

**Army Regulation 385-63  
MCO 3570.1B**

**Safety**

# **Range Safety**

**Headquarters  
Departments of the Army, and The Marine  
Corps  
Washington, DC  
19 May 2003**

**UNCLASSIFIED**

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# ***SUMMARY of CHANGE***

AR 385-63/MCO 3570.1B

Range Safety

This revision--

- o Prescribes responsibilities for firing ammunition, lasers, guided missiles and rockets (para 1-4).
- o Provides revised range safety policy (chap 2).
- o Provides guidance for the application of risk management in range operations (para 2-7).
- o Provides instructions for deviation from range standards and procedures (chap 3).

Effective 19 June 2003

Safety

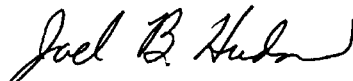
Range Safety


By Order of the Secretary of the Army:

BY ORDER OF THE OF THE COMMANDING GENERAL,  
MARINE CORPS COMBAT DEVELOPMENT COMMAND:

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**History.** This publication is a major revision.

**Summary.** This regulation/order provides range safety policy for the U.S. Army and U.S. Marine Corps. It establishes surface danger zones as minimum safety standards; requires establishment of range safety programs for all ranges, especially for live-fire operations; prohibits specific operations such as the creation of new or expansion of existing HE, dud-contaminated impact areas, ICM training and demonstration by Army organizations, and use of nonstandard ammunition and explosive items without specific approval; permits live-mine training, subject to established guidelines; establishes risk-management principles and deviation authorities; and employs the risk-management process to identify and control range hazards. For both the Army and Marine Corps, this regulation is to be used in conjunction with Department of the Army Pamphlet 385-63.

**Applicability.**

a. This regulation/order applies to—  
(1) The Active Army, United States Military Academy, Army National Guard of the United States, the U.S. Army Reserve, and Department of the Army civilian employees and contractors. Contracts for work on Army ranges will include

provision requiring compliance with applicable provisions of this regulation.

(2) Reserve Officer Training Corps participating students while training on an Army or Marine Corps controlled range.

(3) Marine Corps commands, active and reserve. Local standing operating procedures and range policies will reinforce this order.

(4) Any person or organization utilizing an Army or Marine Corps controlled real estate or range.

(5) Range training and target practice activities.

(6) Military real estate areas that are being or have been used as bombing ranges, artillery impact areas, or target areas.

(7) All areas designated for live-fire weapons firing, including laser ranges, recreational ranges, and rod and gun club ranges located on Army or Marine Corps property or property controlled by the Army or Marine Corps.

b. During mobilization, chapters and policies contained in this regulation/order may be modified by the proponent. This regulation is advisory for deployed units engaged in combat operations.

c. This regulation/order also applies to personnel training outside the United

States. Army or Marine Corps commanders will apply the provisions of this regulation/order and host nation agreements as appropriate.

**Proponent and exception authority.**

a. The Chief of Staff, Army, is the Army proponent of this regulation. The proponent has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. The proponent has delegated approval authority to the Director of Army Safety.

b. The Commandant of the Marine Corps is the Marine Corps proponent of this order. The proponent has the authority to approve exceptions to this order that are consistent with controlling law and regulation. The proponent has delegated approval authority to the Commanding General, Marine Corps Combat Development Command (C46R).

**Army management control process.**

This regulation contains management control provisions and identifies key management controls that must be evaluated.

**Supplementation.**

a. For the Army, supplementation of this regulation and establishment of command and local forms are prohibited without the approval of the Director of Army Safety, DACS-SF, Chief of Staff, 200 Army Pentagon, Washington, DC 20310-0200.

b. Marine Corps supplementation of this

\*This regulation/order supersedes AR 385-62/MCO 3570.2, dated 5 January 1977, and AR 385-63/MCO 3570.1A, dated 15 November 1983.

order is prohibited without prior approval from the Commanding General, Marine Corps Developmental Command (C46R), 3300 Russell Road, Quantico, VA 22134-5001.

**Suggested improvements.** Users are invited to send comments on DA Form 2028 directly to the Director of Army Safety, Office of the Chief of Staff, DACS-SF, 200 Army Pentagon, Washington DC 20310-0200. Marine Corps users are invited to submit comments and suggested improvements to the Commanding General, Marine Corps Developmental Command (C46R), 3300 Russell Road, Quantico, VA 22134-5001.

**Distribution.** This publication is available in electronic media only and is intended for command levels A, B, C, D,

and E for the Active Army, the Army National Guard of the United States, and the U.S. Army Reserve. Publication and distribution to authorized users within the Marine Corps are indicated in the table of allowances for publications.

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## Glossary

## Chapter 1 General

### 1-1. Purpose

*a.* This regulation/order prescribes Headquarters (HQ), Department of the Army (DA), and U.S. Marine Corps (USMC) range safety policies and responsibilities for firing ammunition, lasers, guided missiles, and rockets and provides guidance for the application of risk management in range operations.

*b.* For Army and Marine Corps users, DA Pamphlet (Pam) 385-63 prescribes range safety standards and procedures to be used in conjunction with this regulation/order. When standards in DA Pam 385-63 conflict with those of other military services, Federal agencies, or host nations, the standards providing the higher degree of protection apply.

### 1-2. References

Required and related publications and prescribed and referenced forms are listed in appendix A.

### 1-3. Explanation of abbreviations and terms

Abbreviations and special terms used in this regulation/order are explained in the glossary.

### 1-4. Responsibilities

*a.* The Assistant Secretary of the Army (ASA) (Installations and Environment) (I&E) establishes overall Army safety, occupational health, and environmental policy and maintains oversight of the Army Range Safety Program.

*b.* For the Marine Corps, the Commandant of the Marine Corps (CMC) Safety Division (SD) establishes overall Marine Corps safety and occupational health program and policies; the Deputy Commandant (DC), Installations and Logistics (I&L), establishes the policy for their environmental program.

*c.* The ASA (Acquisition, Logistics, and Technology) will establish policy to ensure range safety data specifications are incorporated into research, development, and acquisition strategies and test programs for new weapon systems and ammunition items. The ASA (Acquisition, Logistics, and Technology) will ensure approved surface danger zones (SDZs) and weapon/ammunition safety characteristics are available prior to materiel release. Project managers will develop and provide SDZs in support of equipment and materiel fielding. The Commander, Marine Corps Systems Command (COMMARCORSYSCOM), will establish acquisition strategies and test programs for new weapon systems and ammunition items according to Marine Corps Order (MCO) 5000.23 and approve Marine Corps use of nonstandard ammunition and explosives. For Marine Corps specific items, COMMARCORSYSCOM will ensure that approved SDZ and weapons/ammunition safety characteristics are available prior to material release and that data are forwarded to the Commanding General, U.S. Army Training and Doctrine Command (TRADOC), Attn: ATBO-S, Fort Monroe, VA 23651-5001.

*d.* The Director of Army Safety (DASAF), Office of the Chief of Staff, Army (CSA), administers and directs the Army Range Safety Program as an integral part of the overall Army Safety Program specified in Army Regulation (AR) 385-10. The DASAF will—

(1) Plan, program, direct, and evaluate an effective Army Range Safety Program. Program will now include integration of range safety and risk management into Army range operations policies and procedures and identification and resolution of range operations safety issues that affect training and readiness of the Army.

(2) Develop and implement range safety policy as directed by the CSA.

(3) Advise the Deputy Chief of Staff (DCS), G-3, regarding the establishment and management of range operating policy.

(4) Advise the DCS, G-3, on safety and risk management issues pertaining to the Army Sustainable Range Program (SRP).

(5) Establish, in coordination with the DCS, G-3, and the DCS, G-4, the Army risk assessment and waiver approval process for improved conventional munitions (ICM) and submunition clearance activities.

(6) Serve as DA/USMC focal point to coordinate and integrate range safety policy matters within HQDA and with the Commanding General (CG), Marine Corps Combat Developmental Command (MCCDC) (C46R), and other agencies as appropriate.

(7) Evaluate the effectiveness and efficiency of range safety policies and publish changes to this regulation/order.

(8) Approve new SDZs and changes to existing SDZs on the basis of recommendations from the CG, TRADOC; the CG, Army Materiel Command (AMC); and others as appropriate.

(9) Serve as proponent for DA Pam 385-63. Publish Army range safety memoranda/messages to provide updates and other technical information to major Army commands (MACOM) and the USMC.

*e.* The CG, MCCDC (C46R), administers and directs the Marine Corps Safety Program in support of the Marine Corps Range and Training Area (RTA) Program as specified in applicable regulations. The CG, MCCDC (C46R), serves as the central point of contact (POC) for all Marine Corps ground RTA issues, to include the dissemination of policy guidance. The CG, MCCDC (C46R), is the CMC agent for RTA validation in the requirements determination process. The CG, MCCDC, will—

- (1) Maintain this order as Marine Corps order with associated pamphlets and update as required.
  - (2) Prioritize training resources, submit training program objective memorandum initiatives, and identify present and future RTA requirements.
  - (3) Serve as coordinator of all RTA issues and act as the Marine Corps RTA safety representative.
  - (4) Receive and review requirements documents, integrated logistics support plans, and materiel fielding plans relating to RTA.
  - (5) Coordinate enhancement efforts with bases managing existing RTAs.
  - (6) Coordinate with base efforts for effective scheduling and utilization of military special use airspace.
  - (7) Coordinate with the DC for Manpower and Reserve Affairs and the COMMARCORSYSCOM Systems Support, Training, for the collection of RTA requirements and deficiencies, and develop/coordinate initiatives to resolve identified deficiencies.
  - (8) Coordinate with the CMC Logistics on management information systems that would allow access to RTA information.
  - (9) Establish an RTA enhancement program.
  - (10) In conjunction with Marine Corps bases and stations, initiate military construction programs in support of force structure and training area enhancement.
  - (11) Coordinate with the DC, I&L, Land Use and Military Construction Branch (LFL) to maintain an accurate inventory of ground RTAs.
  - (12) Ensure management plans developed by the installations include management procedures to maintain long-term sustainable range use.
  - (13) Coordinate with the DC, I&L(LFL), to establish and implement procedures to assess the environmental impacts of munitions use on ground RTAs.
  - (14) Establish procedures for range clearance operations to permit the sustainable use of ground RTAs, to include frequency and degree of range clearance operation. This will be based on safety hazard of clearance, a range's intended use, and quantity and type of munitions expended on the range.
- f.* The DCS, G-3, will—
- (1) Establish and promulgate policies and procedures to standardize ranges for worldwide application.
  - (2) Ensure that range safety standards in DA Pam 385-63 are incorporated into the standardization and modernization of ranges.
  - (3) Integrate environmental requirements into range operations and plans.
  - (4) Integrate risk management procedures into range operations and plans.
  - (5) Develop, with DASAF and DCS, G-4, an active range unexploded ordnance (UXO) clearance policy to reduce current and future explosives hazards and environmental liability according to Department of Defense (DOD) guidance.
- g.* The DCS, G-4, and DC, I&L, USMC, will—
- (1) Serve as the proponent for munitions logistics (storage, transportation, and demilitarization) and explosives ordnance disposal issues related to ranges.
  - (2) Establish procedures, with the ACSIM, for life-cycle munitions management to ensure compliance with Department of Defense Directives (DODD) 4715.11 and 4715.12.
  - (3) Publish safety of use messages and ground precautionary messages pertinent to weapons/munitions worldwide, in accordance with AR 750-6.
  - (4) Develop policy and procedures for the management and disposition of range and munitions residue.
- h.* The DCS, G-1, will ensure that the Manpower and Personnel Integration Program takes into consideration range safety standards in the materiel development and acquisition phases for weapon systems and related components.
- i.* TSG, HQDA, will—
- (1) Provide policies, guidance, and technical assistance to MACOMs and the USMC organic occupational health protection support staffs, with all Army resource expenditures fully reimbursed by the USMC as appropriate, for occupational health protection regarding electromagnetic radiation, laser, visible light, radar, smoke, and noise and eye hazards on outdoor and indoor training ranges and in associated work areas.
  - (2) Provide MACOM and USMC occupational health protection support staff technical assistance in evaluating and certifying laser ranges upon request.
  - (3) Evaluate and certify all Army tactical laser devices prior to fielding.
- j.* The ACSIM will establish and oversee policy, for the Army, to ensure compliance with environmental laws and regulations for real property containing ordnance and explosives (OE) to include OE use on clearance on Army ranges.
- k.* The Chief of Engineers, U.S. Army Corps of Engineers, will ensure that the design of standard ranges meets the standards prescribed in AR 210-21 and Training Circular (TC) 25-8 and is consistent with DOD 6055.9.
- l.* The Commanding General, TRADOC, will designate a technical consultant to DASAF for all range safety matters. The technical consultant will—

- (1) Provide advice on range safety policies, procedures, and standards for the Army and, as appropriate, for the USMC after coordination with the CG, MCCDC (C46R) and CMC (SD).
  - (2) Serve as subject matter expert for revisions or changes to this regulation/order and DA Pam 385–63.
  - (3) Analyze range safety technical data, such as munitions data and ballistic characteristics validated by AMC or other sources, and recommend resultant regulatory changes to DASAF.
  - (4) Review surface and airspace danger zone policies for Army and designated USMC weapon systems for DASAF and CG, MCCDC (C46R).
  - (5) Advise MACOMs and USMC; Federal, State, and local agencies; national and international organizations; and other organizations on technical range safety issues as appropriate.
  - (6) Monitor Army range safety operations and procedures worldwide and USMC operations and procedures as requested by CG, MCCDC (C46R), to ensure the adequacy of range safety practices.
  - (7) Serve as proponent for Army range safety training and provide range safety instruction to Army, Marine Corps, and other personnel.
- m.* The CG, AMC, will—
- (1) Establish SDZ development criteria based on weapon, munition capabilities, and user requirements. SDZ criteria established by CG, AMC, are applicable to Marine Corps installations. For Marine Corps air-to-ground ranges, the methodology referenced in OPNAV Instruction 3550.1 should be considered.
  - (2) Provide weapon system development data and range safety technical data for the maintenance and update of DA Pam 385–63, to CG, TRADOC, ATTN: ATCS–S.
  - (3) Provide surface and airspace danger zone dimensions and supporting range safety technical data prior to materiel release of new munitions or weapon systems to the CG, TRADOC, ATTN: ATCS–S, and the SRP–Mandatory Center of Expertise, ATTN: CEHNC–CR, Huntsville, AL, per AR 385–16.
  - (4) Ensure that munitions data and ballistic characteristics are included in materiel development and acquisition life-cycle management phases.
  - (5) Establish a program to validate or amend existing SDZs and provide recommendations to CG, TRADOC, ATTN: ATCS–S, as required.
  - (6) Provide, upon request, milestone schedules for munitions and weapon systems SDZ development to CG, TRADOC, ATTN: ATCS–S.
  - (7) Approve the Army’s use of nonstandard ammunition and explosives.
- n.* The CG, USASOC, will designate a technical consultant to TRADOC for close quarter battle (CQB), advanced military operations in urban terrain (AMOUT), and other USASOC-unique range safety matters. The technical advisor will—
- (1) Recommend CQB/AMOUT range safety policies, procedures, and standards for Army Special Operations Forces (ARSOF), to include requirements for conducting ARSOF CQB/AMOUT training and operations.
  - (2) Serve as USASOC subject matter expert on ARSOF CQB/AMOUT and develop updates and revisions to DA Pam 385–63 through CG, TRADOC, ATTN: ATCS–S.
  - (3) Analyze USASOC range safety technical data, such as nonstandard munitions data and ballistic characteristics provided by AMC or other sources, and recommend changes to CG, TRADOC, ATTN: ATCS–S.
  - (4) Prepare and recommend SDZ standards for nonstandard weapons/munitions systems used in CQB/AMOUT training and operations to CG, TRADOC, ATTN: ATCS–S.
  - (5) Coordinate USASOC range safety matters and, in coordination with CG, TRADOC, ATTN: ATCS–S, provide USASOC technical range safety assistance to MACOMs, Federal agencies, and other services.
  - (6) Provide technical assistance on CQB/AMOUT and other USASOC unique range safety matters to other Federal, State, national, international, and other organizations, as appropriate.
  - (7) Monitor/review USASOC CQB/AMOUT ARSOF range safety operations and procedures worldwide to ensure the adequacy of CQB/AMOUT range safety practices.
- o.* The CG, FORSCOM, in coordination with the CG, TRADOC, may provide range safety training upon request to FORSCOM installations and units. FORSCOM-designated range safety training instructors and course material must be certified by the DASAF proponent for range safety training prior to initial delivery and annually thereafter. FORSCOM will coordinate scheduling of range safety courses with the range safety training proponent to prevent duplication of effort and to capitalize on opportunities to meet Army-wide range safety training requirements.
- p.* MACOM and separate commanders; commanders, Marine Forces Atlantic (COMMARFORLANT) and Pacific (COMMARFORPAC); commanding generals of all USMC supporting commands; and the Commander, Marine Forces Reserve (COMMARFORRES) will—
- (1) Ensure establishment of range safety programs according to the provisions of this regulation/order, AR 210–21, AR 385–10, and DA PAM 385–63. USMC will follow guidance published in this regulation/order.
  - (2) For Army, establish review and approval procedures for conducting risk management according to established doctrine.
  - (3) Maintain a central register of deviations from the standards of DA Pam 385–63 within the command.

(4) Review range design plans (to include support structures and facilities) to ensure that safety requirements are adequately addressed prior to new construction or modification/ renovation of firing ranges and or weapons training facilities.

(5) Ensure that final safety acceptance surveys are conducted of all firing ranges, weapons training facilities, and related structures following new construction, modification, or renovation.

(6) Ensure proper use of both special use airspace (SUA) and airspace outside SUA utilized for live-fire training.

(7) Take appropriate actions, including closure, to control hazards on ranges determined to be unsafe.

(8) Ensure risk management is performed prior to conducting operations on all assigned ranges.

(9) For the Army only, ensure that designation of areas for ICM or submunition proof testing or testing, for intelligence purposes, of foreign ICMs or submunitions is approved by the MACOM commanding general. This authority may not be delegated. The MACOM commanders will—

(a) Notify the offices of the DASAF, the U.S. Army Technical Center for Explosive Safety, the DCS, G-4 (DAMO-AMA), and the ACSIM of all areas so designated.

(b) Ensure that areas so designated are limited to ICM or submunition proof testing or testing, for intelligence purposes, of foreign ICMs or submunitions; all other uses are prohibited.

(c) Maintain a complete inventory of all ammunition and explosives tested in such areas. The inventory will include the type, full nomenclature, and number of ICMs or submunitions tested; the date of the test; and the agency conducting the test.

(d) Direct that installations with ICM or submunition test ranges develop procedures to ensure that: entry into test areas in which ICMs or submunitions have been fired is restricted; access is strictly controlled; and the area is cleared following testing.

q. Commanders, MACOMs; COMMARFORLANT; COMMARFORPAC; COMMARFORRES; commanding generals of all supporting establishment commands; and the Superintendent, U.S. Military Academy will act as deviation authority, or delegate such authority according to paragraph 3-1 of this regulation/order.

r. Commanders responsible for live-fire training ranges will establish a range safety program. For the Army this program must include—

(1) The requirement that personnel are held accountable for range and explosive safety to the same extent that they are held accountable for mission accomplishment.

(2) Integration of safety and risk management into planning and all subsequent phases of range operations.

(3) Active and coordinated involvement of trained and qualified range control and installation safety professionals who—

(a) Routinely monitor units during training by range control, safety, and quality assurance specialist (ammunition surveillance) personnel.

(b) Establish an operational range control organization.

(c) Appoint a qualified installation range control officer.

(d) Develop an installation-level range regulation and/or standing operating procedure (SOP).

(e) Develop safety SOP for range clearance operations using the risk management process and the requirements of DODD 4715.11 and DODD 4715.12.

(f) Withdraw or suspend installation training complex privileges for willful violation of installation range requirements.

(g) Ensure that incidents or accidents involving weapons or ammunition with firing units are reported and investigated.

(h) Establish medical support SOP for all range operations.

(i) Establish a central POC for coordination and review for SDZs.

(j) Prohibit unauthorized persons from entering impact areas.

(k) For those individuals authorized access to areas known or suspected of containing UXO, provide appropriate explosives safety training, UXO identification, and procedures to be taken if UXO is encountered.

(l) Restrict authorized access to areas known or suspected of containing UXO to personnel trained in UXO identification and procedures to be taken when UXO is encountered. When access to areas known or suspected of containing UXO is required, provide personnel authorized access with qualified escorts, such as explosive ordnance disposal (EOD) qualified personnel.

(m) Maintain permanent records of all munitions expended, to include an estimated dud rate, by type, quantity, location, and using organization. Include all UXO clearance operations or EOD incidents conducted on the range.

(n) Ensure to the extent practical that targets placed on ranges do not contain hazardous materials (such as petroleum, oils, lubricants, radium dials, and batteries).

(o) Establish safe and practical methods for recycling or disposing of range residues, in accordance with DODI 4160.21-M.

(p) Ensure that range residues, to include cartridge cases, ordnance-derived waste, and targets, do not contain ammunition, explosives, or other dangerous articles prior to release from DOD control.



(q) Prohibit controlled burning of vegetation on ranges as a method to clear UXO. Controlled burns may be used to control dense brush or undergrowth or clear a range of vegetation to make UXO clearance operations safe for personnel conducting the clearance operation.

(r) Ensure procedures are in place that allow prompt response to a release of military chemical compounds, for example, chemical agent, chemical smoke, riot control agents, and so on, or other hazardous materials used for training, or to a substantial threat of a release on or off range when such a release poses an imminent and substantial threat to human health or the environment.

(s) For the Army only, on ranges or other areas known or suspected to contain ICMs or submunitions—

1. Before personnel access is granted to range impact areas, and in cooperation with the installation range operations office, determine whether actual or suspected ICM/submunitions contamination exists. Range operations, in coordination with installation safety and EOD representatives, will determine if it is safe to permit personnel access and establish prerequisite precautions. Personnel permitted to enter any area known to contain or suspected of containing ICMs or submunitions will be fully apprised of the potential dangers and the safeguards to be exercised.

2. Ensure DCS, G-3 (DAMO-TR), DASAF, and G-4 (DALO-AMA) are informed of any ranges or other areas known to contain ICMs or submunitions.

3. Ensure that ranges or other areas known or suspected to contain ICMs or submunitions are clearly marked and that entry to these areas is restricted and access is controlled.

4. Prohibit all activities on ranges or other areas known or suspected to contain ICMs or submunitions unless a waiver, approved by the DASAF and the DCS, G-3 (DAMO-TR), is obtained.

5. Follow the mandatory procedures contained in chapter 3 of DA Pam 385-63 for controlling hazards and for requesting waivers to the restriction on maintenance, characterization, or clearance of ranges or other areas known or suspected to contain ICMs or submunitions.

(t) Establish and implement all feasible access controls to deter unauthorized access.

(u) Establish and conduct an aggressive education program for all installation personnel, their families, and the general public on the dangers of dud ammunition and other UXO. Installations outside the continental United States will coordinate the need for such with the host nation and in accordance with applicable agreements.

## **1-5. Goals**

The goals of the Range Safety Program are to—

- a. Enhance safe, realistic live-fire training, enabling the Army/USMC to train as it fights.
- b. Protect personnel and property while improving combat readiness training and help prevent fratricide in combat.
- c. Protect civilian and military populations who live and work in the vicinity of live-fire training ranges.
- d. Design and use ranges and the munitions used on them, to the extent practical, to minimize both potential explosive hazards and harmful environmental impacts and to promote resource recovery and recycling.
- e. Avoid injuries and property damage by introducing the risk-management process early in the range-management process to enhance combat readiness.

## **Chapter 2 Ranges**

### **2-1. General**

- a. The commander is responsible for the safe conduct of soldiers/marines involved in training operations.
- b. All military commands and all Federal, State, local, and or private organizations using Army and USMC ranges will adhere to the provisions of this regulation/order, DA Pam 385-63, and required publications.
- c. Army, Army Reserve, and Marine Corps indoor firing ranges will be designed, operated, maintained, inspected, and decontaminated according to guidance issued by the Center for Health Promotion and Preventive Medicine.
- d. The Army National Guard will provide design, operational, maintenance, and decontamination instructions to subordinate units.

### **2-2. Surface danger zones**

a. SDZs will be prepared and updated as appropriate according to DA Pam 385-63 for all munitions and laser systems. Munitions and hazardous laser systems (such as class 3b and 4 lasers) will not be fired or employed on training ranges except within the confines of approved SDZs. Deviations from this policy shall be in accordance with the provisions of chapter 3 of this regulation/order and DA Pam 385-63. For Marine Corps air-to-ground ranges, OPNAV Instruction 3550.1 will be considered.

b. SDZs published in DA Pam 385-63 represent Army and USMC minimum safety requirements. Revised SDZs and SDZs for new munitions/weapons will be approved and disseminated according to the provisions in paragraph 1-4

of this regulation. They are adequate only when employed with properly functioning safety equipment and devices, and when trained and competent personnel follow published firing procedures.

*c.* Baffled firing ranges—those providing containment of projectiles, fragments, and ricochets—designed and maintained according to host nation design requirements or approved United States Army Corps of Engineers designs do not require application of SDZ restrictions outside the baffled area. Approval authority for this type of range is the Army MACOM commanders.

*d.* For the Army, the creation of new or the expansion of existing high-explosive (HE) dud-contaminated impact areas must be approved by the ASA (I&E); for the Marine Corps, the areas must be approved by DC, I&L, in conjunction with other headquarters USMC agencies. Existing dedicated impact areas will be used to the maximum extent feasible when firing dud-producing munitions.

*e.* If a round exits an approved SDZ, firing of that munition and weapon will cease locally until the cause of the round-out-of-impact (ROI) has been determined.

(1) If firing occurred with an approved range safety deviation and if the investigation determines all controls required by the deviation were in place, the deviation will be rescinded immediately.

(2) If firing occurred without any deviations from this regulation/order and DA Pam 385–63; if the investigation determines all required controls are in place; and if there was no ammunition malfunction, the installation/area support group commander or a designated representative will report the incident to the weapon system manager and the MACOM safety office. The MACOM safety office will report the incident to the Office of the Director of Army Safety, in accordance with AR 750–6. The Marine Corps will report the incident to CMC (SD).

*f.* SDZs will be updated on the basis of data derived from research and development, testing, and or actual firing experience. SDZs for new ammunition and weapons and modifications of existing SDZs will be approved and disseminated using the same procedures described in paragraph 1–4 of this regulation/order.

### **2–3. Nonstandard ammunition and explosive items**

*a.* Nonstandard ammunition and explosive items are prohibited unless specifically approved by one of the following; CG, AMC; COMMARCORSYSCOM; Chief of Ordnance, Aberdeen Proving Ground, MD; CG, USASOC; CG, U.S. Army John F. Kennedy Special Warfare Center and School; or CG, U.S. Army Special Forces Command, as appropriate.

*b.* Commanders of Special Forces groups may approve use of nonstandard items of explosives when necessary for Special Forces training and operations. Also, grade 0–6 commanders of Special Operations Forces may approve use of nonstandard ammunition and or explosives for units conducting training unique to Special Operations Forces.

*c.* Final approval for use of nonstandard ammunition and explosives on a specific installation rests with the MACOM commander or his or her designee (such as an installation commander). For the Marine Corps, the use of nonstandard ammunition and explosives or foreign ammunition on training ranges will be reported to local range control and EOD prior to use.

*d.* Altering fixed ammunition, such as increasing the amount of propellant, is prohibited.

### **2–4. Range safety programs**

Range safety programs will be established for all ranges and will include—

*a.* Guidance for maneuvers in dud areas.

*b.* Authority to prohibit picking up, tampering with, or removing UXO by unauthorized personnel. Only personnel qualified in UXO identification and removal procedures will be involved in clearance operations.

*c.* Instructions on reducing UXO to the minimum, tracking UXO, and conducting appropriate range clearing operations to ensure safe range areas are available for training.

*d.* Guidance on controlling the use of ranges and live-fire training areas for recreational and other similar uses.

*e.* Guidance/procedures for range use by foreign nationals.

*f.* Requirements for processing deviations from the standards in DA Pam 385–63.

*g.* Guidance for periodic maintenance and policing of training complexes.

### **2–5. Prohibitions**

*a.* Unless approved by the CSA or the CMC, the following activities are prohibited:

(1) ICM training and demonstration by Army organizations. The prohibition does not include ICM proof testing on approved Army test ranges. Marine Corps units will fire ICMs only into dedicated impact areas where troops are not permitted to maneuver. If an ICM round exits an approved ICM area, firing of that munition and weapon will cease locally until the cause of the ROI has been determined. Range control authorities and EOD units should be immediately notified of the event and the area identified as a possible ICM area until an explosive ordnance reconnaissance can confirm the area safe for use. If firing occurred with an approved range safety deviation and if the investigation determines all controls required by the deviation were in place, the deviation will be rescinded immediately.

(2) Firing ammunition, pyrotechnics, missiles, and or rockets over ammunition supply points, field ammunition supply points, or any ammunition storage area.

- (3) Firing depleted uranium ammunition.
- (4) Placing unprotected personnel in specific portions of SDZs as identified in DA Pam 385–63, except as identified in chapter 3 of this regulation/order.
- (5) Overhead fire above unprotected personnel with ammunition, pyrotechnics, missiles, and or rockets unless specifically authorized by DA Pam 385–63.
- (6) The use of ranges or live-fire training areas that may contain UXO for recreational purposes.
- (7) Entering HE dud-contaminated impact areas by Marine Corps personnel to extinguish fires. Fires in HE dud impact areas will be contained by employing firefighting personnel and techniques on range perimeters outside fragmentation distance of known dud ordnance. For the Army, entry into HE dud contaminated areas to extinguish fires is an extremely high-risk operation that requires a through risk assessment and approval at the appropriate level of command.
  - b.* Live-mine training is permitted subject to guidelines prescribed in DA Pam 385–63 except as prohibited below:
    - (1) Burying live mines for training purposes.
    - (2) Trip wires, booby traps, or tilt rods used separately or collectively with live mines in training.
    - (3) Live-mine and practice-mine training taking place concurrently at the same location.
    - (4) Disarming/arming live mines more than 25 iterations per mine.
    - (5) Training with non-self-destructing antipersonnel land (APL) mines except as authorized by the National Command Authority. When training with non-self-destructing APL mines is authorized, the following prohibitions apply:
      - (a)* Training with live M14 mines.
      - (b)* Training with the M16 antipersonnel mine without the positive safety pin remaining in the M605 fuze.
      - (c)* Use of pre-1957 M605 fuzes with the M16 antipersonnel mine in training.

## **2–6. Use of non-DOD property**

- a.* This regulation/order does not preclude use of non-DOD-owned property for military activities. Decisions to use non-DOD-owned property for live-fire exercises are the prerogative of MACOM commanders. AR 405–10 contains mandatory guidance regarding acquisition of real property interest and the necessary approval requirements.
- b.* The SDZs for non-DOD-owned training areas must meet the requirements of this regulation/order and applicable regulations of other military services using the land in conjunction with the Army or Marine Corps. Additionally, SDZs must meet applicable environmental and local regulations. A formal agreement with the owner(s) of the non-DOD-owned property is required.
- c.* Specific control measures for access to training areas by authorized personnel, for exclusion of unauthorized personnel, and for decontamination of training areas prior to release from Army control are required.

## **2–7. Risk management**

- a.* The risk-management process, described in DA Field Manuals (FM) 25–101, 100–14, 101–5, and MCO 3500.27A, will be used to manage risks during all live fire. The risk-management process will be used to identify range hazards and implement appropriate controls in the development of installation range regulations and SOPs. Residual risks of fragment escape or other danger to the public no greater than  $10^{-6}$  (one in one million) is the objective of SDZs.
- b.* When application of the risk-management process results in deviation to SDZs, modifying prescribed firing procedures or allowing personnel not directly participating in the actual conduct of training within the SDZ must comply with the deviation provisions in chapter 3 of this regulation/order.
- c.* Units using ranges will employ risk-management procedures to identify operational hazards and implement appropriate controls to minimize training-mission risk. Formal risk-management documentation is required prior to execution on major training exercises, such as combined arms live-fire exercise (Army)/combined arms exercises (Marine Corps) scenarios and for any operation with a high or extremely high residual risk.
- d.* Risk-management principles are as follows:
  - (1) The unit chain of command will document the risk-management process.
  - (2) MACOM commanders will establish risk acceptance decision levels. If residual risk is extremely high, MACOM commander approval is required.
- e.* The installation commander or his or her designated representative may approve activities identified in the following subparagraphs (1) and (2) on installation ranges after a risk assessment has been conducted in accordance with FM 101–5 and according to provisions in AR 210–21. Installation range and safety managers will review the risk assessment. The Commander, U.S. Army Reserve Command, may approve activities identified in subparagraphs (1) and (2) at reserve centers with firing ranges.
  - (1) Recreational activities on ranges or training areas.
    - (a)* Outdoor recreational activities in temporary or permanent (dud-producing) contaminated impact areas are strictly prohibited, without exception, in accordance with AR 210–21, paragraph 5–11d.

(b) There will be no hunting, fishing, or other recreational activities in officially designated or marked dud-contaminated impact areas.

(c) Range, safety, and natural resources managers will determine recreational use area boundaries in and adjacent to impact areas according to this regulation/order and AR 200–3.

(2) The firing of military weapons by minors and military family members.

(a) The only time military weapons may be fired on military ranges by minors and military family members is under competent supervision.

(b) Minors and military family members must obey all firing and safety regulations and range SOPS. Refusal to comply will result in immediate removal from the firing line and denial to fire military weapons.

## **2–8. Range operations outside the United States**

Standards and procedures contained in DA Pam 385–63 apply to range operations conducted by U.S. Armed Forces training outside the United States. Operations will be conducted according to U.S. and or host nation agreements, normally whichever is stricter.

## **2–9. Other military services/agencies**

Military services other than the Army and the Marine Corps, as well as local, State and Federal agencies, may use Army/USMC-controlled ranges at the discretion of the installation commander. Agencies wishing to use Army/USMC-controlled ranges must comply with the provisions of this regulation/order and DA Pam 385–63 or MIL–HNDBK–828A. Requests for use shall include all technical data regarding munitions and weapons systems for a review of the adequacy of the range for the proposed operation and for the application of the risk-management process.

# **Chapter 3 Deviations**

## **3–1. Deviations from range standards and procedures**

a. The personnel listed in paragraph 3–1c do not have the authority to grant exceptions to the prohibitions in paragraph 2–5.

b. The risk-management procedures outlined in paragraph 2–7 always apply.

c. Deviations may be authorized by the following personnel:

(1) MACOM commanders.

(2) COMMARFORLANT, COMMARFORPAC, COMMARFORRES, and commanding generals of all supporting establishment commands.

(3) The Superintendent, U.S. Military Academy.

(4) The Director, Army National Guard.

## **3–2. Delegation of deviation authority**

a. MACOM commanders, COMMARFORLANT, and COMMARFORPAC may subdelegate, in writing, deviation authority to general officers in command positions, but not lower than installation commanding generals. This authority shall not be further subdelegated.

b. The Director, Army National Guard, may subdelegate deviation authority to State Adjutant Generals.

## **3–3. Deviation limitations**

a. Deviations are limited to—

(1) Reducing SDZ dimensions when terrain, artificial barriers, or other compensating factors make smaller SDZs safe.

(2) Modifying prescribed firing procedures to increase training realism (such as accepting increased risk when the risks have been incorporated into an approved SDZ) as appropriate for the proficiency of participating soldiers and marines.

(3) Allowing personnel who are not directly participating in the actual conduct of training within the SDZ.

b. Guidelines for preparing a range safety deviation are contained in DA Pam 385–63.

c. Deviations will not be applied to other Federal agency directives/regulations such as airspace or water traffic requirements.

d. Approved deviations will be effective for 1 year or less.

(1) Expired deviations may be renewed by the respective approval authority provided conditions cited in the original deviation have not changed.

(2) The need to incorporate conditions, requirements, controls, and so forth in approved deviations into range development plans will be addressed at each 5-year installation range development plan meeting.

- e.* Any accident or incident occurring under an approved deviation will cause automatic termination of the approval until an investigation is completed and the deviation revalidated by the respective approving authority.
- f.* Conflicts regarding level of risk determination will be resolved by the commander holding the deviation authority for the highest level of risk deemed in conflict.
- g.* For live-fire training operations conducted under an approved deviation by nonresident units, the host installation commander must approve training at a host installation.

## **Appendix A References**

### **Section I Required Publications**

#### **AR 210–21**

Army Ranges and Training Land Program. (Cited in paras 1–4k, 1–4p(1), 2–7e and 2–7e(1).)

#### **AR 385–10**

The Army Safety Program. (Cited in paras 1–4d and 1–4p(1).)

#### **AR 385–16**

System Safety Engineering and Management. (Cited in para 1–4m(3).)

#### **AR 750–6**

Ground Safety Notification System. (Cited in paras 1–4g(3) and 2–2e(2).)

#### **DA PAM 385–63**

Policies and Procedures for Firing Ammunition for Training, Target Practice, and Combat. (Cited in paras 1–1b, 1–4d(9), 1–4f(2), 1–4l(2), 1–4m(2), 1–4n(2), 1–4p(1), 1–4p(3), 1–4r(3)(s)5, 2–1b, 2–2a, 2–2b, 2–2e(2), 2–4f, 2–5a(4), 2–5a(5), 2–5b, 2–8, 2–9 and 3–3b.)

#### **FM 100–14**

Risk Management. (Cited in para 2–7a.) (Available from [www.adtdl.army.mil](http://www.adtdl.army.mil).)

#### **DOD 4160.21–M**

Defense Materiel Disposition Manual. (Cited in para 1–4r(3)(o).) (Available from [www.dla.mil/dlaps/dod/416021m/guide.asp](http://www.dla.mil/dlaps/dod/416021m/guide.asp).)

#### **DODD 4715.11**

Environmental and Explosives Safety Management on DOD Active and Inactive Ranges within the United States. (Cited in paras 1–4g(2) and 1–4r(3)(e).) (Available from [www.dtic.mil/whs/directives](http://www.dtic.mil/whs/directives).)

#### **DODD 4715.12**

Environmental and Explosives Safety Management on DOD Active and Inactive Ranges Outside the United States. (Cited in paras 1–4g(2) and 1–4r(3)(e).) (Available from [www.dtic.mil/whs/directives](http://www.dtic.mil/whs/directives).)

#### **DODD 6055.9–STD**

DOD Ammunition and Explosives Safety Standards. (Cited in para 1–4k.) (Available from [www.dtic.mil/whs/directives](http://www.dtic.mil/whs/directives).)

#### **MCO 3500.27A**

Operational Risk Management (ORM). (Cited in para 2–7a.) (Available from [www.usmc.mil](http://www.usmc.mil).)

#### **MCO 5000.23**

Policy for the Fielding of Ground Weapons Systems And Equipment Policies. (Cited in para 1–4c.) (Available from [www.usmc.mil](http://www.usmc.mil).)

#### **MIL–HNDBK–828A**

Military Handbook, Laser Range Safety. (Cited in para 2–9.) (Available from <http://assist.daps.dla.mil/quicksearch>.)

#### **OPNAV Instruction 3550.1**

Range Air Installations Compatible Use Zones (RAICUZ) Program. (Cited in para 1–4m(1).) (Available from <http://neds.nebt.daps.mil>.)

### **Section II Related Publications**

A related publication is a source of additional information. The user does not have to read it to understand this publication.

**AR 200-3**

Natural Resources-Land, Forest and Wildlife Management.

**AR 405-10**

Acquisition of Real Property and Interests Therein.

**FM 25-101**

Battle Focused Training. (Available from [www.adtdl.army.mil](http://www.adtdl.army.mil).)

**FM 101-5**

Staff Organization and Operations. (Available from [www.adtdl.army.mil](http://www.adtdl.army.mil).)

**TC 25-8**

Training Ranges. (Available from [www.adtdl.army.mil](http://www.adtdl.army.mil).)

**Joint Pub 3-09.1**

Joint Tactics, Techniques, and Procedures for Laser Designation Operations. (Available from <http://www.dtic.mil/doctrine>.)

**MCO P5090.2A**

Environmental Compliance and Protection Manual. (Available from [www.usmc.mil/directiv.nsf/web+orders](http://www.usmc.mil/directiv.nsf/web+orders).)

**MCO 5104.1A**

Navy Laser Hazards Control Program. (Available from [www.usmc.mil/directiv.nsf/web+orders](http://www.usmc.mil/directiv.nsf/web+orders).)

**MCO P8020.10A**

Marine Corps Ammunition Management and Explosives Safety Policy Manual. (Available from [www.usmc.mil/directiv.nsf/web+orders](http://www.usmc.mil/directiv.nsf/web+orders).)

**Navy Publication SWO60-AA-MMA-010**

Demolition Material. (Available from the Naval Surface Warfare Center, Crane, IN, Code 4027.)

**40 CFR 260-265**

Environmental Protection Agency. Hazardous Waste Identification Management System: General. (Available from [www.access.gpo.gov/nara/cfr/waisidx\\_02/40cfrv22\\_02.html](http://www.access.gpo.gov/nara/cfr/waisidx_02/40cfrv22_02.html).)

**Section III**

**Prescribed Forms**

This section contains no entries.

**Section IV**

**Referenced Forms**

This section contains no entries.

## **Appendix B Management Control Process**

### **B-1. Function**

The function addressed by this appendix is the safety on ranges used by the Army and the Marine Corps.

### **B-2. Purpose**

The purpose of this checklist is to assist commanders and managers in evaluating their key management controls.

### **B-3. Instructions**

Range safety programs are established and documented. Commanders and leaders are provided a risk assessment before range operations. Conscious risk-management decisions are made at the proper level of decisionmaking. Deviations are processed when the conditions described in chapter 3 are met.

### **B-4. Test questions**

- a.* Are all conditions described in chapter 3 allowed only under an approved deviation?
- b.* Are range control and safety professionals qualified and trained?
- c.* Are risk decisions made at the proper command level and documented?
- d.* Is a range safety program documented?

### **B-5. Comments**

Help make this a better tool for evaluating management controls. Submit comment to Office of the Vice Director of Army Staff, DACS-ZDV-RMO, 2D-745, 200 Army Pentagon, Washington, DC 20310-0200.



## **Glossary**

### **Section I Abbreviations**

#### **ACSIM**

Assistant Chief of Staff for Installation Management

#### **AMC**

Army Materiel Command

#### **AR**

Army regulation

#### **ARSOF**

Army Special Operations Forces

#### **ASA**

Assistant Secretary of the Army

#### **CG**

commanding general

#### **CSA**

Chief of Staff, U.S. Army

#### **DA**

Department of the Army

#### **DASAF**

Director of Army Safety

#### **DCS, G-1**

Deputy Chief of Staff, G-1

#### **DCS, G-3**

Deputy Chief of Staff, G-3

#### **DCS, G-4**

Deputy Chief of Staff, G-4

#### **DOD**

Department of Defense

#### **DODD**

Department of Defense directive

#### **EOD**

explosive ordnance disposal

#### **FM**

field manual

#### **FORSCOM**

United States Army Forces Command

#### **HE**

high explosive(s)

#### **HQDA**

Headquarters, Department of the Army

**ICM**

Improved Conventional Munitions

**MACOM**

major Army command

**Pam**

pamphlet

**POC**

point of contact

**SOP**

standing operating procedure

**TSG**

The Surgeon General

**TRADOC**

Training and Doctrine Command

**USMC**

United States Marine Corps

**UXO**

unexploded ordnance

**Section II****Terms****barrier**

A permanent or temporary impediment to foot and or vehicular traffic that personnel are prohibited to pass without approval from range control. A barrier may be sentinel, wire fencing, gate, sign, or other access-limiting device.

**dedicated impact area**

See impact area.

**deviation**

A departure from the requirements of this regulation/order or the standards of DA PAM 385–63.

**dud**

An explosive item or component of a weapon system that fails to function as intended when fired or detonated.

**guided missile**

An unmanned vehicle moving above the surface of the Earth whose trajectory or flight is capable of being altered by an external or internal mechanism.

**hazard**

Any actual or potential condition that can cause injury, illness, or death of personnel or damage to or loss of equipment, property or mission degradation, or a condition or activity with potential to cause damage, loss, or mission degradation.

**impact area**

The ground and associated airspace within the training complex used to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components from various weapon systems. A weapon system impact area is the area within the SDZ used to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Indirect fire weapon system impact areas include probable error for range and deflection. Direct fire weapon system impact areas encompass the total SDZ from the firing point or position down range to distance X:

*a. Temporary impact area.* An impact area within the training complex used for a limited period of time to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Temporary impact

areas are normally used for non-dud-producing ammunition or explosives and should be able to be cleared and returned to other training support activities following termination of firing.

*b. Dedicated impact area.* An impact area that is permanently designated within the training complex and used indefinitely to contain fired or launched ammunition and explosives and the resulting fragments, debris, and components. Dedicated impact areas are normally used for less sensitive ammunition and explosives than that employed in high hazard impact areas. However, any impact area containing fuzed HE or white phosphorous duds represents a high risk to personnel and access must be limited and strictly controlled.

*c. High hazard impact area.* An impact area that is permanently designated within the training complex and used to contain sensitive HE ammunition and explosives and the resulting fragments, debris, and components. High-hazard impact areas are normally established as part of dedicated impact areas where access is limited and strictly controlled because of the extreme hazard of dud ordnance such as ICM, HEAT, 40mm, and other highly sensitive ammunition and explosives.

### **improved conventional munitions**

Munitions characterized by the delivery of 2 or more antipersonnel, antimateriel, and or antiarmor submunitions.

### **military operations in urban terrain**

A terrain complex where manmade construction impacts on the tactical options available to commanders. These MOUT facilities replicate urban environments.

### **overhead fire**

Weapon system firing that is delivered over the heads of personnel in training or DOD civilians located in the SDZ.

### **range**

- a.* The distance between any given point and an object or target.
- b.* An area reserved and normally equipped for practice in weapons delivery and/or shooting at targets.

### **residual risk**

The level of risk remaining after controls have been identified and selected for hazards that may result in loss of combat power.

### **risk**

Chance of hazard or undesired consequences, or the probability of exposure to chance of injury or loss from a hazard. Risk level is expressed in terms of hazard probability and severity.

- a. Exposure.* The frequency and length of time personnel and equipment are subjected to a hazard.
- b. Severity.* The expected consequence of an event, in terms of degree of injury, property damage, or other mission impairing factors (loss of combat power, adverse publicity, and so forth) that could occur.
- c. Probability.* The likelihood that a hazardous incident will occur.

### **risk decision**

The decision to accept or not accept the risk(s) associated with an action made by the commander, leader, or individual responsible for performing that action.

### **risk management**

The process of identifying, assessing, and controlling risk arising from operational factors and making decisions that balance risk cost with mission benefits.

### **risk-management process**

Risk management is the process of identifying and controlling hazards to protect the force. It is a five-step process representing a logical thought process from which users develop tools, techniques, and procedures for applying risk management in their areas of responsibility. It is a closed-loop process applicable to any situation and environment. The five steps are:

- a. Identify hazards.* Identify hazards to the force. Consider all aspects of the current and future situations, environment and known historical problem areas.
- b. Assess hazards.* Assess hazards to determine risks. Assess the impact of each hazard in terms of potential severity and probability.
- c. Develop controls and make risk decisions.* Develop control measures that eliminate the hazard or reduce its risk.

As control measures are developed, risks are reevaluated until all risks are reduced to a level where benefits outweigh potential costs and are accepted by appropriate authority.

*d. Implement controls.* Put controls in place that reduce the risk.

*e. Supervise and evaluate.* Enforce standards and controls. Evaluate the effectiveness of the controls and adjust/update as necessary.

**separate commanders**

Separate organizations such as brigade or task force commanded by a brigadier general.

**surface danger zone**

The ground and airspace designated within the training complex (to include associated safety areas) for vertical and lateral containment of projectiles, fragments, debris, and components resulting from the firing, launching, or detonation of weapon systems to include ammunition, explosives, and demolition explosives.

**training complex**

Firing ranges and weapons-training facilities designated for firing ammunition and explosives, rockets, lasers, and guided missiles for training and target practice, and non-live-fire sites for maneuver exercises and operations.

**unexploded ordnance**

Ammunition and explosives that have been primed, fuzed, armed, or otherwise prepared for action and that have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or materiel, and remain unexploded by malfunction, by design, or for any other cause. UXO is synonymous for the dud.

**Section III**

**Special Abbreviations and Terms**

This publication uses the following abbreviations, brevity codes, and acronyms not contained in AR 310–50. These include use for identifying weapons systems, types of military training activities, U.S. Marine Corps organizations and publications, range hazard descriptions and name changes to Army organizations and offices.

**AMOUT**

advanced military operations in urban terrain

**CMC**

Commandant of the Marine Corps

**COMMARCORSYSCOM**

Commander, Marine Corps Systems Command

**COMMARFORLANT**

Commander, Marine Forces Atlantic

**COMMARFORPAC**

Commander, Marine Forces Pacific

**COMMARFORRES**

Commander, Marine Forces Reserve

**CQB**

Close quarter battle

**DC**

Deputy Commandant

**I&E**

installations and environment

**I&L**

installations and logistics

**L**

logistics

**MCCDC**

Marine Corps Combat Development Command

**MCO**

Marine Corps Order

**ROI**

round-out-of-impact

**RTA**

range and training area

**SDZ**

surface danger zone

**SRP**

Sustainable Range Program

**TC**

technical circular

**USASOC**

U.S. Army Special Operations Command