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Explosives Safety Training



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FOREWORD

Technical Paper (TP) 27 provides Department of War Explosives Safety Office (DWESO) guidance for implementing and managing an Explosives Safety Training Program. Department of Defense (DoD) Directive 6055.9E, "Explosives Safety Management and the DoW Explosives Safety Board," require that the DoW Components ensure Military Service career programs (CPs) develop personnel qualified to serve as explosives safety management (ESM) subject matter experts (SMEs).

TP 27 identifies policies and core stakeholders who have responsibility for development of Explosives Safety Personnel (ESP) and lists explosives safety training available to the DoW ammunition and explosives (AE) community. This TP is intended to facilitate continuous improvement of explosives safety training and education throughout DoW's AE community.

The United States Coast Guard (USCG) is a military service operating under the Department of Homeland Security (DHS) established by 14 USC 101 and 103, rather than the DoW. However, since the USCG employs DoW-titled Ammunition and Explosives (AE) and operates as a service in the Navy upon the declaration of war or when the President directs, all explosives safety policies promulgated by the ESB apply to the USCG. Accordingly, all parties shall interpret the terms "DoD/DoW" and "DoD/DoW Components" to include the USCG.

The DWESO Explosives Safety Training and Education Working Group developed this TP, which has been reviewed by the DWESO staff.

The latest version of this document can be found on the DWESO website at <http://www.ddesb.pentagon.mil>.

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CHAPTER 1

INTRODUCTION

1.1. Background

1.1.1. On June 17, 2025, the Department of War Explosives Safety Board (ESB) re-established an Explosives Safety Training and Education Working Group to:

1.1.1.1. Review training and education guidance, doctrine, and the Military Services' career development plans.

1.1.1.2. Identify commonalities in training and identify current methods of training available to Explosive Safety Personnel (ESP).

1.1.2. Providing training and education opportunities is an integral element of an overall strategic human capital management strategy for explosives safety. This training ensures that a qualified and competent corps of ESP continues to be available to support the DoW ESMP and joint warfighters.

1.2. Purpose. The purpose of this technical paper (TP) is to:

1.2.1. Identify training available for ESPs required for these personnel to execute their responsibilities for explosives safety. Identify the DoW Components respective orders which contain their minimum requirements for ESP.

1.2.2. Provide commanders and munitions managers at all levels with a consolidated information package that outlines explosives safety training requirements, as established by their respective service and available courses. The overall goal is to develop ESP who are trained to execute their responsibilities.

CHAPTER 2

THE ROLE OF EXPLOSIVES SAFETY PERSONNEL

2.1. General

2.1.1. ESP are responsible for helping to ensure the DoW ESMP provides for the safety of personnel, mission, assets, and the environment from hazards associated with ammunition and explosives (AE) throughout its life cycle. The AE life cycle:

2.1.1.1. Begins during the initial phases of the AE acquisition process and ends upon demilitarization and/or disposal.

2.1.1.2. Includes, but is not limited to, manufacturing, testing, maintenance or renovation, transportation, storage, and use.

2.1.1.3. Includes, when required, the performance of environmental response actions required to address unexploded ordnance, discarded military munitions, and munitions constituents.

2.1.2. Training for ESP must be comprehensive and, at times, highly specialized to meet unique operational requirements. Some DoW Components and organizations require their ESP to develop a comprehensive knowledge of both occupational and explosives safety to support their mission requirements.

Table 2.1. ESP Duties and Functions (Examples)

Duties and Functions	Detailed Responsibilities
ESMP Manager	• Develop, implement, and manage an installation or activity ESMP to reduce risks and mitigate the potential consequences of an intentional or unintentional detonation of AE. • Ensure compliance with applicable explosives safety policies and regulations throughout those aspects of the AE life cycle addressed by the installation or activity ESMP to protect human health and the environment.
Combatant Commander (CCDR) and Service Component ESMP Manager	• Provide ESMP-related guidance for complex operational and wartime AE-related plans and programs. • Develop instructions and procedures for AE-related operations. • Establish technical and administrative requirements that may impact a wide range of interagency safety activities. • Integrate Explosives Safety and Munitions Risk Management (ESMRM) in the Joint Operation Planning Process. See Chairman of the Joint Chief of Staff instruction (CJCSI) 4360.01, “Explosives Safety and Munitions Risk Management for Joint Operations Planning, Training, and Execution.” • Conduct Munitions Risk Management Assessments in support of Geographic Combatant Commander’s explosives operations.
Subject Matter Expert (SME)	• Serve as a SME on ESMP-related issues. • Typically requires highly specialized, technically complex knowledge of explosives safety, risk management, and military operations.
ESMP Technical Support	• Serve as an ESMP technical representative to committees and working groups that develop ESMP policy and program management decisions. • If required, prepare detailed plans, budgets, and schedules for assigned AE-related operations. • Provide support and advice in the development of requirements for the acquisition of new weapons systems, including compliance with applicable DoW and Service explosives safety and related standards supporting operations, manufacturing, testing, transportation, storage, maintenance, and demilitarization of these AE systems.
ESMP Evaluations	• Conduct explosives safety assessments of munitions operating facilities (e.g., production, renovation, demilitarization, storage) and munitions-related operations (e.g., surveillance testing, loading and unloading, live-fire training and testing, combat rehearsals). • Recognize and evaluate a variety of complex AE operations. • When applicable, coordinate with appropriate staff to identify the risk associated with AE processes and conditions. • Determine and recommend applicable methods and procedures for managing risks. • Document inspection, evaluation, or assistance findings and, when required, prepare formal reports for dissemination. • Advise staff agencies on measures to eliminate or control the potential AE-related hazards associated with operational missions.

Table 2.1. ESP Duties and Functions (Examples), continued

Duties and Functions	Detailed Responsibilities
Investigator for AE Accidents, Incidents, and Mishaps	• Evaluate and coordinate formal investigations of reportable and non-reportable accidents, incidents, and mishaps involving a wide range of AE-related operations. • Review factual data to include, but not limited to, photographs of the site, contributing factors, the extent of injuries, estimated cost of property damage, and the root cause. • Provide coordination on formal report of findings, including recommendations made and dates established, if any, to correct unsafe acts or conditions. • Compile and analyze mishap data. • Conduct root cause analyses. • Identify and analyze trends. • Provide functional and installation- or unit-level managers and safety personnel with mishap and trend analysis data. • Assist in developing programs to help reduce mishaps. • Use statistical data to prepare charts, tables, and reports. • Based on observed trends, recommend, develop, and implement training aimed at prevention of AE accidents, incidents, and mishaps.
Prepare or Review Munitions Required Explosives Safety Submissions (MRESS) and ESMP-related Issuances	• Review and, when appropriate, endorse Explosives Safety Site Plan (ESSP) for new construction, major building alterations, changes in an installation or activity AE mission or equipment, and monitor AE-related projects through completion. • Recommend, when necessary, required design changes and provide technical recommendations to eliminate or control the explosives safety hazards associated with the repair and maintenance of installation munitions operating facilities or equipment. • Develop specialized operating practices and procedures that may involve diverse, but recognized hazards associated with AE operations. • Review and approve local safety instructions and guides that are relevant to AE-related operations.
Deviations	• Review requests for deviations to mandatory explosives safety standards, and measures to mitigate the risks associated with approval of such requests. • Analyze acceptability of risk involved and recommend approval or disapproval of such requests.
Local Explosives Safety Training	• Provide technical safety training or instruction to installation and field-level safety representatives on areas such as ESMP, DoW, and Military Service explosives safety criteria, proper handling and storage of AE, and transportation and emergency response procedures. • Develop criteria and training standards. • Review lesson plans and formal training materials. • Promote AE safety campaigns through safety committee meetings. • Prepare safety articles, websites, and other media formats for installation- and unit-level AE personnel to use for local training programs.

Table 2.1. ESP Duties and Functions (Examples), continued

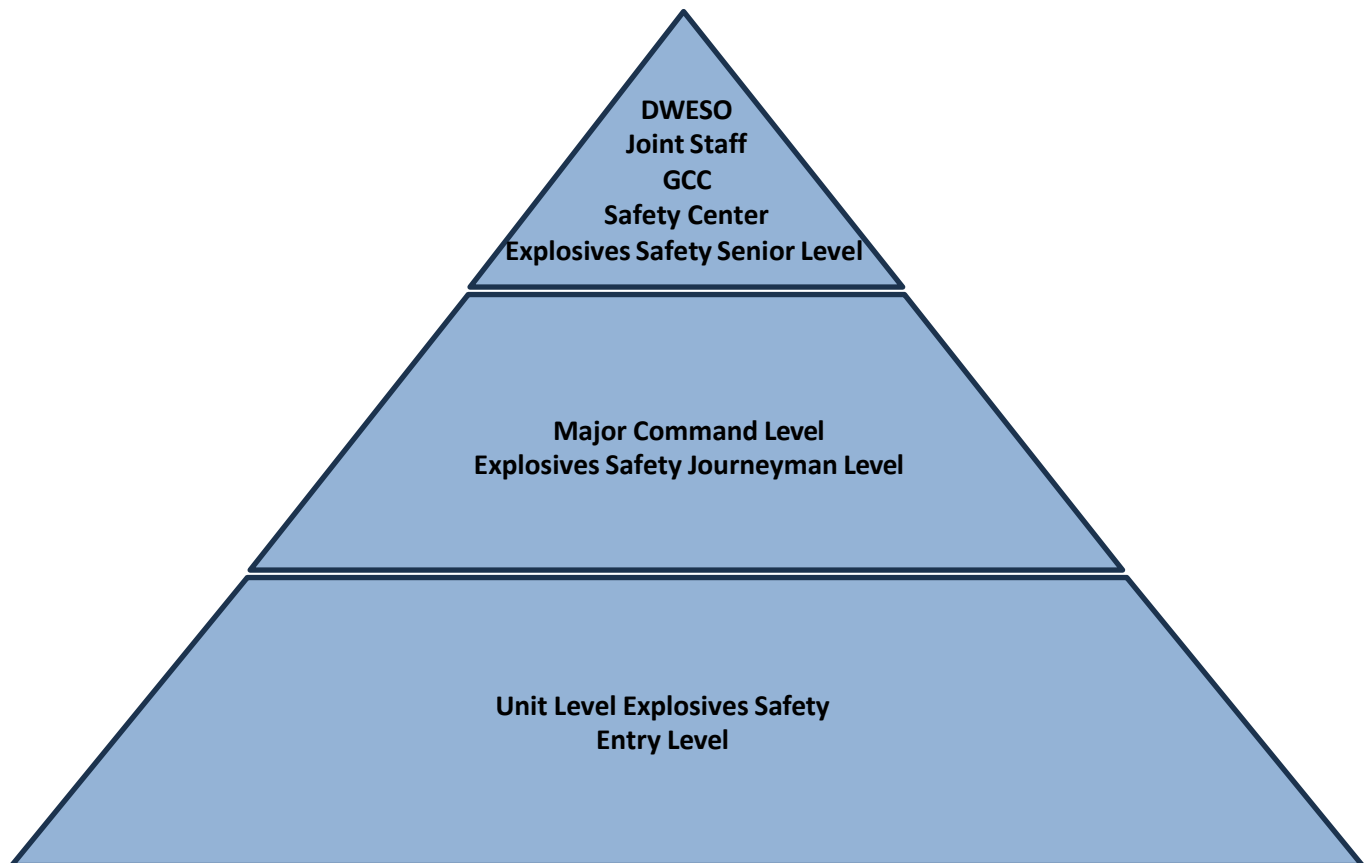
Duties and Functions	Detailed Responsibilities
Local Explosives Safety Training	• Evaluate instructor performance. • Provide subject matter expertise to AE safety courses taught by the Service and Command.
Communication	• Prepare and deliver oral presentations and briefings, training sessions, conferences, consultations, and strategy sessions with local staffs and other organizations to secure cooperation, resolve controversial issues, and convey information to proposed changes in assigned programs. • Develop and prepare a variety of correspondence and other documentation (e.g., formal memorandums, position papers, reports, staff studies, staff summary packages, briefings, charts, bullet background papers).
Military Munitions Response Program (MMRP)	• Provide on-site support for a Military Service MMRP. • Conduct reviews of ESSPs. • Make explosives safety determinations. • Conduct reviews of MRESS amendments and corrections. • Conduct reviews of MRESS after-action reports. • Provide expert consultation on safety issues, policy, and standards analysis. • Collaborate with the Military Service explosives safety center or DDESB. • Understand and use DESKES for MMRP document submissions and reviews.
Provide Hazard Classifications	• Formulate and defend Service-level hazard classification and testing positions regarding joint Service weapons acquisition programs. • Serve as a Service-level representative for development of DoW hazard classification test and administrative policy and the US positions for North Atlantic Treaty Organization and United Nations deliberations regarding classification of munitions and explosives for international transportation as implemented by international conventions. • Serve as a Military Service hazard classification expert on DoW and joint panels, integrated product teams, and working groups for developing and harmonizing complex test procedures, data requirements, prescribed instrumentation, and criteria for interpreting results associated with insensitive munitions, hazard classification, and military qualification of new explosives and munitions. • Represent a Military Service in meetings with DOT regarding hazard classification policy and the Military Service criteria. • Develop and coordinate FHC packages with other Services representative and ESO. • Develop IHC for transportation and storage with inputs from requesting agency. • Understand DESKES for FHC submissions and reviews.
Perform Explosives Safety Tests	• Conceive, plan, and oversee a Military Service explosives safety test and analysis programs. • Identify and prioritize a Military Service explosives safety test requirements. • Develop highly technical detailed test plans to yield critical safety information for a Military Service AE operation. • Coordinate with the ESO Science and Testing Panel for possible inclusion of or integration other services and activities

CHAPTER 3

POTENTIAL CAREER PATHS FOR EXPLOSIVES SAFETY PERSONNEL

3.1. Career levels and expectations for Explosives Safety Professionals. See Figure 3.1.

Figure 3.1. Career Levels



3.2. Entry Level (New Employees).

3.2.1. Description

- 3.2.1.1. Enter the explosives safety field with limited or no prior experience.
- 3.2.1.2. Learn explosives safety fundamentals.
- 3.2.1.3. Gain experience for career advancement.
- 3.2.1.4. Are exposed to junior positions and diverse Explosives Safety Management (ESM) duties.

3.2.2. Expectations:

- 3.2.2.1. Gain Explosive Safety experience.
- 3.2.2.2. Acquire training in ESMP fundamentals (e.g., AE, explosives safety, and AE related operations), as required.
- 3.2.2.3. Receive mentorship from journeyman and senior level ESP.
- 3.2.2.4. May be required to develop additional skillsets (e.g., occupation safety and health) to support mission functions.

3.3. Journeyman Level

3.3.1. Description

- 3.3.1.1. May manage and organize ESMP and serve as Subject Matter Experts (SMEs) at installation, munitions operating/research, development, test, and evaluation (RDT&E) facilities or service explosives safety centers.
- 3.3.1.2. Broaden experience through diverse assignments and self-development.
- 3.3.1.3. Further their education and attend advanced training courses to expand their knowledge of explosive safety operations and ESM.

3.3.2. Expectations:

- 3.3.2.1. Independently conduct hazard analysis and risk assessments.
- 3.3.2.2. Prepare, review, understand, and integrate explosive site plans into site specific operations.
- 3.3.2.3. Provide explosives safety training.
- 3.3.2.4. Interpret explosives safety policies and criteria.
- 3.3.2.5. Chair explosives safety councils.
- 3.3.2.6. Conduct explosives safety compliance assessments. ‘
- 3.3.2.7. Brief leadership on hazards associated with military munitions and other munitions (e.g. foreign, commercial, etc.).
- 3.3.2.8. Advise leadership on measures that should be implemented to mitigate risk.

3.4. Senior Level

3.4.1. Description:

- 3.4.1.1. Develop DoW and Service policies/procedures.
- 3.4.1.2. Conduct service ESMP reviews.
- 3.4.1.3. Participate in accident/incident investigations.
- 3.4.1.4. Expand their knowledge through training, challenging assignments, and self-development to provide strategic leadership in joint, interagency, intergovernmental, and multinational environments.

3.4.2. Expectations:

- 3.4.2.1. Guide and conduct ESMP assessments, including:
 - 3.4.2.1.1. Root cause analysis
 - 3.4.2.1.2. Accident/incident investigations.
 - 3.4.2.1.3. Program management.
 - 3.4.2.1.4. Policy development.
 - 3.4.2.1.5. Brief at the senior Service levels.
 - 3.4.2.1.6. Advise senior level commanders, including CCDRs and their staff, on explosives safety criteria, risk assessments and mitigating measures.
 - 3.4.2.1.7. Participate in joint/international working groups.
 - 3.4.2.1.8. Provide explosives safety input for strategic plans and policies.
 - 3.4.2.1.9. Mentor entry and journeyman level ESP.

CHAPTER 4

AE COMMUNITY STAKEHOLDERS AND POLICY DOCUMENTS

4.1. Explosives Safety Stakeholders and Responsibilities

4.1.1. The Department of War (DoW) Components, which include the Military Departments, Office of the Chairman of the Joint Chiefs of Staff (CJCS) and the Joint Staff, Combatant Commands (CCMDs), and the Defense Contract Management Agency (DCMA), are the primary stakeholders responsible for explosives safety. These DoW Components are responsible for establishing, resourcing, implementing, and maintaining effective Component-level Explosives Safety Management Programs (ESMPs) across the entire ammunition and explosives (AE) lifecycle. These ESMPs ensure the safety of personnel, assets, and the public by incorporating DoW explosives safety standards while meeting mission requirements.

4.2. Scope of Component-Level Training

4.2.1. This chapter outlines the training requirements for Explosives Safety Professionals (ESP) at all levels within the DoW. Component and service-level policies (referenced in Table 4.1) provide specific details and guidance on the necessary training and proficiency for ESP to perform their duties effectively. Components and services can use these references to verify applicants possess the fundamental skills and competencies in explosives safety described in this chapter.

4.3. DoW Component Responsibilities: Implementing Effect ESMPs

4.3.1. DoW Components are primarily responsible for establishing, adequately resourcing (including funding, personnel, and equipment), implementing, and maintaining effective Component-level ESMPs. These ESMPs, which are the foundation of AE safety, must encompass the entire AE lifecycle. They require a thorough understanding of the hazards associated with the AE they handle and the training requirements for ESP.

4.3.2. This responsibility extends beyond compliance with overarching DoW regulations. Components must tailor their ESMPs to meet the specific needs of their unique missions and operational environments.

4.4. Establishing Component-Level Explosives Safety Standards

4.4.1. A key aspect of DoW Component responsibility is implementing Component-level explosives safety standards consistent with DoW regulations and policies but adapted to reflect the specific context of their training programs. These standards ensure effective ESM while meeting the training requirements for ESP. These standards should encompass areas such as:

4.4.1.1. Personnel Qualification and Training.

4.4.1.2. Facility Design and Maintenance

4.4.1.3. Operational Procedures

4.4.1.4. Emergency Response Planning

4.4.1.5. Risk Management

Table 4.1. Explosives Safety Policy Documents

Category	Publication	Sponsor
Public Laws	Title 42, U.S.C., “The Public Health and Welfare” “Section 172, Title 10, U.S.C., “Ammunition Storage Board”	Congress
Acquisition Regulations	DCMA Instruction DCMA Guidebook Federal Acquisition Regulation	DCMA
DoD Directives, Instructions, and Manuals	DoD Directive 6055.9E, “Explosives Safety Management and the DoD Explosives Safety Board”	USD(A&S)
	DoD Instruction (DoDI) 5000.02, “Operation of the Defense Acquisition System”	USD(A&S)
	DoDI 6055.07, “Mishap Notification, Investigation, Reporting, and Record Keeping”	USD(A&S)
	DoDI 6055.16, “Explosives Safety Management Program”	USD(A&S)
	DoD 4145.26-M, “DoD Contractor’s Safety Manual for Ammunition and Explosives”	USD(A&S)
	DoD 4160.21-M, “Defense Explosives Safety Regulation Edition 1, Change 1”	USD(A&S)
	DESR 6055.09, “DoD Ammunition and Explosives Safety Standards”	USD(A&S)
	TB 700-2, “DoD Ammunition and Explosives Hazard Classification Procedures”	USD(A&S)
CJCSIs	CJCSI 3170.01H, “Joint Capabilities Integration and Development System”	Director, Joint Staff
	CJCSI 4360.01, “Explosives Safety and Munitions Risk Management for Joint Operations Planning, Training, and Execution”	Director, Joint Staff
Military Services’ Publications	Air Force Instruction 91-202, “The US Air Force Mishap Prevention Program”	Headquarters Department of the Air Force (DAF)
	Air Force Instruction 91-204, “Safety Investigations and Reports”	Headquarters Department of the Air Force (DAF)
	Air Force Instruction 91-205, “Nonnuclear Munitions Safety Board”	Headquarters Department of the Air Force (DAF)
	Air Force Manual 91-201, “Explosives Safety Regulations”	Headquarters Department of the Air Force (DAF)
	Air Force Manual 91-221, “Weapons Safety Investigations and Reports”	Headquarters Department of the Air Force (DAF)
	Air Force Policy Directive 91-2, “Safety Programs”	Headquarters Department of the Air Force (DAF)
	Army Materiel Command Regulation (AMC-R) 350-4, “Training and Certification Program for Personnel Working in Ammunition Operations”	US Army Materiel Command (USAMC)
	Army Regulation (AR) 75-1, “Malfunctions Involving Ammunitions and Explosives”	Headquarters, Department of the Army (HQDA)

Table 4.1. Explosives Safety Policy Documents, continued

Category	Publication	Sponsor
Military Services' Publications	AR 75-15, "Policy for Explosive Ordnance Disposal"	HQDA
	AR 385-10, "The Army Safety Program"	HQDA
	AR 385-63/Marine Corps Order (MCO) 3570.1C, "Range Safety"	HQDA and US Marine Corps (USMC)
	AR 702-12, "Quality Assurance Specialist (Ammunition Surveillance) Program"	HQDA
	Department of the Army (DA) Pamphlet 385-10, "Army Safety Program"	HQDA
	DA Pamphlet 385-30, "Mishap Risk Management"	HQDA
	DA Pamphlet 385-40, "Army Accident Investigations and Reporting"	HQDA
	DA Pamphlet 385-61, "Toxic Chemical Agent Safety"	HQDA
	DA Pamphlet 385-63, "Range Safety"	HQDA
	DA Pamphlet 385-64, "Ammunition and Explosives Safety Standards"	HQDA
	DA Pamphlet 385-65, "Explosive and Chemical Site Plan Development and Submission"	HQDA
	MCO 5100.29C Volumes 2, 8, and 9 "Marine Corps Ammunition and Explosives Safety Policy Program"	Headquarters, USMC
	NAVSEA Ordnance Pamphlet (OP) 4, "Ammunition and Explosives Safety Afloat"	Commander, NAVSEA
	NAVSEA OP 5, "Ammunition and Explosives Safety Ashore"	Commander, NAVSEA
	Office of the Assistant Secretary of the Army for Installations and Environment Memorandum, "Interim Guidance for Chemical Warfare Material (CWM) Responses," 1 April 2009	HQDA
	OPNAVINST 8020.14, "U.S. Navy Explosives Safety Management Program Policy Manual"	CNO
	OPNAVINST 8023.24, "Navy Personnel Conventional Ammunition and Explosives Handling Qualification and Certification Program"	CNO

CHAPTER 5

CAREER DEVELOPMENT PLANNING AND TRAINING

5.1. Career Development Planning

5.1.1. The explosives safety profession is a unique career. ESP have the ability to enhance operations, including combat capabilities, by identifying and offering solutions that mitigate considerable risks to DoW personnel, property and the environment. Explosives safety involves identifying potential hazards and developing and managing complex solutions to highly technical, often high-risk, problems. Competency in this career field requires advanced training, as prescribed in each Military Service's explosives safety policies and standards.

5.1.2. A key initial step in an individual career development plan is a self-assessment of skills and capabilities. By using Military Service-specific explosives safety competencies, ESP can work with their supervisors and other senior employees to draft a career planning guide that can help determine the competencies needed for further development and the best method to obtain them.

5.1.3. ESP can be explosive safety specialists (0017), safety specialists/managers (0018) or safety engineers (0803) with general safety education, training, and experience augmented by specialized explosives safety education, training, and experience. Each DoW Component and Military Service defines the competencies required for explosives safety personnel and prescribes the specialized explosives safety education, training, and experience required to obtain these competencies within their ESMP orders and can be found in table 5-1.

5.1.4. In February 2011, the Office of Personnel Management (OPM) established the official position series 0017 with the basic title explosives safety specialist (ESS), under Title 5, U.S.C., "Government Organization and Employees." (See position classification flysheet at www.opm.gov/fedclass/gso017.pdf).

5.1.4.1. The 0017 series includes positions that manage, supervise, administer, lead, advise on, or perform explosives safety work including protecting personnel and property from the potentially hazardous consequences of unintentional detonations.

5.1.4.2. The 0017 series personnel are skilled at identifying and mitigating the risks associated with AE, ensuring compliance with applicable explosives safety policy and regulations, and implementing and maintaining effective, comprehensive ESMP. As with other ESP (e.g., 0018 and 0803 series) an ESS requires knowledge of:

5.1.4.2.1. Explosives safety laws, policies, regulations, rules, procedures and methods.

5.1.4.2.2. Munitions (military, commercial, foreign) and other energetic materials.

5.1.4.2.3. The effects of AE.

5.1.4.2.4. Methods of preventing or reducing the effects of explosive accidents, incidents, and mishaps.

5.1.4.2.5. The relationship between quantity-distance siting criteria and personnel safety.

5.1.4.2.6. Hazard classification.

5.1.4.2.7. The life cycle management of AE (e.g., inventory, storage, production, renovation, and disposition).

5.1.4.2.8. Environmental response actions that involve used AE and munitions constituents.

5.1.5. To provide optimal training for individuals serving as ESP, the DoW Components and Military Services have identified the minimum training requirements to meet the core competencies (see Table 5.1). Many courses are available through the US Army Defense Ammunition Center (DAC); specialized courses are listed in Table 5.1. To see a current listing of DAC courses and descriptions or to register for these courses, go to <https://defenseammunitioncenter.army.mil>.

Table 5.1. Military Service/Agency Courses

Explosives Safety Professional Competency Courses		DAF Weapons Safety Specialist/Manager	Army CP 20 QASAS	Army CP 12 (explosive safety roles)	Army CP 33 (ammunition manager)	Army USACE OESS	Navy ESO	Navy ESS (Entry)	Marine Corps ESO	DCMA CSS/CSM
Course Name	Course Description	M = Mandatory R = Recommended P = Periodically Update								
AMMO 1	Conventional Ammunition Orientation		M							
AMMO 4	Ammunition Demilitarization		M		M					
AMMO 5	Ammunition Facilities		M		M					
AMMO 10	Ammunition Quality Assurance		M		M					
AMMO 12	Ammunition Storage		M		M					
AMMO 13	Ammunition Supply and Inventory				M					
AMMO 14	Ammunition Surveillance		M							
AMMO 18-DL	Basics of Naval Explosives Hazard Control								R	
AMMO 19	Chemical Accident/Incident Response and Assistance									
AMMO 20	Chemical Agent Safety					R				
AMMO 27-DL	Conventional Ammunition Radiation Hazards					R				
AMMO 28	Electrical Explosives Safety for Army Facilities		M	M	M					M
AMMO 31	Environmental Considerations		M	R	M					
AMMO 29	Electrical Explosives Safety for Naval Facilities						M	R	M	
AMMO 33	ES and Environmental Risk Management								R	
AMMO 36	Explosives Safety for Naval Facility Planning						M	M	M	

Table 5.1. Military Service/Agency Courses, continued

Explosives Safety Professional Competency Courses		DAF Weapons Safety Specialist/ Manager	Army CP 20 QASAS	Army CP 12 (explosive safety)	Army CP 33 (ammunition manager)	Army USACE OESS	Navy ESO	Navy ESS (Entry)	Marine Corps ESO	DCMA CSS/ CSM
Course Name	Course Description	M = Mandatory R = Recommended P = Periodically Update								
AMMO 37-DL	General Transportation of Hazardous Materials-Refresher		M			R				
AMMO 38	Introduction to Guided Missile Large Rocket		M		M					
AMMO 43	Intermodal Dry Container/ Container Safety Certificate Reinspection		M; P		M; P				R	
AMMO 45	Introduction to Ammunition		M	M		M			M	M
AMMO 47	Lightning Protection for Air Force Facilities	R								
AMMO 49	Naval ESMs/Supervisors Orientation						M	M	M	
AMMO 54	Risk Management and Standard Operating Procedure for AE Operations		M	M	M					M
AMMO 51-RC-DL	Naval Motor Vehicle and Railcar Inspection						M	R	M	
AMMO 55	Quality Assurance for Toxic Chemical Munitions		M		M					
AMMO 62	Technical Transportation of Hazardous Material		M		M	R			R	
AMMO 63	Explosives Safety Familiarization			M		M				M
AMMO 65	DoD Contractor's Explosives Safety Standards			R						M
AMMO 66-1	Basic Radiation Safety		M; P		M; P					
AMMO 67	Hazardous Material Familiarization and Safety in Transportation								M	

Table 5.1. Military Service/Agency Courses, continued

Explosives Safety Professional Competency Courses		DAF Weapons Safety Specialist/ Manager	Army CP 20 QASAS	Army CP 12 (explosive safety)	Army CP 33 (ammunition manager)	Army USACE OESS	Navy ESO	Navy ESS (Entry)	Marine Corps ESO	DCMA CSS/ CSM
Course Name	Course Description	M = Mandatory R = Recommended P = Periodically Update								
AMMO 68	Military Munitions Rule		M	M; P	M	M; P				
AMMO 69-L-DL	Shipboard Explosives Safety - Amphibious								R	
AMMO 74	Explosives Safety Officer Orientation Course						M	M	M	
AMMO 75	Ammunition Physical Security		M		M					
AMMO 76	Identification of Ammunition		M		M				M	
AMMO 78	Ammunition Publications		M	M	M	M				M
AMMO 79	Ammunition Drawings		M		M					
AMMO 82	US Army Explosives Safety Quantity Distance (QD) and Site Planning		M	M	M					M
AMMO 86-DL	Transportation of Radioactive Material									
AMMO 87	MMRP		M	M	M					
AMMO 97	Munitions History Program		M							
AMMO 99	Application of US Army QD Principles			M						M
AMMO 100	Army Explosives Safety Site Planning Course			M						M
AMMO 101	Tutorial for DDESB QD Calculator									
ESS WS	Explosives Safety Siting Workshop									
DARAD WS	Deviations and Risk Acceptance Document									

Table 5.1. Military Service/Agency Courses, continued

Explosives Safety Professional Competency Courses		DAF Weapons Safety Specialist/ Manager	Army CP 20 QASAS	Army CP 12 (explosive safety)	Army CP 33 (ammunition manager)	Army USACE OESS	Navy ESO	Navy ESS (Entry)	Marine Corps ESO	DCMA CSS/C SM
Course Name	Course Description	M = Mandatory R = Recommended P = Periodically Update								
ESMP WS	Explosives Safety Munitions Plan Work Shop									
LTC-014 (AMMO 62)	Technical Transportation of Hazardous Material Offered at Camp Robinson, AR									
4E-91E/645-89D10/20 (Phase I)	Explosive Ordnance Disposal (EOD)					M				
4E-91E/645-89D10/20 (Phase II)	EOD					M				
AMM0 107	ESM for Safety Professionals			M		M				M
HAZWOPER	Hazardous Waste Operations					M				
USACE Engineering Manual (EM)	Explosives Safety for OESSs					M				
Munitions Rule Training							M	R	R	
Ammunition Supply Administration							R	R	R	
USN/USMC Conventional Ammunition Sentencing Course							R	R	R	
Explosives Safety Stand-Down							R	R	R	

Table 5.1. Military Service/Agency Courses, continued

Explosives Safety Professional Competency Courses		DAF Weapons Safety Specialist/ Manager	Army CP 20 QASAS	Army CP 12 (explosive safety)	Army CP 33 (ammunition manager)	Army USACE OESS	Navy ESO	Navy ESS (Entry)	Marine Corps ESO	DCMA CSS/C SM
Course Name	Course Description	M = Mandatory R = Recommended P = Periodically Update								
L3AZR2W071-OC2A	Weapons Safety Management Course	M								
First Aid and CPR	Current First Aid and CPR					M				
USACE PROSPECT Course #215	Construction Safety					M				
USACE PROSPECT Course #175	Dive Safety Administer					M				
USACE PROSPECT Course #356	CERCLA/RCRA Process					R				
USACE PROSPECT Course #397	Dive Safety Administrator Refresher					M				
Bi-Annual Marine Corps ESO Training									M	
A/F = Air Force AWST = Advanced Weapons Safety Training CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act CP – career program CPR = cardiopulmonary resuscitation ESO = explosives safety officer		HAZWOPER = hazardous waste operations JMC = Joint Munitions Command JOCG = Joint Ordnance Commanders Group OESS = ordnance and explosives safety specialists QASAS = quality assurance specialist ammunition Surveillance RCRA = Resource Conservation and Recovery Act				SMCA = single manager for conventional ammunition USACE = US Army Corps of Engineers USMC = US Marine Corps USN = US Navy WINGARD = Window Glazing Analysis Response and Design				

APPENDIX A

USMC ROAD MAPS FOR ESSs

A.1. This section outlines:

A.1.1. The training and education requirements for USMC personnel in the AE-related military occupational specialty (MOS).

A.1.2. Provides guidance for career progression by identifying:

A.1.2.1. Initial skills.

A.1.2.2. Recommended billet assignments.

A.1.2.3. Required and recommended professional military training.

A.1.2.4. Professional reading list.

A.1.2.5. Recommended MOS-related and general DL courses (Marine-net and other Service courses).

A.1.2.6. Recommended college-level courses and degrees (including courses and degrees related to USMC MOS, if applicable), as well as an introduction to the qualification and certification program.

A.2. USMC's formal MOS-producing schools have been responsible for producing MOS road maps since April 2005. The MOS road maps:

A.2.1. Can be found at the Training and Education Command Website:
www.tecom.usmc.mil.

A.2.2. Are dynamic documents that will be updated with training and education recommendations and requirements as changes occur.

A.2.3. Are specifically tailored for each MOS. See Table A.1 for a listing of the relevant MOSs.

Table A.1. USMC MOSs

USMC Munitions Specialty Codes	
Position Description	Specialty Code (MOS)
Basic AE Ordnance Disposal Marine	2300
Explosive Ordnance Officer	2305
AMMO Technician	2311
EOD Technician	2336
Ammunition Officers	2340
Aviation Ordnance Officer	6502
Aircraft Ordnance Technician	6531
Aviation Ordnance Systems Technician	6541
Aviation Ordnance Chief	6591

A.3. To conduct an effective explosives safety program, USMC-civilian ESS Series 0017 must:

A.3.1. Fully understand not only explosives safety regulatory requirements, but also the interaction between those requirements and the requirements of AE life-cycle management. Formal training or experience in a variety of disciplines is necessary to achieve this understanding.

A.3.2. To operate effectively in joint military environments, personnel must thoroughly understand the differences in explosives safety requirements and policies across the various Military Services. Accordingly, the Commander, Portfolio Acquisition Executive, Marine Corps, has defined specific training and qualification requirements for personnel managing the USMC Class V(W) and the non-operational aspects of the Class V(A) Explosives Safety Program, as detailed in MCO 5100.29 Volume 8.

A.4. USMC's Explosives Safety Officer Certification Program:

A.4.1. Provides USMC civilian personnel with a roadmap for career development throughout their total career.

A.4.2. Identifies a logical, visible framework for developing competencies required of personnel in the 0017 job series.

A.4.3. Blends formal training, on-the-job training (OJT), developmental assignments, and self-development activities.

A.4.4. Is continually reviewed and updated to ensure required training remains relevant.

APPENDIX B

US ARMY CPs AND EXPLOSIVES SAFETY TRAINING

B.1. AR 690-950, “Career Management,” governs the development, operation, and administration of Department of Army (DA) civilian CPs. See Table B.1 for a listing of occupational series typically having responsibilities in explosives safety.

B.1.1. CP-12, the Safety and Occupational Health (SOH) CP, consists of 22 occupational series.

B.1.2. CP-33, the Ammunition Manager CP (AMCP), consists of 17 occupational series.

B.1.3. CP-20, the QASAS CP consists of occupational series 1910.

Table B.1. US Army Ammunition/Explosives Safety Civil Service Careers

US Army Explosives Safety Civil Service Careers			
Position Description	General Schedule (GS) Series	CP	Career Education & Training Plan
Occupational Safety and Health Manager	GS-0018	12	See Footnote 1
Occupational Safety and Health Technician	GS-0019	12	See Footnote 1
Safety Engineer	GS-0803	12	See Footnote 1
Quality Assurance Specialists (Ammunition Surveillance)	GS-1910	20	See Footnote 2
AMMO Management	GS-0301	33	See Footnote 2
Program Manager (AMMO)	GS-0340	33	See Footnote 2
Logistics Management Specialist	GS-0346	33	See Footnote 2
Engineering Technician	GS-0802	33	See Footnote 2
Industrial Engineering Technician	GS-0895	33	See Footnote 2
Production Manager	GS-1152	33	See Footnote 2
Industrial Specialist	GS-1150	33	See Footnote 2
Production Controller	GS-1152	33	See Footnote 2
Ammunition Production Controller	GS-1601	33	See Footnote 2
Equipment Specialist	GS-1670	33	See Footnote 2
General Supply Specialist	GS-2001	33	See Footnote 2
Supply Management Specialist	GS-2003	33	See Footnote 2
Inventory Management Specialist	GS-2010	33	See Footnote 2
Distribution Facilities Specialist	GS-2030	33	See Footnote 2
Supply Cataloger	GS-2050	33	See Footnote 2
Transportation Specialist	GS-2101	33	See Footnote 2
Traffic Management Specialist	GS-2130	33	See Footnote 2
1. https://safety.army.mil/cp12online/WelcomeOverview/tabid/1261/Default.aspx			
2. Curriculum provided upon starting classes at DAC.			

B.2. Per AR 385-10, “The Army Safety Program,” US Army safety professionals (primarily SOH specialists and managers (0018) and safety engineers (0803)) serve as the principal points of contact for explosives safety technical expertise and program management. They must be adequately trained and possess experience in explosives safety appropriate to their explosives safety roles and responsibilities. The Army Civilian Training, Education and Development System:

B.2.1. Provides DA civilian personnel with a roadmap for career development throughout their total career.

B.2.2. Identifies a logical, visible framework for developing competencies required of personnel in the SOH CP.

B.2.3. Blends formal training, OJT, developmental assignments, and self-development activities. Requirements are tailored to personnel in the CP and also include prescribed civilian leader development.

B.2.4. Career path components, life-cycle model, and other related documents are available at <https://safety.army.mil/cp12online/ACTEDS/tabid/1279/Default.aspx>.

B.3. The Joint CP-12 training program is a comprehensive 2- to 3-year program that prepares career new employees for challenging assignments all over the world. This Joint Services SOH Training Program is 15 weeks of formal instruction taught at the US Army Combat Readiness/Safety Center. After the initial formal training, the internship consists of a combination of OJT and specific training unique to the new employees’ installation/facility (to include additional required explosives safety training) over the remainder of the 2-year training period. Additional information on the CP-12 training program is available at <https://safety.army.mil/cp12>.

B.4. For ESP to be effective, the US Army requires:

B.4.1. Competency in general SOH explosives safety and program management, typically obtained through the US Army’s CP-12 training program.

B.4.2. Competency in leadership, typically obtained through US Army leadership courses.

B.5. The US Army Explosives Safety Training Working Group and the Army CP-12 functional chief’s representative (FCR) have developed competency models for explosives safety functions at the core and advanced levels. US Army explosives safety and training SMEs, in turn, have developed and continue to develop coursework to provide the knowledge and skills to ensure the competency of safety personnel. Per US Army policy all safety professionals will possess a core knowledge of explosives safety. Accordingly, all US Army safety professionals will complete training in the courses in Table B.2.

Table B.2. US Army Safety Professionals Core Knowledge Training Courses

DAC Course	Mode	Duration
AMMO 45 - Introduction to Ammunition	DL (self-paced)	8 hours
AMMO 63 - US Army Explosives Safety Familiarization	DL	12 hours
AMMO 78 - Ammunition Publications	DL	6 hours
AMMO 107 - Introduction to ESM for Safety Professionals	DL or Classroom	18 hours 32 hours

B.5.1. The US Army's Explosives Safety Training Working Group has developed advanced competencies and explosives safety training for safety professionals with explosives safety responsibilities, which require additional courses:

DAC Course	Mode
AMMO-28	DL or Classroom
AMMO-54	DL
AMMO-97	DL
AMMO-99*	DL
AMMO-100*	DL
AMMO-82 (Optional)	Classroom
AMMO-112	DL
Army Explosives Safety Deviation Workshop	Classroom
Advanced Explosives Safety Management Workshop	Classroom

B.5.2. ESPs in specialized missions or functional responsibilities also have specific training including:

B.5.2.1. Tactical/deployed assignments.

B.5.2.2. Base operations.

B.5.2.3. Industrial AE activities (including USAMC Depot and USACE functions).

B.5.2.4. RDT&E.

B.5.2.5. Munitions response.

B.5.3. The US Army CP-12 FCR is developing an explosives safety certification program, the CP-12 Explosives Safety Professional Certificate. The Explosives Safety Professional Certificate – Level 1 is currently available to all personnel who meet the established requirements. Installation personnel with explosives safety roles and responsibilities are required to complete explosives safety level 2 certification. Additional information is available

at <https://safety.army.mil/cp12> This tiered certification program:

B.5.3.1. Provides a formal structure for defining and assessing explosives safety.

B.5.3.2. Ensures safety professionals meet the training and career standards necessary for managing and executing the US Army's explosives safety program.

B.5.3.3. Supports professionalism of the SOH workforce and provides personnel with a clear path to career progression.

B.5.3.4. Is executed by the US Army Combat Readiness/Safety Center with oversight by the US Army's Explosives Safety Training Working Group.

Per US Army policy and standards, US Army ammunition professionals are additionally tasked with explosives safety duties, dependent upon position requirements and duty location but most commonly (but not exclusively) with the 1910, 0301, and 0346 job series and MOS 890A, Ammunition Technician (a US Army Warrant Officer Program). Ammunition manager (CP-33) and QASAS (CP-20) personnel and ammunition warrant officers are used to provide technical assistance to commanders and safety directors and must also be adequately trained and qualified in explosives safety. The path for US Army ammunition professionals to gain core explosives safety skills is included in these established CPs:

B.5.4. Both CP-33 and CP-20 careerists are provided with opportunities to advance in their respective job assignments, responsibilities, and pay grade. Initially, all new employees share a strong learning experience within the GS-7 pay grade. Upon successful completion of Phase 1 classroom training, new employees receive a non-competitive promotion to GS-09.

B.5.5. Once CP-33 new employees have completed Phase 1 and Phase 2 training, they are required to submit a resume to the AMCP office to officially register in the CP. The AMCP Office provides a memorandum to the careerist confirming registration, enters the careerist information in the AMCP database, and includes the careerist on distribution for AMCP professional development opportunities and other CP-33 information. CP-33 consists of 17 different job series; personnel registered in CP-33 can apply for any of these positions worldwide and are in control of their own career path. Careerists compete for jobs and move to other locations based on their application and selection for positions.

B.5.6. CP-20 QASAS perform ammunition surveillance duties relating to ammunition inspection and logistics management including:

B.5.6.1. The inspection, test, and evaluation of AE and related materiel to determine the current degree of serviceability and rate of deterioration.

B.5.6.2. Safety of AE during storage, handling, transportation, use, and disposal.

B.5.6.3. Transportation of AE, including propriety of stowage, blocking, bracing, and suitability of transport equipment.

B.5.6.4. Assurance that AE supply disciplines are properly exercised.

B.5.6.5. Assurance that AE maintenance programs are conducted in a safe and proper manner.

B.5.6.6. Advice and assistance to US troop units during combat and training operations, including range operations, malfunction investigations, field storage requirements, supply/resupply rate computations, and restrictions on AE use.

B.5.6.7. Chemical surety and performance of surety officer functions.

B.5.6.8. Technical advice and assistance in the development of AE support doctrine and in studies undertaken to resolve AE-related logistics problems.

B.5.6.9. Advise and assist in developing AE facilities budget and manpower requirements.

APPENDIX C

US NAVY TRAINING REQUIREMENTS FOR MILITARY, CIVILIANS, AND CONTRACTORS

C.1. This appendix outlines the training and certification requirements for all US Navy ESP (military, civilians, and contractors) involved in ammunition and explosives (AE) operations within the Navy's Explosives Safety Enterprise. It emphasizes the Navy's commitment to a qualified, competent and agile workforce.

C.2. The US Navy Explosives Safety Training Program, managed by the Naval Ordnance Safety and Security Activity (NOSSA), provides comprehensive explosives safety training for its military, civilians, and contractors. Approximately 20,000 Navy ESP are subject to the training requirements outlined in NAVSEA OP 4, "Ammunition and Explosives Safety Afloat," Appendix E, and NAVSEA OP 5, "Ammunition and Explosives Safety Ashore," Appendix D. This appendix details specific training and proficiency requirements, based on position or job title, applicable to all Navy ESP.

C.3. The Navy civilian job series 0017, Explosives Safety Specialists (ESS) community, represents a portion of the Navy's ESP. ESS personnel are civilian employees assigned to the OPM Job Series 0017, responsible for managing, supervising, administering, leading, advising on, or performing explosives safety work.

C.4. NOSSA manages the Navy's 0017 enterprise through the Navy's 0017 Community Management Plan (CMP) and Community Management Charter (CMC), executed per NOSSA Instruction 8020.27 and NOSSA manuals M-8020.3 and M-8020.4. These documents equip the Navy's ESS community with the necessary tools, knowledge, and skillsets to fully support a vast array of Navy operations. They also establish and maintain a certification process, developed by the Navy's ESS community to fully represent the Navy's ESS community.

C.5. The Navy 0017 Career Pipelines are:

1. Oversight Pipeline: Personnel employed at NOSSA or Navy type commands supporting afloat technical assistance teams.
2. Research, Development, Test, and Evaluation (RDT&E) Pipeline: 0017 personnel employed at activities listed in appendix G of NAVSEA OP 5.
3. Strategic Systems Programs (SSP) and Government Owned Contractor Operated (GOCO) Pipeline: Government civilian personnel employed by SSP or employed by Navy GOCO facilities.
4. Installation Management Pipelines: The remaining Navy 0017 workforce falls into one of the following sub-pipelines:
 - i. Weapons Stations

- ii. Air Stations
- iii. Naval Support Activities & Naval Support Facilities

C.6. Navy 0017 technical proficiency and career development are crucial for maintaining an overall healthy Navy Explosives Safety Management Program. All Navy ESSs must demonstrate the skills required for their assignments, achieved through core training and certification:

1. Core skills and training: Meeting the basic requirements of a Navy ESS is validated through attainment of the 0017 Level 100 (Entry) certification, a universal requirement for all Navy 0017 personnel.
2. Professional development: Opportunities both within and outside of an individual Navy ESS's pipeline are available via access to Level 200 (Journeyman) & 300 (Expert) Training Plans (TP). These TPs have been tailored to address unique and essential pipeline technical and professional skillsets. All Navy 0017 personnel are encouraged to pursue additional cross-pipeline certifications to afford them access to both technical and professional growth opportunities within and outside of the enterprise.

C.7. DoW personnel not serving as Navy Job Series 0017 ESS personnel (e.g., 0018-Safety & Occupational Health, etc.), may complete Navy 0017 TP requirements, but they will not be issued a certification upon completion. However, non-Navy 0017 personnel may be issued a letter of accomplishment by the Navy 0017 Career Program Manager upon request.

C.8. Navy explosives safety training is available to any DoW employee with a Common Access Card. All references, including initial training and proficiency request submissions for ESP, Navy 0017 TPs, the Navy 0017 CMP and the CMC can be found on the NOSSA website at <https://nossa.dc3n.navy.mil/nros/>).

APPENDIX D

US AIR FORCE ESSs

D.1. This section:

D.1.1. Outlines the training and education requirements for Department of the Air Force (DAF) personnel assigned explosives safety oversight responsibilities.

D.1.2. Provides basic guidance for career progression by identifying initial skills, and upgrade, qualification, advanced, and proficiency training requirements.

D.1.2.1. Initial skills training is the DAF specialty specific training that an individual receives upon entry into the DAF or upon retraining into this specialty for award of the 3-skill level.

D.1.2.2. Upgrade training identifies the mandatory courses, task qualification requirements, and correspondence course completion requirements for award of the 5-, 7-, and 9-skill levels.

D.1.2.3. Qualification training is actual hands-on task performance training designed to qualify an Airman or Guardian in a specific duty position. This training program occurs both during and after the upgrade training process.

D.1.2.4. Advanced training is formal specialty training provided for selected Airmen or Guardians.

D.1.2.5. Proficiency training is additional training (in-residence, exportable, advanced training courses, or OJT) provided to munitions personnel to increase their skills and knowledge beyond the minimum required for upgrade.

D.2. Active-duty DAF weapons (explosives) safety managers (WSMs) are:

D.2.1. Comprised primarily of personnel selected from the enlisted 2W0X1 (Munitions Systems Specialty), 2W1X1 (Aircraft Armament Systems Specialty), and 2W2X1 (Nuclear Weapons Specialty) career fields who, upon meeting specific criteria, enter the 8W Special Duty Identifier (SDI). Within the 8W SDI three tiers align experience with responsibilities and build upon the foundational knowledge gained in the Weapons Safety Management Course. Personnel serve in the E5 through E8 pay grades (7- and 9-skill levels).

D.2.2. Required to attend a formal 6-week Weapons Safety Management Course (L3AZR2W071 OC2A) at Lackland AFB, TX, within 90 days of assignment. A detailed description of this course is provided in paragraph D.4.

D.3. The Weapons Safety Management Course provides 30 academic days of training to selected DoW personnel in the knowledge and skills needed to perform primary duties in

weapons safety management. The training includes:

- D.3.1. Secretary of the DAF Mishap Prevention Program
- D.3.2. WSM responsibilities
- D.3.3. Nuclear surety
- D.3.4. Weapons safety training and education
- D.3.5. Hazard identification and reporting
- D.3.6. Deployed safety
- D.3.7. Personnel Reliability Program
- D.3.8. Safety inspection
- D.3.9. Assessment and staff assistance visits
- D.3.10. Explosives storage
- D.3.11. Explosives operations
- D.3.12. Explosives/nuclear transportation
- D.3.13. Firefighting/prevention
- D.3.14. Licensed explosives storage
- D.3.15. Flight line explosives locations/operations
- D.3.16. Ranges
- D.3.17. Hazards of electromagnetic radiation to ordnance analysis
- D.3.18. Explosives location/operation checklist
- D.3.19. Safety inspection of explosives locations/operations
- D.3.20. Safety inspection report
- D.3.21. Mishap investigation, human factors
- D.3.22. Mishap classifications and categories
- D.3.23. Mishap investigation and reporting

- D.3.24. QD separation
- D.3.25. Weapons safety for contingency operations
- D.3.26. Explosives site planning
- D.3.27. Glass breakage risk assessment
- D.3.28. Exceptions
- D.3.29. Explosives safety submissions
- D.3.30. Explosives safety packages

D.4. Historically, most civilian service personnel performing US Air Force WSM duties have prior active-duty military WSM experience in the their career series noted in paragraph D.1.2.2. (5-, 7-, and 9-skill levels) or have developed explosives safety skills serving in the 0018, SOH specialist or 0017, ESS/manager career series where explosives safety comprised a percentage of their overall duties. Civilians can also attend the formal Weapons Safety Management Course to develop WSM-required skills.

D.5. Figure D.1 depicts a high-level safety career progression pyramid for all active-duty and civilian service personnel. Table D.1 shows the desired levels of education, training and experience from trainee/new employees (GS-07) through senior management (GS-13 through GS-15) levels. Additional information about safety civilian development is in DAFMAN 36-142, “Civilian Career Field Management and Centrally Managed Programs,” which details procedures and criteria for civilian career field management and force development.

Figure D.1. Safety Career Development Plan - Enlisted, Officer, and Civilian

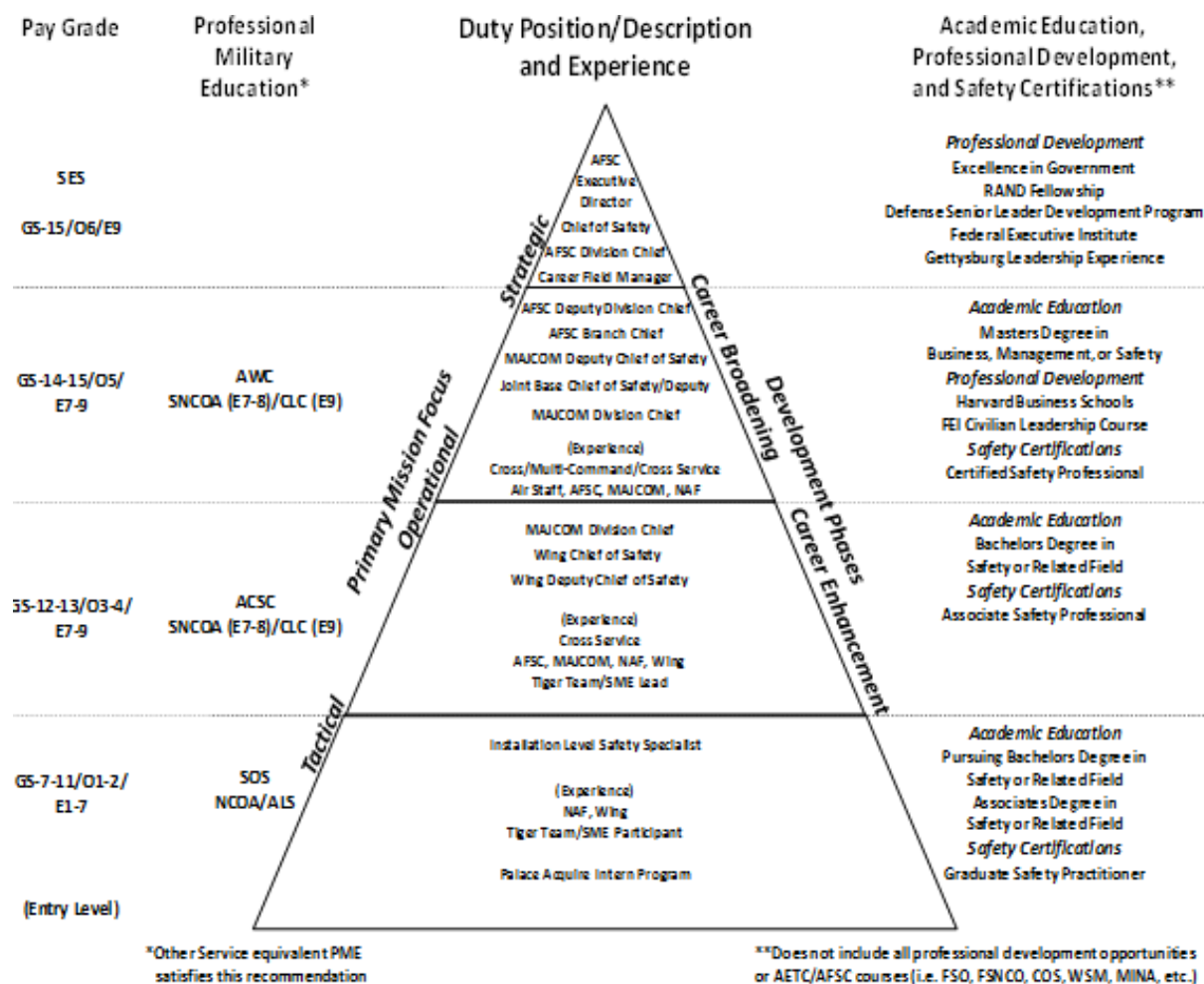


Table D.1. US Air Force Civilian Service Desired Education, Training, and Experience

Level	Desired Education/Training/ Experience
Trainee/New employees GS-07	• Safety Specialist • Munitions Systems Specialist • OJT and job assignments to meet specialty training standards skill levels • Occupational Safety and Health Administration (OSHA) Training Institute (OTI) • Safety Training Institute • Flight Safety NCO (L3AZR1S071-004) • Field Training Detachment courses • Basic data automation (application/operation) • Other OPM training • Weapons Safety Officer (New employees) (L3AZR2W171-004)
Intermediate GS-09-11	• National Safety Council • OTI • Safety Supervisor • Aircraft Mishap Investigation Course (WCIP05A) • Jet Engine Accident Investigation • Fire Protection and Life Safety (OSHA 207) • Technical Transportation of Hazardous Materials • Other federal training courses • Technical seminars/workshops • Field Training Detachment courses applicable to base mission • Environmental Protection Committee members (WMGT004) • Applicable Air Force Institute of Technology (AFIT) courses • Other OPM training • Flight Safety NCO (L3AZR1S071-004) • Weapons Safety Officer (L3AZR2W171-004) • System Safety and Human Factors • System Safety Analysis Course (WCIP06O) • Squadron Officer School Program offered both in residence at Maxwell AFB, AL, and by correspondence through the non-resident online course

Table D.1. US Air Force Civilian Service Desired Education, Training, and Experience, continued

Level	Desired Education/Training/ Experience
Mid-Management GS-11-13	• SOS Program offered both in residence at Maxwell AFB, AL, and by correspondence through the non-resident online course • Air Command and Staff College (ACSC) • Defense Management Education and Training short courses • Engineer-In-Training Refresher Course • OPM management development courses • Professional development seminars/workshops • Squadron Officer's School • Safety Managers Course (WCIP05B) • Weapons Safety Officer Course (L3AZR2W171-004) • Flight Safety Officer Course (WCIP05C) • System Safety Management Course (WCIP057) • Chief of Safety Course (WCIP05B) • Applicable AFIT courses
Senior Management GS-13-15	• ACSC; Air War College • Federal Executive Institute • Management Development Center courses • Industrial College of the Armed Forces • Other OPM training • University management courses • Professional development seminars/workshops • Chief of Safety Course (WCIP05B)

APPENDIX E

DCMA CSS/CSM

E.1. This appendix identifies the educational and training requirements for the DCMA Contract Safety Specialist or Contract Safety Managers who is involved in AE operations, which include;

E.1.1. The development, testing, storage, manufacture, modification, renovation, demilitarization, packaging, transportation, handling, disposal, inspection, repair, or any other use of AE.

E.1.2. Provides guidance for the establishment of management controls to enable the DCMA explosives safety professional to perform quality work.

E.2. It is important to maintain a highly qualified workforce of professionals who are kept current in their knowledge and skills. The DoW explosives safety mission depends upon developing or hiring well-qualified explosives safety experts. The uniqueness of the AE business requires knowledge of contract administration, management ability, engineering/structure design, explosives manufacturing and munitions assembly, making it difficult to acquire fully qualified safety professionals.

E.3. The DCMA CSS/CSM:

E.3.1. Must be certified in the Defense Acquisition Workforce Improvement Act (DAWIA) for the Manufacturing, Production, and Quality Assurance career field.

E.3.2. May enter the Explosives Safety Program with varying degrees of safety-related training and/or experience. The qualification criteria for entry personnel is a combination of formal training and experience that establishes a minimum set of criteria for satisfactory performance:

E.3.2.1. Emphasize training when experience is lacking.

E.3.2.2. Stress experience when sufficient training has not been accomplished.

E.3.3. Enters the explosives safety career field as a new employee or journeyman based on level of education and experience.

Table E.1. DCMA Industrial or Foundational Certification Courses

Course	Course Description	Source
AMMO-28	Electrical Explosives Safety for Army Facilities (SEE NOTES)	DAC
AMMO-54	Risk Mngt & Prep of SOPs for A/E Operations (DL) (SEE NOTES)	DAC
AMMO-63	U.S. Army Explosives Safety (DL)	DAC
AMMO-65 ¹	DoD Contractor's Explosives Safety Standards	TCI
CSAF-121	OSHA 511 - OSH Standards for General Industry	OTI
CSAF-123	OSHA 3095 - Electrical Standards	OTI
CSAF-125	NFPA 101 - Life Safety Code, Essentials with Focus on Occupancies	OTI/NFPA
CSAF-128 ¹	Contract Safety 101 Course	TDSC
CSAF-134	Process Safety Management and Classification	TCI
CSAF-243	NFPA 30/400/704	NFPA
CSAF-244	NFPA 70 – National Electric Code (DL)	NFPA
CLC-222	Online Training for Contracting Officers Representative (COR)	DAU

Table E.2. DCMA Ammunition and Explosives Certification Courses²

Course	Course Description	Source
AMMO-45	Introduction to Ammunition (DL)	DAC
AMMO-78	Ammunition Publications (DL) (SEE NOTES)	DAC
AMMO-99	Application of US Army ESQD Principles (DL) or take #10	DAC
AMMO-100	Army Explosive Safety Site Planning (DL) or take #10	DAC
AMMO-107	Intro to Explosives Safety Management for Safety Professionals (DL)	DAC
CSAF-114	Explosives Safety Site Planning for Contract Safety	TDSC
CSAF-133 ¹	Cross-Training at Ammunition & Explosives Facility	TDSC
CSAF-240	NFPA780/495 - Lightning Protection Code/Explosives Materials	TCI

¹ Mandatory Recertification Courses² Only required for AE Training Track

Table E.3. DCMA Foundational Requirements (GS12 and below)

Course	Course Description	Source
ACQ1010	Fundamentals of Systems Acquisition Management	DAU
ETM 1010	Leading Change Fundamentals	DAU
ETM 1020	Mission & Systems Thinking Fundamentals	DAU
ETM 1030	Requirement Definitions & Analysis Fundamentals	DAU
ETM 1040	Technical Management Fundamentals	DAU
ETM 1050	Design Considerations Fundamentals	DAU
ETM 1060	Product Realization Fundamentals	DAU
ETM 1070	Digital Literacy Fundamentals	DAU
ETM 1080	Software Literacy Fundamentals	DAU
ETM 1090	Technical Perspectives on Defense Contracting Fundamentals	DAU

Table E.4. DCMA Practitioner Requirements (GS13/Equivalent and above)³

Course	Course Description	Source
ETM 2010V	Leading Change for Practitioners	DAU
ETM 2020V	Mission & Systems Thinking for Practitioners	DAU
ETM 2030V	Requirement Definitions & Analysis for Practitioners	DAU
ETM 2040V	Technical Management for Practitioners	DAU
ETM 2050V	Design Considerations for Practitioners	DAU
ETM 2060	Product Realization for Practitioners (Resident)	DAU
ETM 2070V	Digital Literacy for Practitioners	DAU
ETM 2080V	Software Literacy for Practitioners	DAU
ETM2090V	Technical Perspectives on Defense Contracting for Practitioners	DAU
ETM 2010V	Leading Change for Practitioners	DAU

³ Must have completed Foundational requirements prior.

Table E.5. Maintenance Courses

Course	Course Description
NEW	DWESO – Explosives Safety Workshop; as available
CSAF-122	OSHA 521 - Guide to Industrial Hygiene
CSAF-124	OSHA 7505 - Intro to Accident Investigation
CSAF-132	Chemistry of Pyrotechnics
CSAF-238	Advanced Explosives Site Planning
CSAF-239	Explosives Shipping Course
ANY	Any In-residence Course Listed in Foundational, AE, or AC Course Lists

APPENDIX F

USACE OESSs

F.1. OESSs, CP 12, GS-0018, are individuals appointed by the USACE to support the execution of the MMRP and other work including clearance of operational ranges for maintenance purposes and to support new construction. Work may be performed in the continental United States and outside the continental United States. USACE OESSs are former military personnel graduated from the Naval EOD School.

F.2. The OESS:

F.2.1. Identifies fuzing and fuze condition.

F.2.1. Recognizes AE types by function, determines hazards, and makes risk assessments.

F.2.1. Applies explosives safety principles in various environments and/or media, including land and water.

F.2.1. Conducts reviews of project documents for proper application of explosives safety requirements (policy, regulations, guidance and standard operating procedures).

F.2.1. Conducts quality assurance inspections of contractor field operations with regard to applicable explosives and occupational health and safety requirements, and other assigned contract surveillance activities.

F.2.1. Assists with coordination of EOD and Chemical, Biological, Radioactive, Nuclear and Explosives Analytical and Remediation Activity (formerly known as Technical Escort Unit responses with the contractor operations, as required.

F.2.1. Serves as a project delivery team (PDT) member, at a minimum, representing explosives safety functional areas to the PDTs, regulators, stakeholders, and the public.

F.2.1. Advises and provides training for various stakeholders regarding explosives safety issues.

F.2.1. Ensures accidents are reported.

F.2.1. Participates in accident investigations.

F.3. Table F.1 outlines the training, certification and education requirements for USACE OESS personnel. Personnel at the GS-11/12 level are generally those conducting project level activities, while GS-13 personnel are team leaders or supervisors. Regardless of grade, all new hires must complete mandated training. Other courses may also be identified and considered to enhance personnel skills and abilities.

Table F.1. USACE OESS Training and Education Plan¹

Course	GS-11/12	GS-13	Duration	Source
EOD Technician ²	Mandated	Mandated	-	Naval EOD School
HAZWOPER ³	Mandated	Mandated	40	Resident (Vendor - refresher according to certificate)
USACE EM 385-1-97, "Explosives - Safety and Health Requirements Manual" ^{3,4}	Mandated	Mandated	32	Resident (Environmental and Munitions Center of Expertise) http://www.environmental.usace.army.mil/workshops.htm
AMMO 68 - Military Munitions Rule ⁴	Mandated	Mandated	Self Paced	https://defenseammunitioncenter.army.mil/ Updates when Rule changes.
Proponent Sponsored Engineer Corps Training (PROSPECT) Course #356 - CERCLA/RCRA Process	Recommended	Recommended	24	Resident (PROSPECT) http://ulc.usace.army.mil/
PROSPECT Course #215 Construction Safety ⁴	Mandated	Mandated	30	Resident (PROSPECT) http://ulc.usace.army.mil/
First Aid and CPR ⁴	Mandated	Mandated		Resident (Vendor – refresher according to certificate)
AMMO 62 - Technical Transportation of Hazardous Materials	Recommended	Recommended	80	https://defenseammunitioncenter.army.mil/
AMMO 37-DL General Transportation of Hazardous Materials – Refresher	Recommended	Recommended	40	https://defenseammunitioncenter.army.mil/
AMMO 20 - Chemical Agent Safety	Recommended	Recommended	32	https://defenseammunitioncenter.army.mil/
AMMO 45 – Introduction to Ammunition ⁵	Mandated	Mandated	8-DL	https://defenseammunitioncenter.army.mil/
AMMO 63 – Explosives Safety Familiarization ⁵	Mandated	Mandated	12-DL	https://defenseammunitioncenter.army.mil/
AMMO 78 – Ammunition Publications ⁵	Mandated	Mandated	6-DL	https://defenseammunitioncenter.army.mil/

Table F.1. US Corps of Engineers OESS Training and Education Plan,¹ continued

Course	GS-11/12	GS-13	Duration	Source
AMMO 107 – ESM for Safety Professionals ⁵	Mandated	Mandated	18-DL	https://defenseammunitioncenter.army.mil/
PROSPECT Course #175-Dive Safety Administrator ⁶	Mandated	Mandated	88	Resident (PROSPECT) http://ulc.usace.army.mil/
PROSPECT Course #397-Dive Safety Administrator Refresher ⁶	Mandated	Mandated	40	Resident (PROSPECT) http://ulc.usace.army.mil/ Every 4-yrs, after completing PROSPECT course #175

¹ This plan may be modified after the Army completes the CP-12 Explosives Safety Competency Model. For Core competency, see Note 5. The Army Explosives Safety Training Working Group is currently developing advanced-level training requirements.

² USACE Pre-Requisite for appointment to OESSs.

³ Mandated prior to assignment to hazardous waste/MMRP operations.

⁴ To be scheduled within 6 months of initial employment or placement.

⁵ Mandated Core Competency, Level I (introductory-level training) courses mandated by Director of Army Safety, see Table B.2. Courses are to be completed for current employees by December 2013 and for those hired after December 2013, within 6 months of hiring.

⁶ Only for those OESSs involved in the oversight of under-water contractor MMRP work.

GLOSSARY

ACSC	Air Command and Staff College
AE	Ammunition and Explosives
AFB	Air Force Base
AFI	Air Force Instruction
AFIT	Air Force Institute of Technology
AFMAN	Air Force Manual
AMCP	Ammunition Manager Career Program
AOC	Army Operations Center
AR	Army Regulation
AWST	Advanced Weapons Safety Training
CCDR	Combatant Commander
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CJCSI	Chairman of the Joint Chief of Staff Instruction
CNO	Chief of Naval Operations
CP	Career Program
CPR	Cardiopulmonary Resuscitation
DA	Department of the Army
DAC	US Army Defense Ammunition Center
DAWIA	Defense Acquisition Workforce Improvement Act
DCMA	Defense Contract Management Agency
DDESB	Department of Defense Explosives Safety Board
DGAC	Dangerous Good Advisory Council
DL	Distance Learning
DoD	Department of Defense
DoDI	DoD instruction
DoW	Department of War
DWESO	Department of War Explosive Safety Office
EESI	Explosives Educational Services, Inc.
EM	Engineering Manual
EOD	Explosive Ordnance Disposal
ES	Exposed Site
ESM	Explosives Safety Management
ESP	Explosives Safety Personnel
ESMP	Explosives Safety Management Program
ESMRM	Explosives Safety and Munitions Risk Management
ESO	Explosives Safety Officer
ESS	Explosives Safety Specialist
ESSP	Explosives Safety Site Plan
FCR	Functional Chief's Representative
GS	General Schedule
HAZWOPER	Hazardous Waste Operations
HQDA	Headquarters, Department of the Army
ISEE	International Society of Explosives Engineers
MCO	Marine Corps Order
MHE	Material Handling Equipment
MMRP	Military Munitions Response Program

MOS	Military Occupational Specialty
NAVSEA	Naval Sea Systems Command
NFPA	National Fire Protection Association
OESS	Ordnance and Explosives Safety Specialist
OJT	On-the-Job Training
OP	Ordnance Pamphlet
OPM	Office of Personnel Management
OPNAVINST	Chief of Naval Operations Instruction
ORM	Operational Risk Management
OSHA	Occupational Safety and Health Administration
OTI	OSHA Training Institute
PME	Professional Military Education
QASAS	Quality Assurance Specialist Ammunition Surveillance
QD	Quantity Distance
RCRA	Resource Conservation and Recovery Act
RDT&E	Research, Development, Test and Evaluation
RESS	Required Explosives Safety Submissions
SEI	Special Experience Identifier
SME	Subject Matter Expert
SOH	Safety and Occupational Health
TP	Technical Paper
TSI	Transportation Safety Institute
US	United States
USACE	United States Army Corps of Engineers
USAMC	US Army Materiel Command
U.S.C.	United States Code
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USMC	US Marine Corps
USN	US Navy
WSM	Weapons Safety Manager