage of hazardous waste) conditioned on compliance with certain criteria requirements as set forth in 40 CFR 266.205.

Construction Support - Assistance provided by EOD or UXO-qualified personnel during intrusive construction activities on real property known or suspected to contain MEC to ensure the safety of personnel or resources from any potential explosive hazards. The two categories of construction support are on-call and on-site.

Container - A general term that encompasses boxes; cartridge or powder tanks, cartons, drums, barrels, cylinders or cans; containers for long ordnance items; and cargo containers (Dromedaries, etc.) for shipments of sizeable quantities of hazardous materials. A pallet is not considered to be a container.

Deflagration - A rapid chemical reaction in which the output of heat is sufficient to enable the reaction to proceed and be accelerated without input of heat from another source. The effect of a true deflagration under confinement is an explosion.

Designated Aircraft Parking Area - An aircraft parking area that meets airfield parking criteria.

Detonation - A violent chemical reaction within a chemical compound or mechanical mixture evolving heat and pressure. A detonation is a reaction which proceeds through the reacted material toward the unreacted material at a supersonic velocity.

Deviation - For explosives safety applications, a deviation authorized by the COMMARCORSYSCOM is considered to be a departure from DON/DoD criteria, but under strictly controlled and regulated conditions based upon compelling operational need. Deviations which may be authorized by appropriate authority within the naval service are event waivers, waivers, and exemptions.

Discarded Military Munitions - Military munitions that have been abandoned without proper authority or approval. Does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of, consistent with applicable environmental laws and regulations.

Dividing Wall - A wall designed to prevent, control or delay propagation of an explosion between quantities of explosives on opposite sides of the wall.

Earth-Covered Magazine - Any earth-covered structure that meets soil cover depth and slope requirements of reference (f). ECMs have three possible structural strength designations (7-Bar, 3-Bar, or undefined). The strength of an ECMs headwall and door(s) determines its designation.

Enduring Locations - Locations listed in DoD Enduring Location Master List (S), where military munitions are present or forecasted to be present.

Engineering Controls –

- a. Regulation of facility operations through the use of prudent engineering principles; e.g., facility design, operational sequencing, equipment selection, and process limitations.
- b. The use of protective measures to reduce the minimum separation distance; e.g., sandbag, buried explosion module, during a munitions response.

Essential Personnel - Personnel whose duties require them to remain within an ESQD arc for one or more of the following reasons:

- a. Direct involvement in an ammunition and explosives operation.
- b. Normal import ship keeping duties by assigned personnel.
- c. Provision of mission-required in-port services.
- d. Provision of mission-related repairs and/or tests to in-port ships.
- e. Safe and efficient completion of the munitions response action.

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Essential personnel do not include vendors, commercial delivery vehicles (unless carrying mission-related materials), dependents, or non-DoD personnel except as categorized above.

Established Explosives Safety Program - An explosives safety program at an activity, command, or location responsible for implementing explosives safety requirements.

Event Waiver - A deviation approved on a case by case basis for a particular evolution, issued for a limited period to meet a specific readiness or operational requirement which cannot otherwise be satisfied.

Exclusion Zone - An ESQD arc established around a munitions response work area where MEC procedures are being conducted. An EZ is created by a response operation that may move within defined boundaries, can be suspended, and will be cancelled upon project completion.

Exemption - A deviation from mandatory explosives safety requirements approved for the purpose of long-term satisfaction of recurring readiness or operational requirements. Except in certain cases where authorization to purchase real estate for sufficient ESQD clearances has not been granted, where it is in the best interest of the U.S. to grant agricultural leases of encumbered land, or where a significant impairment of the defense posture of the U.S. would result, a positive program for eventual correction of the deficiency must be planned and in the process of being carried out. Exemptions are generally issued for a maximum of 5 years, but will not be granted for a period in excess of that estimated for correction of the deficiency.

Explosion Proof - When used in connection with electrical equipment, indicates that such equipment is enclosed in a case which is capable of withstanding an internal burning or explosion of elements contained inside the case and preventing ignition by spark, flash, or explosion of any outside gas or vapor surrounding the enclosure.

Explosive Equivalent - Usually expressed as a percentage of the total net weight of all reactive materials contained in the item or system compared to the same weight in TNT.

Explosive Limit - The maximum quantity of explosives or ammunition permitted at a specified site. Explosive limits are based on quantity-distance damage considerations and are expressed in net pounds of explosive, number of rounds or units, or other measuring units.

Explosive Event - Any event involving conventional ordnance, ammunition, explosives, explosive systems and devices resulting in an unintentional detonation, firing, deflagration, burning, launching of ordnance material (including all ordnance impacting off-range), leaking or spilled propellant fuels and oxidizers (less OTTO fuel II), or chemical agent release. Explosive events will be reported in an explosive event report (EER) in accordance with reference (aj), even if an ordnance system works as designed, and human error contributed to an event. This pertains to all events that do not meet the severity classification of class A, B, or C.

- a. Detonation, Deflagration, Burning, or Firing. It is an unintentional or inadvertent initiation, explosion or reaction of explosive material, component or system.



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Example: unintentional discharges of all guns, including small arms (this includes discharge of weapon in government quarters or unintentional discharges and ricochets during training on ranges), aircrew escape propulsion systems, marine location markers, flares, etc.).

- b. Inadvertent Launch. Is an unintentional launch of a weapon.
- c. Chemical Agent Release. Any unintentional or uncontrolled release of a chemical agent when:
  - 1. Damage occurs to property from contamination, or costs are incurred for decontamination.
  - 2. Individuals exhibit physiological symptoms of agent exposure.
  - 3. The quantity released to the atmosphere creates a serious potential for exposure.
- d. Propellant and Oxidizers. Is a leaking or spilled propellants (both solid and liquid), propellant fuels and oxidizers (less OTTO fuel II).

Explosive Mishap - An accident or incident involving conventional ordnance, ammunition, explosives, explosive systems and devices resulting in an unintentional detonation, firing, deflagration, burning, launching of ordnance material (including all ordnance impacting off-range), leaking or spilled propellant fuels and oxidizers (less OTTO fuel II), or chemical agent release. Accidents and incidents defined as explosive mishaps and meeting a severity classification of class A, B or C., will be reported as explosive mishap report (EMR) using the Risk Management Information (RMI) system, even if an ordnance system works as designed, and human error contributed to an incident or accident. All explosive mishaps require an immediate notification to the Naval Safety Center within 8 hours via telephonic report (757) 444-2929 or the electronic mishap reporting system (RMI). Any explosive event not meeting one of these severity classifications will be reported as an explosive event report (EER) per reference (aj).

- a. Detonation, Deflagration, Burning, or Firing. It is an unintentional or inadvertent initiation, explosion or reaction of explosive material, component or system.

Example: Accidental discharges of all guns, including small arms (this includes discharge of weapon in government quarters or accidental discharges and ricochets during training on ranges), aircrew escape propulsion systems, marine location markers, flares, etc).

- b. Inadvertent Launch. An unintentional launch of a weapon.
- c. Chemical Agent Release. Any unintentional or uncontrolled release of a chemical agent when:
  - 1. Damage occurs to property from contamination, or costs are incurred for decontamination.
  - 2. Individuals exhibit physiological symptoms of agent exposure.
  - 3. The quantity released to the atmosphere creates a serious potential for exposure.
- d. Propellant and Oxidizers. Is a leaking or spilled propellants (both solid and liquid), propellant fuels and oxidizers (less OTTO fuel II).

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- e. All Ordnance Impacting Off-Range. This includes all small arm ranges where ricochets cause bullets to impact outside surface danger zones.

Explosives Safety Distance - The prescribed minimum distance between the hazard class divisions and quantities (net weight) of explosives, and between such explosives and specified exposures (inhabited buildings, public highways, public railways, petroleum tanks, aircraft, etc.) affording an acceptable degree of protection and safety.

Explosives (or Munitions) Emergency Response - An immediate response by explosives and munitions emergency response personnel to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency.

Explosives Safety Quantity Distance Arcs - The prescribed minimum distance between sites storing or handling Hazard Class 1 explosive material and specified exposures (i.e., inhabited buildings, public highways, public railways, other storage or handling facilities, ships, aircraft, etc.) to afford an acceptable degree of protection and safety to the specified exposure. The size of the ESQD arc is proportional to the NEW present.

Explosives Safety Site Approval - Authorization obtained prior to beginning new construction, modifying existing structures, or conducting munitions response actions that create new or impact existing ESQD arcs at DON shore activities where ammunition and explosives are handled, processed, stored, treated, or on a defense site that is known or suspected to contain MEC.

Exposed Site - A location exposed to the potentially hazardous effect (blast, fragments, debris, and heat flux) from an explosion at a potential explosion site (PES). The distance to a PES and the level of protection required for an ES determine the quantity of ammunition/explosives permitted in a PES.

Field Office - An office in which local administrative functions are performed for one area or line as contrasted with the main administrative buildings.

Hazardous Fragment - A hazardous fragment is one having an impact energy of 58 ft/lb or greater.

Hazardous Fragment Density - A density of hazardous fragments exceeding one per 600 square feet.

Holding Yard - A location for groups of railcars, trucks or trailers used to hold ammunition, explosives and other hazardous materials for interim periods prior to storage or shipment.

Host Activity - For the purposes of explosives safety, the host activity is the activity that is the property holder of a Navy or Marine Corps activity whose mission directly involves or supports ammunition and/or explosives operations.

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Inert Ammunition - Ammunition and components that contain no explosive material. Inert ammunition and components include:

- a. Ammunition and components with all explosive material removed and replaced with inert material.
- b. Empty ammunition or components.
- c. Ammunition or components that were manufactured with inert material in place of all explosive material.

Inhabited Building(s) - A building or structure, other than an operating building, occupied in whole or part as a habitation for human beings, or a building or structure where people are accustomed to assemble.

Inhabited Building Distance - The minimum distance permitted between an inhabited building and an ammunition or explosives location for the protection of administration, quarters, industrial and other similar areas within a naval shore establishment. Inhabited building distances shall be provided between ammunition or explosives locations and the boundary of a shore establishment of the nearest point beyond the boundary where such inhabited structures could be erected.

Inspection Station - A designated location at which trucks and railcars containing ammunition and explosives are inspected.

Interchange Yard - An area set aside for the exchange of railcars or vehicles between the carrier and establishment.

Intraline Distance - The distance to be maintained between any two operating buildings and sites within an operating line, at least one of which contains or is designed to contain explosives, except that the distance from a service magazine for the line to the nearest operating building shall be not less than the intraline distance required for the quantity of explosives contained in the service magazine.

K-Factor - The factor in the formulas  $D=KW$  (English units) or  $D=KQ$  (metric units) which is used in quantity-distance determinations. The K-factor is a constant and represents the degree of damage that is acceptable. Typical constants used in English units are 1.25, 4.5, 9, 11, 18, 24, 30, 40, and 50; the lower figures indicating the acceptance of a greater amount of damage. The value of K in English units is approximately 2.5 times its value in metric units.

Land Use Control - A physical, legal, or administrative mechanism that restricts the use of, or limits access to, real property, to manage risks to human health and the environment.

Loading Docks - Facilities, structures or paved areas designed and installed for transferring ammunition and explosives between any two modes of transportation.

Magazine - Any building or structure, except an operating building, used for the storage of ammunition and explosives.

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Magazine Distance - The minimum distance permitted between any two magazines depending on the type of magazine and the Class/Division and quantity of explosives and ammunition involved.

Mass-Detonating Explosives - High explosives, black powder, certain propellants, certain pyrotechnics, and other similar explosives which can be expected to explode virtually instantaneously when a small portion detonates.

Material Documented as an Explosive Hazard - MPPEH that cannot be documented as MDAS, that has been assessed and documented as to the maximum explosive hazards the material is known or suspected to present, and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH.

Material Documented as Safe - MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH.

Material Potentially Presenting an Explosive Hazard - Material owned or controlled by the Department of Defense that, prior to determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris) or potentially contains a high enough concentration of explosives that the material presents an explosive hazard.

Maximum Credible Event - The maximum credible event from a hypothesized accidental explosion, fire, or toxic chemical agent release (with explosives contribution) is the worst single event that is likely to occur from a given quantity and disposition of ammunition and explosives.

Maximum Fragment Distance - The measured or calculated maximum distance to which any fragment from the cylindrical portion of an ammunition and explosives case is expected to be thrown by the design mode detonation of a single ammunition and explosives item. This distance does not address fragments produced by sections of nose plugs, base plates, boattails, and/or lugs.

Military Munitions – An environmental term that includes all ammunition products and components produced or used by or for the DoD for national defense and security, including military munitions under the control of the Department of Defense, the U.S. Coast Guard, the U.S. Department of Energy, and National Guard personnel. Military munitions do not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof. However, the term does include non-nuclear components of nuclear devices, managed under DOE's nuclear weapons program, after all required sanitizing operations under the Atomic Energy Act of 1954, as amended, have been completed. See 40 CFR 260.10.

Military Munitions Burial Site - A site, regardless of location, where military munitions were intentionally buried, with the intent to abandon or discard. This term includes burial sites used to dispose of military munitions in a manner consistent with applicable environmental laws and

regulations or the national practice at the time of burial. It does not include sites where munitions were intentionally covered with earth during authorized destruction by detonation, or where in-situ capping is implemented as an engineered remedy under an authorized response action.

Mission Essential Quantities - The amount of explosive material needed to meet mission requirements, when not limited by net explosive weight.

Munition with the Greatest Fragmentation Distance - The munition with the greatest fragment distance that is reasonably expected (based on research or characterization) to be encountered in any particular area.

Munitions and Explosives of Concern - Distinguishes specific categories of military munitions that may pose unique explosives safety hazard/risks and means UXO, DMM or MC's present in high enough concentrations to pose an explosive hazard.

Munitions Constituents - Any materials originating from UXO, DMM, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions.

Munitions Debris - Remnants of munitions (such as fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization, or disposal.

Munitions Response - Response actions, including investigation, removal actions and remedial actions to address the explosives safety hazards and human health or environmental risks presented by UXO, DMM, or MC.

Munitions Response Area - Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. A munitions response area is comprised of one or more munitions response sites.

Munitions Response Site - A discrete location within a MRA that is known to require a munitions response.

Non-Enduring Locations - Overseas locations, other than enduring locations listed in DoD Enduring Location Master List (S).

On-Call Construction Support - Construction support provided by EOD or UXO-qualified personnel who are called to the site on an as-needed basis. On-call construction support is appropriate only where the probability of encountering MEC has been determined to be low using risk/hazard assessment methodology.

On-Site Construction Support - Construction support provided by personnel who are continuously present at the site during intrusive activities. On-site construction support is appropriate where the probability of encountering MEC has been determined to be moderate to high using risk/hazard assessment methodology.

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Open Burn - An open-air combustion process by which munitions are destroyed to eliminate their inherent explosive hazards.

Open Detonation - An open-air process used for the destruction of munitions.

Operating Building - Any site, facility, or structure, except a magazine, in which operations associated with ammunition and explosives are conducted.

Operating Line - A group of buildings, facilities, or related work stations so arranged as to permit performance of the consecutive steps in the manufacture of an explosive; or in the loading, assembly, modification and maintenance of ammunition.

Operational Necessity - A situation of such compelling urgency that failure to grant a deviation from established explosives safety criteria will have a harmful impact on mission readiness.

Operational Range - A range that is under the jurisdiction, custody, or control of the Secretary of Defense and is used for range activities; or although not currently being used for range activities, that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities. The term "range" when used in the geographical sense, means a designated land or water area that is set aside, managed and used for range activities of the Department of Defense. This term includes the following: firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access, and exclusionary areas; and airspace areas designated for military use in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration.

Ordnance Handling Equipment - Specially designed mechanical equipment used for assembling, disassembling, handling, transporting, lifting, positioning, rotating, or containing conventional weapons, ammunition, explosives, and related components.

Pier - A landing place or platform built into the water, perpendicular or oblique to the shore, for the berthing of vessels.

Portable Magazine - Commercially built, pre-engineered magazines frequently used as ready service lockers.

Potential Explosion Site - The location of a quantity of explosives that will create a blast, fragment, thermal, and/or debris hazard in event of an accidental explosion of its contents.

Production Building - Any building or structure, except a magazine, in which ammunition and explosives are manufactured, renovated, reconditioned, reclaimed or demilitarized.

Prohibited Area - A specifically designated area at airfields or heliports in which all ammunition and explosives facilities are prohibited.

Public Highway - Any street, road or highway not under DoD custody used by the general public for any type of vehicular traffic.

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Public Highway Distance - The minimum distance permitted between a public highway and a site where ammunition and explosives are located.

Public Traffic Route - Any public street, road, highway, navigable stream, or passenger railroad (includes roads on a military reservation that are used routinely by the general public for through traffic).

Qualified Receiver of MDEH - DoD and commercial entities (i.e., activities, units, businesses) that have personnel who are trained and experienced in the safe handling of the MDEH they are authorized, licensed or otherwise permitted to receive, manage, and conduct disposition and are capable of attaining a DoD-approved site plan.

Qualified Recycling Program - Organized operations that require concerted efforts to divert or recover scrap or waste, as well as efforts to identify, segregate, and maintain the integrity of the recyclable materials in order to maintain or enhance their marketability.

Quality Assurance - An integrated system of management activities involving planning, implementing, assessing, reporting, and quality improvement to ensure a process, item, or service is of the type and quality needed to meet project requirements.

Quality Control - The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements.

Quantity-Distance - The quantity of explosives material and distance separation relationships which provide defined types of protection. These relationships are based on levels of risk considered acceptable for the stipulated exposures and are tabulated in the appropriate quantity-distance tables. Separation distances are not absolute safe distances but are relative protective or safe distances. Distances greater than those shown in the table should be used wherever practicable.

Range Activities - Research, development, testing, and evaluation of military munitions, other ordnance, and weapons systems; and the training of members of the armed forces in the use and handling of military munitions, other ordnance, and weapons systems.

Range Debris - Debris, other than munitions debris, collected from operational ranges or from former ranges (such as, targets).

Ready Service Locker - A locker used for the storage of small quantities of certain pyrotechnics, small arms ammunition, and minor hazard items of ammunition.

Ready Service Magazine - A magazine located in the magazine area (or near the weapon or area to be served aboard ship) and used for the temporary storage of restricted amounts of ammunition for emergency use; or in an operating line for limited amounts of explosives or components used in the production of ammunition.

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Real Property - Land and/or facilities (including installed equipment) owned by or under the control of the DON or land where the DON is primarily responsible for conducting response actions.

Remediation - The removal of pollutants or contaminants from environmental media such as soil, sediments, or water.

Roll-on/Roll-off - The transfer of ammunition and explosives on wheeled conveyance into or from a waterborne conveyance (e.g., barge, boat), such that the conveyance remains in a transportation mode through a transshipment point, with no lifting of the ammunition or conveyance.

Safe Haven - An area or location specifically approved by the CO for emergency parking of commercial vehicles carrying military and military-sponsored shipments of explosives, hazardous materials, or other sensitive items endangered by civil disturbance or natural disaster.

Safe Working Load - The maximum static load (in pounds or kilograms) which can be lifted or handled by a piece of handling equipment such as slings, forklift trucks, beams, and similar handling equipment.

Scuttling Site - An area of water specifically designated for positioning a ship for flooding or sinking under emergency situations.

Secretarial Certification - Issued at the Secretary of the Navy level when a construction project cannot meet explosives safety criteria but must be constructed due to operational necessity. This form of certification is issued in lieu of a conventional site approval.

Secure Explosives Holding Area - An area designated for the temporary parking of commercial carriers' motor vehicles transporting DoD-owned AA&E.

Segregation Facility - A building or series of buildings where fleet return material is screened and grouped by type and physical condition.

Sensitivity Group - A category used to describe the susceptibility of Hazard Class/Division 1.1 and 1.2 military munitions to sympathetic detonation for the purpose of storage within a high performance magazine, or where ARMCO, Inc. revetments or substantial dividing walls are used to reduce the maximum credible event.

Service Magazine - A building of an operating line used for the intermediate storage of ammunition and explosives.

Small Arms Ammunition - Ammunition, without projectiles that contain explosives (other than tracers), that is .50 caliber or smaller, or for shotguns.

Stability - The ability of any ammunition or explosive to withstand adverse conditions and deterioration while in storage or use.



Standard Operating Procedure - A document which outlines step-by-step procedures and the associated hazards for every explosives operation not exempted.

Storage Compatibility Group - The compatibility group for ammunition, explosives and/or other hazardous materials which can be stored together without significantly increasing the probability of accident or, for a given quantity, the magnitude of the effects of such an accident.

Storehouses - Buildings assigned for the storage of inert ammunition components or ammunition details such as empty (unprimed) cartridge cases, empty (inert) projectiles, tanks, ammunition boxes, wads, plugs, raw silk, bomb fins, and other nonhazardous supplies and equipment.

Substantial Dividing Wall - An interior wall designed to prevent simultaneous detonation of explosives on opposite sides of the wall. However, such walls may not prevent propagation (depending on quantities and types of explosives involved).

Surveillance - An activity process to assure that ammunition, explosives, and energetic material received, stored, shipped or manufactured are safe, controlled, and disposed of when unsafe.

Suspect Cargo Site - A designated location for placing trucks and railcars containing ammunition or explosives that are suspected of being in a hazardous condition.

Team Separation Distance - The distance that munitions response teams must be separated from each other during intrusive operations.

Time Critical Removal Action - Removal actions where a removal is appropriate, and that less than six months exists before on-site removal activity must begin.

TNT Equivalent - Considering the peak overpressure produced by detonation of a given weight of TNT as 100 percent, the TNT equivalency of an explosive is the amount of overpressure produced by detonation of an identical quantity of propellant under comparable conditions, expressed as a percentage.

Toxicity - The property possessed by a material which enables it to injure the physiological mechanism of an organism by chemical means, with the maximum effect being death.

Transfer Depot - A permanent facility used to transfer ammunition and explosive between automotive vehicles and railcars for further shipment, or for delivery to a storage magazine or loading building.

Truck Holding Yard - A location where trucks containing ammunition or explosives are held for interim periods of time prior to storage or shipment.

Unbarricaded - No effective barricade between magazines, operating buildings, stacks, or other buildings opposed one to another.

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Underground Storage - Storage in a cavern or chamber storage site provided that, in case of an accidental explosion in the storage site, the overhead cover does not fail and all exterior hazardous effects are limited to blast and debris from the entrance.

Unexploded Ordnance - Military munitions that (a) have been primed, fused, armed, or otherwise prepared for action; (b) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or materiel; and (c) remain unexploded either by malfunction, design, or any other cause.

Unserviceable Ammunition - Ammunition reclassified to unserviceable because of a change in expected service or shelf life, or due to deterioration or damage.

UXO-Qualified Personnel - Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, or Senior UXO Supervisor.

UXO Technicians - Personnel who are qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations, contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III.

Waiver - Written authority which provides a temporary exception and permits deviation from a mandatory requirement of this manual. It is generally granted for short periods of time pending cancellation as a result of termination of scheduled work commitments or correction of the waived conditions.

Waste Military Munition - a military munition is a “waste” if it is either a solid or hazardous waste under regulations or defined as a waste under the Navy or Marine Corps activity’s formal policies and procedures.

**APPENDIX C**

**EXPLOSIVE SAFETY SUBMISSION (ESS) REVIEW GUIDE**

The guide reflects the required ESS format.

1. Background. This appendix provides the required format and serves as a guide in the development of an ESS.

1.1. Project Manager.

Provide the name and contact information of the project manager.

1.2. Site Identifier and Description.

Provide the current and/or former name(s) or other unique identifier(s) for the site. Identify the size (in acres) of each site.

If the site is divided into areas of concern or parcels, identify those as well.

Indicate the status of the affected MRS, e.g., active installation, transferring or transferred under BRAC.

1.3. Regional Map(s).

Include a regional map or maps depicting the location of the planned munitions response relative to the activity or installation and region.

Map scale is not critical.

Do not include this map in Appendix C, of the submission, which is reserved for ESQD maps.

1.4. Scope of Munitions Response.

1.4.1. Summarize the overall scope of the proposed actions, including intermediate and future goals or project objectives. Do not include a description of actions which will be described later in Sections 5 or 6 of the submission.

1.4.2. Identify the current, determined, or reasonably anticipated future land use of the site. If multiple proposed actions or land uses will be occurring within the site, identify significant differences and respective timeframes.

1.4.3. Include a brief description of any construction or other activities taking place on the site concurrent with the proposed munitions response.

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1.5. History of Munitions Use. Summarize the site history and/or background concerning munitions use, explaining why MEC and/or MPPEH are known or suspected to be present in the site. Identify the source documents.

1.6. Previous Studies of Extent of MEC/MPPEH Contamination. Summarize the conclusions drawn from previous reports of studies, investigations, characterizations, and/or surveys of MEC and/or MPPEH contamination.

1.7. Justification for No Further Department of Defense Action Indicated/No Further Action Decision. Provide a thorough justification supporting the NFA decision. Include excerpts from documents showing regulatory concurrence with NFA decision.

2. Project Dates. Provide the date on which munitions response activities are scheduled to begin. Indicate the potential consequence, if any, should DDESB approval not be obtained by the anticipated start date. Provide an estimated project completion date.

3. Types of MEC and/or MPPEH

3.1. Types and Quantities of MEC and/or MPPEH. Identify the types and quantities of MEC and/or MPPEH known or suspected to be present.

3.2. Munition with the Greatest Fragmentation Distance (MGFD).

3.2.1. Select from among the known or suspected MEC and/or MPPEH known, the munition which has the greatest fragmentation distance. This will be the primary MGFD(s) for the site. If one known munition item has a larger hazardous fragment distance, while another munition item has a larger maximum fragment distance, both must be identified as primary MGFDs (Primary-1 and Primary-2).

3.2.2. A minimum of one contingency MGFD can also be identified to reduce the potential for work stoppage. Selection of the contingency MGFD may be based on anecdotal evidence suggesting that a MEC and/or MPPEH item with a larger MGFD may be present at the site.

Greatest fragmentation distance sources of information for both the primary and contingency MGFDs, in order of preference, are: (1) the latest DDESB Technical Paper (TP) 16 Fragmentation Data Review Form; or (2) DDESB TP-16 Primary Fragment Range Generic Equations Calculator (GEQ).

Fragmentation Data Review Forms and GEQ printouts for MEC and/or MPPEH listed in Table 3-1, MGFD and Contingency MGFD (EXAMPLE), shall be included in Appendix B of the submission.

Identify the primary and contingency MGFDs in a table, an example of which is shown in Table 3-1.

Ensure that each MGFD identified in this table is included in Table 6-1, Exclusion Zones for Munitions Response Sites. Identify source documents in table notes.

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When the ESS covers multiple MRSs, create separate primary and contingency MGFD tables for each site.

Table 3-1: MGFD and Contingency MGFD (EXAMPLE)

MGFD type	Munition item	HFD (ft)	MFD-H (ft)
Primary-1	20-mm Mk I HEI projectile (a)	73(c)	645 (c)
Primary-2	20-mm M97 HEI projectile (a)	66 (c)	651 (c)
Contingency-1	37-mm M63 HE projectile (b)	118 (c)	1,044 (c)
Contingency-2	3-in/50 Mk 27 projectile (b)	180 (c)	1,823 (c)

Table notes:

- a. The RI Report could not positively identify the specific 20-mm projectiles found (ABC, 2010). Therefore, two common 20-mm projectiles are identified as Primary MGFDs.
- b. From interviews included in PA Report (XYZ, 2004).
- c. From Fragmentation Data Review Form (DDESB, 2012).

If while executing a munitions response, a MEC item is discovered which has a greater MFDH, HFD, or K328 distance than the ESS-approved MGFD, all operations will be halted and the project manager will notify COMMARCORSYSCOM for guidance.

If the approved ESS included:

Only a Primary MGFD; operations will resume only after the amended ESS is approved and all safeguards associated with the newly selected MGFD are in place. The change in MGFD will be documented in the AAR.

Both a Primary MGFD and one or more contingency MGFDs; for a munition falling between the primary and contingency MGFD, the project manager will notify COMMARCORSYSCOM of the new MGFD and verify that explosives safety protections required by the munition item found, (the first contingency, or next contingency MGFD) have been implemented.

Any munition resulting in greater fragmentation hazards than the contingency MGFD will result in all munitions response activities being halted until an ESS Amendment can be approved.

3.3. Maximum Credible Event (MCE). At a site where only bulk explosives or non-munition items are known or suspected to be present, the MCE will determine the appropriate ESQD arcs and EZs. The MCE is determined by using the maximum amount of explosives allowed to be present.

4. MEC and/or MPPEH Migration. Describe naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, wave action) that could cause the migration or exposure of MEC and/or MPPEH, and all procedures for monitoring and managing such. Identify the frost line depth. Describe controls which will be in place for MEC and/or MPPEH left above the frost line, but below the proposed removal depth.

5. Detection and Positioning Technologies. Since the detection and positioning technologies to be employed directly impact the overall effectiveness of the response actions and the residual explosives safety hazards, describe each.

5.1. Detection Equipment, Method, and Standards.

Summarize the techniques and equipment which will be used to detect subsurface MEC and/or MPPEH.

When describing the detection methods, include the rationale used to select them.

Address limitations and mitigating actions, if any, e.g., equipment, terrain, and soil type. Identify the performance standards.

Include any contractual or regulatory standards that are being imposed.

5.1.1. Summarize methods used to establish or validate the performance standards, e.g., use of industry standard objects (ISOs) emplaced in an instrument verification strip (IVS).

If an IVS is used, specify what ISOs were buried and at what depths.

If ISOs were used in an IVS, there must be a corresponding discussion in Section 7.1, which addresses the use of ISOs as blind seeds used as part of the Geophysical System Verification (GSV) program.

5.1.2. If advanced anomaly classification technologies are to be used, explain what methods will be used to establish or validate their expected performance.

Affirm that the same detection technologies are being used to acquire and reacquire anomalies.

5.1.3. To assure compliance with the NAVSEA Hazards of Electromagnetic Radiation to Ordnance (HERO) program, identify the extent to which radio frequency emissions from the detectors will affect known or suspected MEC items which have electromagnetically-susceptible initiators or fuzes. Note: since magnetometers and gradiometers are passive devices, they do not transmit an energy field and need not be HERO certified.

5.1.4. Identify the positioning system to be used and the methods by which it will be employed. Include any contractual or regulatory positioning system standards that are being imposed. This information is not required for construction support unless the project calls for reacquisition of anomalies.

5.2. Equipment Checkout. Describe daily checkout procedures for each critical piece of equipment, e.g., detectors or navigational equipment.

5.3. Data Collection and Storage. Summarize the various processes (e.g., hardware, software, and storage media) which will be employed to collect, process, and archive data amassed during the response action. This information is not required for construction support unless the project calls for reacquisition of anomalies.

## 6. Response Actions

### 6.1. Response Technique.

Identify the overall munitions response techniques being proposed (e.g., surface removal, excavation, LUCs). If multiple techniques will be employed, describe each in terms of who is doing it, and how and when it is to be done.

Provide details regarding vegetation reduction, if being performed. Describe the equipment and processes to be employed. Identify the measures which will be taken to protect vegetation reduction operators from the explosive and non-explosive hazards associated with the operation.

6.1.1. If a mechanized MEC processing operation is being proposed, describe the equipment and operation.

6.1.1.1. If low input mechanized operations are being proposed provide justification for the low-input categorization.

6.1.1.2. Describe the types of protections, including engineering controls, which will be employed to defeat hazardous fragments and protect essential personnel.

6.1.1.3. Shield thickness and barricade design shall be based on the MGF and approved on a case-by-case basis.

6.1.1.4. Describe the types of blast overpressure protections, including personnel protective measures and engineering controls, which will be employed to reduce arcs or reduce minimum separation distances. Include the requirement for double hearing protection if the operator distance is K18 or less.

6.1.2. Describe the processes by which UXO technicians intrusively investigate and recover MEC and/or MPPEH.

Describe how recovered MEC and/or MPPEH will be hazard classified in accordance with reference (f).

#### 6.1.3. MPPEH Collection Points

Collection Point explosive arcs within the boundary of the site and separated from other collection points by ILD do not require specific siting.

Collection Points where the explosive arcs cross over the MRS boundary require specific site approval.

Collection Points will be separated from intentional detonation locations by the HFD of the MGFD in order to prevent propagation. If engineering controls are used, the HFD will be the expected sandbag throw distance.

6.1.4. Discuss use of munitions handling equipment and how compliance with either OP 5 Volume 1, or the contractor's safety standard, is to be met.

#### 6.2. Exclusion Zones

Identify EZs for the primary and contingency MGFDs as shown in example Table 6-1.

Include a separate EZ table (6-1.1, 6-1.2, etc.) for each site.

Calculate blast overpressure for non-fragmenting items using the appropriate K-factor.

EZs will be shown graphically on maps in Appendix C of the submission.

Identify source documents in table notes using an abbreviated citation such as "(DDESB, 2012)", with complete citations included in Section 13.

Fragmentation Data Review Forms and GEQ printouts for MEC and/or MPPEH listed in Table 6-1 shall be included in Appendix B of the submission.



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Table 6-1: EZs for MRS

Item		Fragmentation		Blast			
MGFD	NEW	HFD	MGD	K328	K40	K24	K18
20-mm MK I HEI Projectile	0.27 (b)	73 (b)	645 (b)	98 (b)	12 (b)	7 (b)	5 (b)
20-mm M97 I HEI Projectile (a)	0.18 (b)	66 (b)	651 (b)	86 (b)	11 (b)	6 (b)	5 (b)
37-mm M63 HE Projectile (b)	0.085	118 (b)	1,044 (b)	144 (b)	18 (b)	11 (b)	8 (b)

Table notes:

- a. TNT equivalent weight.
- b. From Fragmentation Data Review Form (DDESB, 2012).

6.2.1. Identify by site the operation(s) to be conducted.

Characterize each operation as having the potential for either an unintentional or intentional detonation, including the collection point (CP).

Identify all exposed sites.

Identify the basis and size of the ESQD arcs. ESQD arcs shall be shown on ESQD maps in Appendix C of the submission. Place all of this information in a Controlling EZ table such as example Table 6-2, Controlling EZs for MRS.

Include a separate controlling EZ table for each site.

Only identify in table notes those data sources which were not previously identified in Table 6-1.

Affirm in the Section 6.2 narrative that the selected K18 distances are used only when essential personnel wear hearing protection which provides  $\geq 9$  decibel attenuation.

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Table 6-2: Controlling EZs for MRS

Operation	Sited AS	ES	Basis	Notes
Manual Operations	Unintentional Detonation	UXO teams	K40 of MGFD	Excavating with hand tools
Manual Operations	Unintentional Detonation	Public and non-essential personnel	HFD of the MGFD	
Mechanized (low input operations)	Unintentional Detonation	Essential Personnel	K24 of the MGFD	Excavating with an excavator and mechanically screening the soil
Mechanized (low input operations)	Unintentional Detonation	Public and non-essential personnel	HFD or K40 of the MGFD	
Collection Point	Unintentional Detonation	Explosive Operations	HFD of the MGFD	Maximum NEW where K40 does not exceed HFD of the MGFD
Collection Point	Unintentional Detonation	Other Collection Points	K11 of other collection points	
Collection Point	Unintentional Detonation	Intrusive Operations	IMD of the MGFD	IMD from intrusive operation to collection point
Detonation	Intentional Detonation	Public and all personnel	MFD of the MGFD	
Portable Magazine	Above Ground Magazine	Non-essential personnel in structures	IBD	OP 5 Table 7-9
Portable Magazine	Above Ground Magazine	Non-essential personnel in the open	PTR	OP 5 Table 7-9

6.2.2. Potential Explosion Sites (PESs).

Table 6-3 is used to identify any magazines or explosives operating buildings that encumber any part of the site.

If the project contains multiple sites and multiple PES encumbrances, then add a column identifying which sites are encumbered by which PESs. Alternately, include a separate table (6-3.1, 6-3.2, etc.) for each site.

Use the same source document citation protocol described in paragraphs 6.2.1 and 6.2.2.

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Table 6-3: Potential Explosion Sites

PES Bldg/ Area	PES Type/ Operation	Closest Distance to Site (ft)	IL/K18 From PES (ft)	PES explosives limits by class/division (c/d) (lbs)					
				1.1	1.2.1 (MCE)	1.2.2	1.2.3 (MCE)	1.3	1.4

6.2.3. Exclusion Zone Control.

Describe what will be used as entry control points (ECP), e.g., barricade, and where they will set up.

Identify the contact information to be included on each ECP.

Note that all ECPs must be depicted on the ESQD maps.

If a waterway is encumbered by an ESQD arc, identify how and where spotters will be used to ensure operations stop if the EZ is compromised.

6.2.4. Exclusion Zone Access Protocols.

Access to EZs is limited to personnel essential to the operation being conducted.

Under specific conditions, with the concurrence of the project manager, authorized visitors may be granted access to the EZ when operations are being conducted.

In addition to general MRS access requirements, formal written procedures addressing EZ access must be developed as part of the ESS.

The UXOSO is responsible for conducting a risk management (RM) assessment in accordance with reference (k) prior to allowing authorized visitors access to the EZ during munitions response operations.

The UXOSO must determine the maximum number of personnel (essential personnel and authorized visitors) that can be in the EZ at one time.

The ratio of UXO-qualified escorts to visitors will be determined by the UXOSO based on this site-specific operational risk analysis.

Based on the risk posed by the munitions response operation underway, the UXOSO may determine that access to the EZ is unsafe for visitors. However, every effort should be made to accommodate the authorized visitor's needs.

A request for authorization will be provided that includes:

Names of the individual requesting access.

Emergency contact information.

Purpose of visit.

Task(s) to be performed.

Rationale for EZ access.

Personnel requesting access must submit their request to the project manager and UXOSO at least ten working days prior to the proposed date of the site visit.

Prior to entry, all authorized visitors must receive a site-specific safety briefing describing the specific hazards and safety procedures to be followed within the EZ for operations underway that work day.

Each authorized visitor must acknowledge receipt of this briefing in writing.

Authorized visitors must be escorted at all times by a UXO-qualified person assigned to the project.

Any authorized visitor that violates the established safety procedures will be immediately escorted out of the EZ and/or site.

Other requirements, such as Occupational Safety and Health Administration (OSHA), may also apply.

6.3. MEC and/or MPPEH hazard classification, movement, transportation, and storage. Describe separately how MEC and/or MPPEH items will be moved, transported, and stored.

6.3.1. Hazard Classification. Affirm that all recovered MEC and/or MPPEH will be managed as C/D 1.1 unless otherwise classified by NOSSA (N85).

6.3.2. Movement

Describe the decision tree used by the SUXOS and the UXOSO to determine whether MEC and/or MPPEH are unsafe or safe to move to the designated collection point or storage location.

State that MEC safe-to-move decisions must be documented in writing prior to movement.

6.3.3. Transportation.

Describe how recovered MEC and/or MPPEH items will be transported, both on and off site.

Any MEC and/or MPPEH believed to pose an explosive hazard must be certified as material documented as an explosive hazard (MDEH) prior to transport.

For MDEH to be transported off-site for storage or treatment, affirm that an EOD technician from the responding EOD unit, a UXO contractor, UXO Technician III (or higher), or other designated technically qualified and certified person will certify the items as safe to transport prior to being offered for shipment per reference (f), Table 14-1.

When regulations conflict, DOT regulations shall apply and the originator of the conflicting regulation should be notified immediately.

#### 6.3.4. Storage

Describe how and where recovered MEC and/or MPPEH items will be held and/or stored.

Describe how and where donor charges will be stored.

Describe how just-in-time or on-demand donor charges will be delivered to the site in lieu of storage.

#### 6.4. MEC and/or MPPEH Disposition Processes

Process used to assess and document MPPEH as either Material Documented as Safe (MDAS) or MDEH.

MPPEH that cannot be certified as MDAS must be certified as MDEH prior to leaving the site.

Address the processes by which the material's explosives safety status is assessed and documented and its chain of custody is maintained.

For MDAS, identify how the MDAS will be demilitarized and recycled and affirm that the recycler will provide the UXO contractor with a certificate of destruction.

For MEC, describe the use of a planned or established on-site open burn/open detonation (OB/OD) area to treat MEC recovered during a munitions response.

If MEC or MDEH is being shipped off site, identify the location (military or civilian) to which the material is to be transported and affirm that it is DDESB site-approved.

The explosives status of any MEC leaving the site must be properly assessed and documented.

All items leaving the munitions response site are considered solid waste and must comply with applicable laws and regulations governing solid waste.

6.4.1. Non-Munitions Debris. Describe the processes and procedures which will be implemented to prevent it from being commingled with MPPEH, MDAS, and MDEH.

6.4.2. Explosively-Contaminated Soil.

For soil contaminated with MC above explosive thresholds, address methods used to reduce explosives concentrations to a non-reactive level or to reduce explosive hazards.

For screened soil once contaminated with MEC and/or MPPEH (including small arms ammunition) being shipped off site, describe the clean-soil certification process and associated documentation.

6.4.3. Contaminated Buildings. Identify and describe processes being proposed to disassemble and/or demolish explosively-contaminated buildings and installed equipment.

6.4.4. Risk Management (RM). All operations undertaken by or for the Marine Corps must incorporate RM principles into all phases of planning, operations, and training. Since munitions response actions involve inherent risks, the project manager shall evaluate those risks using facts, prudence, experience, judgment, and situational awareness using Table 6-4 as an example.

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Table 6-4: Hazard Analysis

Process Step	Hazard	Triggering Event	Initial Risk Index	Hazard Mitigation	Final Risk Index
1.	Manual MEC removal operations	MEC reacts to impact or movement during soil removal	C/II/H	Initial mechanized excavation beside anomaly; final excavation with hand tools	D/IV/L
2.	Mechanized MEC screening operations	MEC reacts to high-energy, uncontrolled mechanical forces	C/II/H	Use of blast shields (fragment protection) and K24 distance (blast overpressure protection)	C/IV/L

6.4.5. Contingencies. Describe alternative actions that may be implemented should site conditions prevent the primary approach from working efficiently or effectively. As an example, if the proposed operation involves mechanically screening soil using a 1-inch screen, but soil consistency prevents it from passing through the screen. Contingency MGFs shall not be identified here, but in Section 3.b.

7. Quality Control (QC) and Quality Assurance (QA). Each munitions response project shall have a QC program administered by the UXO contractor and a QA program administered by an independent, third-party source. The complexity of the QC and QA programs is dependent on the nature of the project. Both the UXO Quality Control Specialist (UXOQCS) and the UXO Quality Assurance Manager (UXOQAM) must meet the minimum qualification standards identified by DDESB TP-18 for the UXOQCS. If diving is required for the execution of underwater QC/QA tasks, the UXOQCS/UXOQAM diver must meet the applicable diving standards identified in paragraph 8.2 below.

7.1. QC Implementation. Describe the QC program by summarizing the QC processes to be employed and the standards against which the UXOQCS will be evaluating project quality (e.g., project quality objectives or contractual and/or regulatory requirements). Identify the pass/fail criteria for each criterion and the corrective action processes which will be employed should the UXOQCS identify a failure. Table 7-1 is provided as an example:

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Table 7-1: QC Methods

Operation	Inspection	Audit	Pass/Fail Criteria
Site Preparation: establish site boundaries; Identify MPPEH/MDEH holding area; Erect soil erosion controls, barricades, and entry control points	Conforms to Project Plan, Work Plan, SOPs, QCP, QAPP, etc.	Location of Site boundaries, MPPEH/MDEH holding area, erosion control efforts, barricades and entry control points.	IAW Work Plan criteria and the ESS site plan.
Instrument validation, grid placement and equipment acceptance	Conforms to Project Plan, Work Plan, SOPs, QCP, QAPP, etc.	Checkout and operation of geophysical instruments (including documentation).	100% detection and selection of MEC, MPPEH, and other metal items with one dimension > 3 inches.
Boundary survey (e.g., GPS)	Conforms to Project Plan, Work Plan, SOPs, QCP, QAPP, etc.	Professional license verification, equipment checkout against known control monument for vertical and horizontal accuracy.	Site boundaries achieve centimeter tolerance for traverse closure.
Vegetation reduction	Conforms to Project Plan, Work Plan, SOPs, QCP, QAPP, etc.	Anomaly avoidance provided by UXO Techs. Personal protective equipment worn IAW the Health and Safety Plan.	Brush cut to no more than 6 inches above surface.

7.2. QA Implementation. Identify the independent, third-party source that will execute the project UXO QA program on behalf of the project manager. Identify tasks assigned to the Unexploded Ordnance Quality Control Manager (UXOQCM) which should include, but is not limited to, oversight of the following:

UXO contractor quality compliance with contract plans and specifications as defined in the Project.

Plan, Work Plan, SOPs, QCP, QAPP, etc.

Inspection/evaluation/audit processes.



Blind seeding program. Note: The UXOQAM has the authority to install blind seeds as part of the UXO QA program.

The UXOQCM also has authority to stop work if operations are found to be out of compliance with contract requirements and/or specifications.

**8. Technical Support**

8.1. EOD. Identify the military EOD unit that may be supporting this project, and reference the memorandum of agreement or other document which shows the mutually agreed upon support.

8.2. UXO Contractor. Affirm that all UXO personnel performing UXO duties meet or exceed the requirements of DDESB TP-18 for their respective jobs. Contractors involved in the storage and handling of ammunition and explosives must be qualified and certified in accordance with reference (c). Affirm that all geophysical team members are trained for their respective jobs. If operations include diving, affirm that all divers meet applicable standards of OSHA 29 CFR 1910, applicable State Department of Labor requirements; and EM 385-1-1, Safety and Health requirements. All contractor employees performing munitions response duties shall have received the required 40-hour hazardous waste operations and emergency response (HAZWOPER) training (including HAZWOPER refresher training, if appropriate). Additionally, the SUXOS shall have received OSHA-mandated supervisory training. The UXOQCS and the UXOSO shall have received specialized training in quality and safety, respectively. Although the size and scope of MR projects may vary, each project is required to have a SUXOS, a UXOQCS, and a UXOSO. For smaller projects, the UXOQCS and UXOSO may be the same person. Under no circumstances shall the SUXOS also serve as either the UXOQCS or UXOSO.

8.3. Physical Security. Identify the extent to which Arms, Ammunition and Explosives physical security, private security forces, and/or protective barriers are required while munitions response actions are underway. This includes security of munitions storage facilities, open excavations, EZs, and the job site after operating hours. Include entry control points (ECPs) and waterway spotter locations on maps and describe how the ECPs will be controlled.

**9. Environmental, Ecological, Cultural, and/or other Considerations**

9.1. Regulatory Statute, Phase, and Oversight. Identify any regulatory statutes that may govern the proposed munitions response action. Identify the regulatory agency or agencies providing oversight and any legally binding dates for actions to occur.

9.2. Environmental, Ecological, Cultural, and/or other Considerations. Address any additional environmental, ecological, cultural, or other considerations that may impact the proposed munitions response actions.

9.3. Non-Explosive Soil. Describe the management of soil (or other media) contaminated with explosives at concentrations that do not present an explosive hazard.

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10. Residual Risk Management. Identify the specifics of how the residual risk will be both identified and managed.
  - 10.1. Land Use Controls (LUCs). Summarize all LUCs, both institutional controls (e.g., state, county, city ordinances, deed restrictions, signage) and engineering controls (e.g., fencing, capping) that are to be placed on the real property.
  - 10.2. Long-Term Management. Describe site management, including maintenance, monitoring, record-keeping, 5-year reviews, etc. that are initiated to manage potential residual risks after response objectives have been met.
11. Safety Education Program. Address methods to be used to educate the public or receiving entity on the hazards/risks associated with MEC and/or MPPEH that may remain following the proposed munitions response action.
12. Stakeholder Involvement. Describe the extent to which stakeholders are involved and summarize how their concerns, if any, regarding the explosives safety and the environmental aspects of the munitions response are being addressed.
13. References. This section may be used to list documents referenced in the ESS.
14. Appendices

**APPENDIX D**

**PROCEDURES FOR REQUESTING AND MAINTAINING DEVIATIONS FROM  
EXPLOSIVES SAFETY CRITERIA**

1. General. Deviations (Waivers and Exemptions) will be submitted in accordance with the procedures provided in this appendix. Submission requirements for Secretarial Certifications are contained in Chapter 3 of this Volume.
  - A. Required information must be provided. Incomplete submittals may be returned.
  - B. External organizations or non-Marine Corps activities impacted by the deviation must be briefed and provide a written statement of concurrence to be included in the submittal package.
  - C. Local Coast Guard concurrence must be obtained for deviations involving the berthing of ammunition vessels at non-DoD locations.
  - D. Deviations can be issued when submitted as part of a hybrid explosives safety site plan.
  
2. Deviation
  - A. Submission Procedures. Deviation requests shall only be submitted for operational requests. Commands reviewed during the ESI-CR who require an extension of an existing deviation or a new deviation will prepare a briefing to the ESI-CR Team.
  - B. Deviation requests will be submitted to COMMARCORSYSCOM for approval.
    1. A certification of operational necessity is required as part of the submission package and must be endorsed as follows:
      - a. Within the Naval operating forces, including ships, squadrons, and shore establishments which support these forces, the appropriate operational commander will provide the operational necessity certification. For deployed units, or units engaged in Fleet exercises, the operational necessity certification may be delegated to the Task Force Commander.
      - b. For Marine Corps Reserve Commands, the Commander, Marine Forces Reserve, will provide the operational necessity certification. No additional concurrence is required.
      - c. For Marine Corps installation activities, requests will be submitted through the chain of command to Marine Corps Installations (East/West/Pacific/National Capital Region), for certification of operational necessity.

- d. For activities not listed above, the first senior command in the operational chain will provide the operational necessity certification with endorsements via the submittal chain.
- C. Other Service Tenant Commands. Requests for deviations from tenant commands belonging to another service that is located on a Marine Corps activity will be processed in the following manner:
1. The deviation request will be prepared by the tenant activity, in the format contained in this appendix unless an MOA requires the submission in accordance with the tenant activity directives.
  2. The request will be forwarded to the host command for a statement of concurrence.
  3. The request must then be forwarded, via the tenant command's service, for certification of operational necessity.
  4. The complete deviation request (statement of concurrence, operational necessity, and the appropriate endorsements) will be forwarded to COMMARCORSYSCOM for approval.
- D. Submission Requirements. The following are required when submitting a deviation request, other formats (e.g. DARAD) are authorized with approval from COMMARCORSYSCOM.
1. General statement of waiver or exemption requirements.
  2. Specific document(s) or table(s) that contain the explosives safety standard(s) to be waived.
  3. Specific description of the conditions creating the need for the waiver or exemption.
  4. Statement specifying reason(s) why compliance with explosives safety standards cannot be achieved.
  5. Alternatives examined. Include all possible practical alternatives to solve problem(s), without continuance or issuance of a waiver/exemption, with rationale for each.
  6. Mission effect of a maximum credible explosives accident.
  7. RM assessment per reference (k).
  8. Additional or compensatory safety precautions to be enforced during the period of the deviation.

9. Resources necessary to eliminate the waiver or exemption. Identify MILCON Project or special project numbers. Actions initiated, or to be initiated, for eliminating the waiver or exemption, and the estimated time to completion, must be included. At a minimum, a plan of action and milestones must be provided for elimination or incremental correction of all waivers.
10. The background/supplemental information for the Explosives Safety Deviation (figure D-1). For installations with access to the Explosives Safety Siting (ESS) tool, the PES/ES form generated by current version of ESS for all PESs/ESs covered by the request can be submitted in lieu of figure D-1. Additionally, the outputs from the ASAP-X tool can be submitted in lieu of figure D-1. Figure D-1, PES/ES form from ESS, or ASAP-X output is not required if the criteria deviation is a facility deficiency (e.g., lack of lightning protection, overnight storage without a sprinkler system).
11. For deviations with a QD violation the output from ASAP-X or other COMMARCORSYSCOM approved risk analysis tools will be provided with the deviation request. Additionally, use of the SAFER model, could be used in one of two ways: (1) to validate an acceptable level of exposure, thereby eliminating the need for the waiver, since site approval should be attainable; or (2) to evaluate the severity of risk associated with a significant deviation from criteria to determine if a waiver should be recommended. Final acceptance of any analysis using the SAFER model will be made by COMMARCORSYSCOM.

E. Deviation Numbers

1. The initiating command will assign a tentative deviation number. The number will be used to identify the deviation pending COMMARCORSYSCOM final approval.
2. Deviations will be identified by the name or short title of the activity, the calendar year of issuance, and the serial number indicating the sequence in which the deviation was issued in that particular year.
  - a. Exemptions will be identified with an “E” prior to the number.
  - b. Waivers will be identified with a “W” prior to the number.
3. Modifications will be indicated by an alphabetical designator following the serial number of the deviation. Examples follow:
  - a. The first waiver approved for MCAS Cherry Point in calendar year 2017 would be designated as follows: CMC Waiver MCAS Cherry Point W1-17. The second waiver approved for this activity, in the same calendar year, would be designated as CMC Waiver MCAS Cherry Point W2-17, etc.

- b. The first modification to CMC Waiver MCAS Cherry Point W1-17 would be indicated as CMC Waiver MCAS Cherry Point W1A-17, regardless of the year in which it was initially issued. This modification would automatically cancel CMC Waiver MCAS Cherry Point W1-17. The second modification to this waiver would be CMC Waiver W1B-17, etc.
  4. Waiver or exemption number which has been cancelled will be reused.
  5. Waivers changed to exemptions, or exemptions to waivers, will retain the original year number to convey the longevity of the deviation.
- F. Renewal of Existing Deviations. Deviations are normally renewed as a result of an ESI-CR identifying the requirement to extend an existing deviation or the need to renew an existing deviation.
1. ESI-CR
    - a. Commands receiving an ESI-CR will prepare a brief/presentation to the ESI-CR team outlining the renewal proposal.
    - b. Within 30 days of the ESI-CR, commands are required to provide a status update of the deviation renewal.
  2. Expiring Deviations
    - a. Renewal request will be submitted so that COMMARCORSYSCOM has a minimum of 90 days to conduct the final review prior to the original expiration date.
    - b. COMMARCORSYSCOM will send a notification letter to the activity 90 days prior to expiration if the renewal request has not been received.
  3. Submission Requirements
    - a. Renewals require all information required in the original submittal request contained in paragraph 2.d above.
    - b. Copy of the letter that authorizes the current deviation.
    - c. Include a plan of action and milestones for incremental correction or elimination of the waiver.
- G. Modifications to Deviations
1. Requests for modifications to existing waivers or exemptions will be made using the guidance provided in the above paragraph.

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2. The modification request must be approved before the modifications can be implemented.
  3. Modification requests will be submitted so the original deviation does not expire before the modification has been approved.
- H. Cancellation. Should an existing waiver or exemption (other than an event waiver) no longer be required, the command assigned the deviation must submit a request for its cancellation.
1. Cancellation of a waiver or exemption can be accomplished by one of the following methods:
    - a. A request during the ESI-CR.
    - b. Request submitted to COMMARCORSYSCOM.
  2. A cancellation request will identify:
    - a. Deviation requirement no longer exists.
    - b. Criteria that was waived or exempted, what operations were permitted by the deviation.
    - c. Reasons the deviation is no longer required.
    - d. Copies of pertinent correspondence documenting the change (site approval, mission change, and base closure actions).
- I. Expiration. Deviations approved by COMMARCORSYSCOM will be canceled on the expiration date, unless a complete continuation request package, with all necessary endorsements, is received at COMMARCORSYSCOM prior to the expiration date.
3. Event Waivers
- A. Requests for event waivers will be submitted to COMMARCORSYSCOM via the installations chain of command for approval for all munitions related activities requiring such deviations aboard Marine Corps installations CONUS/OCONUS.
  - B. Certification of operational necessity for Marine Corps activities, will either be provided by the first flag level command or the appropriate region.
  - C. Service Component Commanders (MARFORCOM, MARFORPAC, MARFOREUR/AF, MARCENT), when delegated risk acceptance authority per reference (j), can approve event waivers to meet operational requirements for all munitions related activities requiring such deviations on or off Marine Corps installations OCONUS. All event waivers approved by the Service Component

Commander that will be in excess of one year or will be a reoccurring event will be immediately followed up with an ESMRMA per reference (j).

D. Event waiver requests should be submitted as far in advance as possible but a minimum of 10 days before the scheduled operation. In time critical situations verbal or electronic approval from COMMARCORSYSCOM or the SCC may be provided until formal approval is obtained.

E. For event waiver situations involving multi-service, or specific overseas locations the following procedures will apply:

1. Non-DoD Installations. The lead service component conducting ordnance operations shall have the responsibility of submitting the event waiver request. Subordinate U.S. components shall provide all information regarding deviations from explosives safety criteria to the lead service component. The event waiver will be issued by the command delegated the authority for the service submitting the request.

2. DoD Installations. The service with the operational necessity shall have the responsibility of submitting the event waiver request and their higher headquarters will provide the operational necessity statement. The service responsible for the installation will issue the event waiver, following concurrence endorsements by the installation and all in their chain-of-command.

3. Overseas Locations Where ESQD Arcs Extend Beyond Station Boundary. These event waiver requests must include an endorsement from the appropriate shore activity, or U.S. Defense Attaché Office, and provide information on the approximate number of buildings, public traffic routes, and people inside the proposed off-base ESQD arcs. The event waiver will be issued by the command delegated risk acceptance authority.

F. Event Waiver Submission Requirements. The event waiver request letter will contain the following information:

1. General statement event waiver requirements. Include the dates for which the event waiver will be required.

2. Specific document(s) or table(s) that contain the explosives safety standard(s) to be waived.

3. Specific description of the conditions creating the need for the event waiver.

4. Statement specifying reason(s) why compliance with explosives safety standards cannot be effected.

5. Alternatives examined. Include all possible practical alternatives to solve problem(s), without continuance or issuance of a waiver/exemption, with rationale for each.



6. Mission effect of a maximum credible explosives accident.
  7. Additional or compensatory safety precautions to be enforced during the period of the deviation.
  8. Applicable information from figure D-1 or for installations with access to the ESS tool, the PES/ES form generated by current version of ESS for all PESs/ESs covered by the request.
  9. ASAP-X Worksheet or other COMMARCORSYSCOM approved hazard assessment tool for QD violations.
  10. Necessary maps of sufficient scale and detail.
  11. Any ESI-CR recommendation.
  12. RM assessment per reference (k).
- G. Modification Request. Requests for modifications to event waivers will be submitted in the same manner as the original request.
- H. Cancellation. Event waivers are considered to be cancelled when the short-term evolution for which they were issued is completed or upon the approval expiration date.

**MARINE CORPS EXPLOSIVES SAFETY MANAGEMENT PROGRAM**

Figure D-1

Background/Supplemental Information for Explosives Safety Deviation							
Deviation Number Assigned (To be completed by COMMARCORSYSCOM)							
1. Potential Explosion Site(s) (PES) – Locations where the explosives will be present which require the issuance of this deviation.							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
a. Building Number							
b. Description/use							
c. New (lbs) 1.1							
1.2.1							
MCE							
1.2.2							
1.3							
1.4							
(Attach continuation Sheet for additional PESs)							
2. On-Station Exposed Site(s) (ES) – Location(s) on-base which will be within the ESQD arc(s) from a PES:							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
a. Building No.							
b. Description/use							
c. Closest PES (No)							
d. Distance from PES							
e. Estimated Value of ES							
f. Average Number of Personnel							
3. Off-Station ES's – For off-base locations within the ESQD arc(s) from a PES							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
a. Building No.							
b. Description/use							
c. Closest PES (No)							
d. Distance from PES							
e. Estimated Value of ES							
f. Average Number of Personnel							
(Attach continuation Sheet for additional ESs)							
4. Planned action/resources required to correct situation and eliminate need for deviation.							
a. MILCON or special project number (if assigned).							
b. Estimated cost to repair.							
c. Brief description of corrective action.							
d. Expected date of completion.							