

Minimum Qualifications for Unexploded Ordnance (UXO) Technicians and Personnel



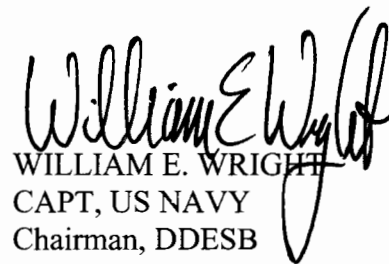
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FOREWORD

Department of Defense Explosives Safety Board (DDESB) Technical Paper (TP) 18 provides the minimum qualification standards for personnel conducting unexploded ordnance (UXO)-related operations in support of the Department of Defense.

This document will be updated as necessary.



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REFERENCE

Report of the Integrated Product Team (IPT) for Unexploded Ordnance (UXO) Remediation – Personnel Qualification Standards, October 2000

ACRONYMS

C	Capacitance
CA	Chemical Agent
CWM	Chemical Warfare Material
DC	Direct Current
DDESB	Department of Defense Explosives Safety Board
DoD	Department of Defense
DMM	Discarded Military Munitions
EMF	Electro-Motive Force
EOD	Explosive Ordnance Disposal
HAZWOPER	Hazardous Waste Operations and Emergency Response
HERO	Hazards of Electromagnetic Radiation to Ordnance
IPT	Integrated Product Team
MC	Munitions Constituents
MEC	Munitions and Explosives of Concern
MPPEH	Material Potentially Presenting an Explosive Hazard
MRA	Munitions Response Area
MRS	Munitions Response Site
NAVSCOLEOD	Naval School, Explosive Ordnance Disposal
PPE	Personal Protective Equipment
QCPP	Quality Control Program Plan
RSP	Render Safe Procedures
SUXOS	Senior UXO Supervisor
TEU	Technical Escort Unit
TP	Technical Paper
U.S.	United States
UXO	Unexploded Ordnance
UXOQCS	UXO Quality Control Specialist
UXOSO	UXO Safety Officer
UXOSP	UXO Sweep Personnel

UXOTI	UXO Technician I
UXOTII	UXO Technician II
UXOTIII	UXO Technician III

C1. CHAPTER 1**INTRODUCTION****C1.1. GENERAL**

C1.1.1. This document provides minimum qualification standards for personnel performing unexploded ordnance (UXO)-related operations in support of the Department of Defense with the exception of DoD Explosives Ordnance Disposal (EOD) personnel. Such operations include, but may not be limited to: military munitions responses, range clearance activities, range maintenance, and inspection or certification of munitions debris and range-related debris being considered for transfer or release from DoD control.

C1.1.2. Personnel performing or supervising UXO-related activities shall meet the minimum qualification standards commensurate with their duties.

C1.2. APPLICABILITY

The requirements herein apply to all workers performing Department of Defense operations requiring UXO Technicians or UXO-qualified personnel.

C1.3 KEEPING TECHNICAL PAPER(TP) 18 CURRENT

This technical paper will be updated as needed based on input from the DoD Components.

C2. CHAPTER 2

UXO-RELATED POSITION TITLES AND TASKS

C2.1. DUTIES AND RESPONSIBILITIES

This chapter identifies the various UXO-related positions by title and outlines their duties and responsibilities. Training levels should be documented and retained for personnel involved in UXO related operations. Divers conducting underwater detection and identification of munitions must have completed both the basic and the underwater portions of NAVSCOLEOD (or foreign equivalent) training.

C2.1.1. UXO-Sweep Personnel (UXOSP). UXOSP assist UXO technicians and UXO-qualified personnel in the performance of UXO-related operations. UXOSP do not have to be a UXO technician, however, they shall be provided job and site specific training. Such training shall, at a minimum include training in: explosives safety; recognition of munitions and explosives of concern (MEC), particularly UXO; and the proper use of personal protective equipment (PPE). UXOSP are not involved in the execution of explosives operations and shall not have intentional physical contact with MEC. With direction and supervision of UXO-qualified personnel, UXOSP may:

C2.1.1.1. Conduct visual and/or detector-aided UXO and discarded military munitions (DMM) field search activities.

C2.1.1.2. Locate subsurface UXO and DMM by operating geophysical detection instruments and related equipment.

C2.1.1.3. Perform field maintenance and calibration checks on geophysical detection instruments and related equipment.

C2.1.1.4. Remove non-hazardous munitions debris and range-related debris, only after such items have been inspected by a UXO technician or UXO qualified personnel and determined to be safe for handling.

C2.1.1.5. Perform site/area security functions.

C2.1.2. UXO Technician I (UXOT1). In addition to being able to fully perform all of the UXOSP functions above, and with direction and supervision from UXO-qualified personnel, UXOT1 personnel may:

C2.1.2.1. Reconnoiter and classify UXO and DMM.

C2.1.2.2. Identify all types of military munitions, including possible fuzes and their

condition, armed or unarmed. Examples of these military munitions are:

- Bombs
- Guided missiles
- Projectiles
- Rockets
- Land mines and associated components
- Pyrotechnic items
- Military explosives and demolition materials
- Grenades
- Submunitions

C2.1.2.3. Excavate subsurface UXO and DMM.

C2.1.2.4 Move and/or consolidate UXO and DMM that has been determined acceptable for movement within a Munitions Response Site (MRS) or Munitions Response Area (MRA), but not over public traffic routes.

C2.1.2.5. Transport demolition materials and/or UXO and DMM that have been determined safe for transport over public traffic routes, when required.

C2.1.2.6. Prepare firing systems, both electric and non-electric, for demilitarization operations.

C2.1.2.7. Operate personnel decontamination stations.

C2.1.2.8. Assist in the inspection of Material Potentially Presenting an Explosive Hazard (MPPEH) for the presence of explosive hazards.

C2.1.2.9. Construct UXO-related protective works.

C2.1.3. UXO Technician II (UXOTII). In addition to being able to fully perform all of the UXOSP and UXOT1 functions above, UXOTII personnel may:

C2.1.3.1. Properly store explosive materials per applicable guidance.

C2.1.3.2. Determine precise location in field environment using a variety of techniques such as use of global positioning equipment, or basic land navigation techniques using topographical map and compass.

C2.1.3.3. Perform field collection procedures to identify contaminated soil

C2.1.3.4. Prepare an on-site holding area to temporarily stow MEC that has an acceptable risk of movement.

C2.1.3.5. Operate modes of transportation for transporting UXO, for which the risk of movement has been determined acceptable, when appropriate.

C2.1.3.6 Perform limited technical supervision of UXOSP.

C2.1.3.7. Escort personnel who are not directly involved in UXO-related operations (e.g., personnel performing environmental monitoring), but have activities to perform within exclusion areas.

C2.1.3.8. Inspect MPPEH for the presence of explosives safety hazards.

C2.1.4. UXO Technician III (UXOTIII). In addition to being able to fully perform all of the UXOSP and for UXOTI and UXOTII functions above, UXOTIII personnel may:

C2.1.4.1. Supervise and perform the on-site demilitarization of MEC, and handling of demolition materials.

C2.1.4.2. Prepare an explosives storage plan per all applicable guidance.

C2.1.4.3. Prepare required UXO munitions response actions and/or range maintenance administrative reports.

C2.1.4.4. Prepare standard operating procedures for on-site munitions responses and/or for range clearance activities.

C2.1.4.5. Assist in the preparation of risk and hazards analyses.

C2.1.4.6. Conduct daily site safety briefings.

C2.1.4.7. Supervise the conduct of all on-site UXO-related operations.

C2.1.4.8. Inspect and certify and/or verify MPPEH as safe or as to the explosive hazard it may present for transfer within the Department of Defense or release from DoD control per current policies and standards.

C2.1.5. UXO Quality Control Specialist (UXOQCS). In additional to being able to fully perform all of the UXOSP, UXOT1, UXOTII, and UXOTIII functions above, UXOQCS may:

C2.1.5.1. Develop and implement the MEC-specific sections of the Quality Control Program Plan (QCPP) for all explosive related operations.

C2.1.5.2. Conduct and document quality control audits of all explosive operations for compliance with established procedures.

C2.1.5.3. Identify, document, report and ensure completion of all corrective actions to ensure all explosive operations comply with requirements.

C2.1.6. UXO Safety Officer (UXOSO). In addition to being able to fully perform all of the UXOSP, UXOT1, UXOTII, and UXOTIII functions above, UXOSO may:

C2.1.6.1. Develop and implement approved explosives and UXO health and safety program in compliance with applicable DoD policy and federal, state, and local health and safety statutes, regulations and codes.

C2.1.6.2. Analyze operational risks, explosive hazards and safety requirements.

C2.1.6.3. Establish and ensure compliance with all site-specific explosive operations safety requirements.

C2.1.6.4. Enforce personnel limits and safety exclusion zones for explosives related operations.

C2.1.6.5. Conduct, document, and report the results of safety inspections to ensure compliance with all applicable explosives safety policies, standards, regulations and codes.

C2.1.6.6. Operate and maintain air-monitoring equipment required at sites known or suspected for airborne contaminants.

C2.1.6.7. Ensure all protective works and equipment used within the exclusion zone are operated in compliance with applicable DoD policy, Department of Defense Explosives Safety Board (DDESB) approvals, and Federal, state, and local health and safety statutes, regulations and codes.

C2.1.7. Senior UXO Supervisor (SUXOS). In addition to being able to fully perform all of the UXOSP, UXOT1, UXOTII, and UXOTIII functions above, SUXOS shall:

C2.1.7.1. Plan, coordinate, and supervise all explosives operations.

C2.1.7.2. Supervise multiple teams.

C2.1.7.3. Assist in development of munitions response plans.

C3. Chapter 3

UXOT1 TRAINING STANDARDS

C3.1. MINIMUM TRAINING STANDARDS FOR UXOTI

This chapter contains the minimum training standards for entry-level personnel to fill UXOTI positions on projects under DoD contracts. The training consists of both knowledge and skills requirements, and candidates must demonstrate the requisite knowledge of explosive operations and the ability to perform required tasks in compliance with existing operational and safety guidelines.

C3.1.1. Each candidate for a UXO Technician I position shall have completed:

- 200 hours of training on MEC and MPPEH
- 40 hours of Hazardous Waste Operations and Emergency Response (HAZWOPER) training

C3.1.2. This training shall be provided by an institution of higher education that shall certify successful completion of all requirements through written exams and practical exercises. Such institutes shall be accredited by a nationally recognized college or university educational accrediting agency, or a training institute authorized by either the Federal or a State government to provide certified training in the public service sector and shall have a demonstrated history of providing quality training programs.

C3.1.3. The employer shall certify that the individuals are qualified, as demonstrated by successful completion of the requisite training.

C3.2. CURRICULUM AND TRAINING OBJECTIVES

C3.2.1. Range Clearance Activities.

C3.2.1.1. Description. Understand range clearance requirements and procedures including safety and environmental concerns.

C3.2.1.2. Objectives.

- Describe the purpose for clearing and maintaining ranges and impact areas
- Describe planning, safety, and environmental requirements for range clearance activities

C3.2.2. Measurements and Mathematical Computations.

C.3.2.2.1. Description. Understand U.S. and metric conversion methods and basic mathematical computations.

C.3.2.2.2. Objectives.

- Identify metric prefixes
- Describe mathematical conversions within the metric system
- Convert from U.S. to metric and metric to U.S.

C.3.2.3. Electricity.

C.3.2.3.1. Description. Knowledge of basic electricity and circuits.

C.3.2.3.2. Objectives.

- Define terms and identify abbreviations and symbols
- Describe electrical conductivity and its characteristics in different materials
- Describe types of cells and batteries, their construction features, and process used to generate electro-motive force (EMF)
- Describe current flow, factors that affect current flow (including switches) and units of measurement of current flow.
- Describe electrical resistance and the factors that affect resistance
- Describe the operation of a series direct current (DC) circuit with respect to Ohms Law
- Describe the operation of basic parallel DC circuits with respect to the determination of equivalent resistance
- Describe capacitance (C) in terms of charging and discharging a capacitor

C.3.2.4. Physics.

C.3.2.4.1. Description. Understanding of basic physics.

C.3.2.4.2. Objectives.

- Define terms and identify abbreviations and symbols
- Describe forces and how they are graphically represented
- Describe Newton's first and third laws of motion
- Describe the difference between weight and mass
- Describe hydrostatics with respect to fluid pressure
- Describe properties of matter
- Define motion, work, and energy
- Describe measures of and forces affecting motion
- Define work and energy

- Identify the physical laws affecting gases
- Define magnetism

C.3.2.5. Explosives and Explosive Effects.

C.3.2.5.1. Description. Basic understanding of explosives and explosive effects.

C.3.2.5.2. Objectives.

- Define terms and identify abbreviations and symbols
- Summarize the history of explosives
- Define explosives, propellants, and pyrotechnics
- Describe characteristics of military high explosives, propellants, and pyrotechnics
- Identify the types of high explosive groups
- Identify forms and classes of propellants, black powder, pyrotechnic and tracer compositions
- Define explosive train
- Define explosion and identify types of explosions
- Describe forms of energy produced by explosions
- Describe types of explosions (detonations, partial detonations, deflagrations)
- Describe effects of an explosion (air blast, fragments, debris, thermal, ground shock)

C.3.2.6. Military Fuze Functioning.

C.3.2.6.1. Description. Understanding of how military fuzes function.

C.3.2.6.2. Objectives.

- Define terms and identify abbreviations
- Describe fuze forces
- Describe fundamental principles of fuzes, fuze arming and firing principles
- Describe fuze components
- Describe methods of employment and uses of fuzes
- Describe typical arming/functioning of fuzes
- Describe fuze types

C.3.2.7. Munitions and Explosives of Concern (MEC) and Explosives Safety Precautions.

C.3.2.7.1. Description. Understanding of MEC, MPPEH and explosives safety precautions.

C.3.2.7.2. Objectives.

- Define terms and identify abbreviations and symbols
- Describe the purpose of munitions and explosives safety precautions.
- Describe safety considerations that apply by category and group of MEC and MPPEH
- Describe basic safety precautions for the following:
 - explosive-loaded munitions and submunitions
 - toxic chemical-loaded munitions
 - pyrotechnic and incendiary munitions
 - smoke-loaded munitions
 - fuze systems
 - training and practice munitions
 - underwater munitions

C.3.2.8. Surface Munitions Identification.

C.3.2.8.1. Description. Understanding of surface munitions by category and group to include:

- Projectile and projectile bullets
- Land mines and associated components
- Pyrotechnic items
- Rockets and rocket fuzes
- Grenade and grenade fuzes
- Submunitions

C.3.2.8.2. Objectives.

- Define terms and identify abbreviations and symbols
- Identify "category," "group" and "safety precautions"
- Demonstrate comprehension and detailed knowledge of live and practice munitions by category and group
- Recognize munitions color codes and markings
- Describe the basic safety precautions for explosive initiating components
- Describe the safety precautions for surface munitions

C.3.2.9. Air Ordnance Identification (dropped or launched).

C.3.2.9.1. Description. Understanding of air munitions by category and group to include:

- Bombs and bomb fuzes
- Guided missiles and missile fuzes
- Rockets and rocket fuzes
- Pyrotechnic items
- Submunitions

C.3.2.9.2. Objectives.

- Define terms and identify abbreviations and symbols
- Identify "category," "group" and "safety precautions"
- Demonstrate comprehension and detailed knowledge of live and practice munitions by category and group
- Recognize munitions color codes and markings
- Describe the basic safety precautions for explosive initiating components
- Describe the safety precautions for air ordnance

C.3.2.10. Chemical Munitions Identification (Chemical Munitions and Chemical Warfare Material (CWM)).

C.3.2.10.1. Description. Understanding of chemical munitions and CWM to include air and surface groups.

C.3.2.10.2. Objectives.

- Define terms and identify abbreviations and symbols
- Identify "category," "group" and "safety precautions"
- Demonstrate comprehension and detailed knowledge of live and practice chemical munitions and CWM by category and group
- Recognize munitions color codes and markings
- Describe the basic safety precautions for explosive initiating components
- Describe the safety precautions for chemical munitions and CWM
- Identify the effects of weather conditions on the duration of effectiveness of chemical agents
- Identify specific chemical agents by physical and chemical properties, and physiological effects

C.3.2.11. Pyrotechnic Munitions Identification.

C.3.2.11.1. Description. Understanding of pyrotechnic munitions.

C.3.2.11.2. Objectives.

- Define terms and identify abbreviations and symbols
- Identify "category," "group" and "safety precautions"
- Demonstrate comprehension and detailed knowledge of live and practice pyrotechnic munitions by category and group
- Recognize munitions color codes and markings
- Describe the basic safety precautions for explosive initiating components
- Describe the safety precautions for pyrotechnic munitions

C.3.2.12. Underwater Munitions Identification.

C.3.2.12.1. Description. Understanding of underwater munitions.

C.3.2.12.2. Objectives.

- Define terms and identify abbreviations and symbols
- Identify "category," "group" and "safety precautions"
- Demonstrate comprehension and detailed knowledge of live and practice underwater munitions by category and group
- Recognize munitions color codes and markings
- Describe the basic safety precautions for explosive initiating components
- Describe the safety precautions for underwater munitions

C.3.2.13. Detection Equipment.

C.3.2.13.1. Description. General, physical, functional, operational and maintenance description of munitions detection equipment for:

- Location of subsurface MEC using magnetometers (and related equipment)
- Performing evaluation procedures on subsurface MEC

C.3.2.13.2. Objectives.

- Describe the purpose of munitions detection equipment; operational characteristics and capabilities
- Describe the theory of operation
- Describe all major and associated components including displays, controls and indicators
- Describe operational tasks and preventive maintenance procedures
- Understand how to inventory and maintain equipment

C3.2.14. Munitions Response Planning.

C3.2.14.1. Description. Understanding of the elements of munitions response actions planning.

C3.2.14.2. Objectives.

- Describe the purpose for munitions responses
- Describe planning requirements for munitions responses
- Describe the inspection, verification and certification and chain of custody process
- Describe the proper assembly of protective works

C3.2.15. Personal Protective Equipment.

C3.2.15.1. Description. Understanding of all relevant personal protective equipment.

C3.2.15.2. Objectives.

- Understand the capabilities and limitations of PPE
- Understand the requirements for employing PPE safety
- Describe the requirements and process for performing decontamination

C3.2.16. Demolition Materials.

C3.2.16.1. Description. Understanding of demolition materials to include:

- Military and commercial explosives (U.S. and foreign)
- Initiating components and systems

C3.2.16.2. Objectives.

- Define terms and identify abbreviations and symbols
- Preparation of firing systems (both electric and non-electric) for demilitarization operations
- Describe military explosives, commercial explosives, and demolition materials.
- Describe the purpose of demolition materials and specialized explosive techniques
- Describe tools and equipment used during demolition operations
- Describe demolition accessories
- Describe electric power sources and test sets used with demolition firing circuits
- Describe demolition charge initiators
- Describe demolition charges, charge kits and assemblies

- Describe safety precautions for preparation and firing of demolition materials

C3.2.17. Firing Systems.

C3.2.17.1. Description. Understanding of firing systems.

C3.2.17.2. Objectives.

- Describe detonating cord demolition procedures
- Describe non-electric firing systems
- Describe electric firing systems
- Describe safety precautions for preparation and firing of demolition materials, including Hazards of Electromagnetic Radiation to Ordnance (HERO) precautions for electric initiators

C3.2.18. Demilitarization Procedures.

C3.2.18.1. Description. Understanding of demilitarization requirements and procedures for conventional munitions.

C3.2.18.2. Objectives.

- Describe the requirements for and purpose for demilitarization of conventional munitions
- Describe demilitarization procedures
- Describe the authorized demilitarization methods for different types of munitions
- Describe requirements and safety precautions for demilitarization operations
- Describe demilitarization of conventional explosives and related hazardous materials

C3.2.19. Storage, Handling and Transportation of Explosives (Military and Commercial).

C3.2.19.1. Description. Understanding of storage, handling and transportation of explosives.

C3.2.19.2. Objectives.

- Describe the purpose for proper storage, handling, and transportation of explosives
- Describe the hazard classification system
- Discuss Storage Compatibility Groups
- Discuss safety requirements

- Discuss transportation requirements for munitions and commercial explosives

C3.2.20. Skills Requirements.

C.3.2.20.1. Description. Demonstrate knowledge of policies, requirements and procedures in the safe performance of MEC and MPPEH duties.

C.3.2.20.2. Objectives.

- Practical demonstration of knowledge and comprehension of policies and procedures in safely performing the following:
 - Operation of detection equipment.
 - Location and identification of munitions by category and group.
 - Designing and constructing firing systems (both electric and non-electric)
 - Design, construct, and detonate a demolition explosive.

C4. **CHAPTER 4**

MINIMUM QUALIFICATION STANDARDS

C4.1. **MINIMUM QUALIFICATION STANDARDS**

Minimum qualification standards for workers to qualify as UXO technicians or UXO qualified personnel are contained in Table 4-1.

Table 4-1. Minimum Qualification Standards

Position Description	Training Required (Notes 1, 2, & 3)	Minimum Years of EOD/UXO Experience (Note 4)	Special Requirements (Note 5)
Senior UXO Supervisor	1, 2, or 3	10 years	Significant experience in all aspects of munitions response actions or range clearance activities, as appropriate for the contracted operation. Five years experience in supervisory positions.
UXO Safety Officer	1, 2, or 3	8 years	Experience in all phases of munitions response actions or range clearance activities, as appropriate for the contracted operation, and applicable safety standards.
UXO Quality Control Specialist	1, 2,3	8 years	Experience in all phases of munitions response actions or range clearance activities, as appropriate for the contracted operation, and the transportation, handling and storage of munitions and commercial explosives.
UXO Technician III	1, 2 or 3	8 years	Prior military EOD and/or commercial UXO experience in munitions response actions or range clearance activities, as appropriate for the contracted operation.
UXO Technician II	1 or 2 -----or----- 3	N/A -----or----- 3 years	Prior military EOD experience -----or----- Experience in response munitions response actions or range clearance activities, as appropriate for the contracted operation, plus specific project/explosives safety training.
UXO Technician I	3	0	Successfully completed formal course of instruction appropriate to this skill level
UXO-Sweep Personnel	Equipment and site specific training	N/A	Safety Equipment and site specific training. (Experience at this position is not required for UXO Technician I certification.)

- Note:
1. Graduate of a military EOD School of the United States.
 2. Graduate of a military EOD school of Canada, Great Britain, Germany, or Australia.
 3. Graduate of a formal training course of instruction (see chapter 3 for detailed requirements) or EOD assistant courses.
 4. Personnel working in the commercial industry may have significant breaks between jobs. Only actual time performing UXO-related tasks should be counted. (2080 hours = 1 man-year)
 5. Divers conducting underwater detection and identification of munitions must have completed both the basic and the underwater portions of NAVSCOLEOD (or foreign equivalent) training.

AP1. DEFINITIONS

Discarded Military Munitions.

Military munitions that have been abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal. The term does not include unexploded ordnance, military munitions that are being held for future use or planned disposal, or military munitions that have been properly disposed of consistent with applicable environmental laws and regulations. (10 U.S.C. 2710(e)(2))

Explosive Hazard

A condition where danger exists because explosives are present that may react (e.g., detonate, deflagrate) in a mishap with potential unacceptable effects (e.g., death, injury, damage) to people, property, operational capability or the environment.

Explosive Ordnance Disposal (EOD).

The detection, identification, on-site evaluation, rendering safe, recovery, and final disposal of unexploded explosive ordnance. It may also include explosive ordnance, which has become hazardous by damage or deterioration.

Explosive Ordnance Disposal (EOD) Personnel.

Military personnel who have graduated from the Naval School, Explosive Ordnance Disposal (NAVSCOLEOD); are assigned to a military unit with a Service-defined EOD mission; and meet Service and assigned unit requirements to perform EOD duties. EOD personnel have received specialized training to address explosive and certain Chemical Agent (CA) hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform Render Safe Procedures (RSP) on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices.

Material Potentially Presenting an Explosive Hazard (MPPEH).

Material potentially containing explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or disposal; and range-related debris); or material potentially containing a high enough concentration of explosives such that the material presents an explosive hazard (e.g., equipment, drainage systems, holding tanks, piping, or ventilation ducts that were associated with munitions production, demilitarization or disposal operations). Excluded from MPPEH are munitions within DoD's established munitions management system and other hazardous items that may present explosion hazards (e.g., gasoline cans, compressed gas cylinders) that are not munitions and are not intended for use as munitions.

Military Munitions.

All ammunition products and components produced for or used by the armed forces for national defense and security, including ammunition products or components under the control of the Department of Defense, the Coast Guard, the Department of Energy, and the National Guard. The term includes confined gaseous, liquid, and solid propellants, explosives, pyrotechnics,

chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof.

The term does not include wholly inert items, improvised explosives devices and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) have been completed. (See 10 U.S.C. § 2710(e) (3)).

Munitions and Explosives of Concern (MEC)

This term, which distinguishes specific categories of military munitions that may pose unique explosives safety risks means: (A) Unexploded Ordnance (UXO), as defined in 10 U.S.C. 101(e)(5)(A) through (C); (B) Discarded military munitions (DMM), as defined in 10 U.S.C. 2710(e)(2); or (C) munitions constituents (e.g., TNT, RDX) present in high enough concentrations to pose an explosive hazard.

Munitions Constituents (MC).

Any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (10 U.S.C. 2710)

Munitions Debris

Remnants of munitions (e.g., fragments, penetrators, projectiles, shell casings, links, fins) remaining after munitions use, demilitarization or disposal.

Munitions Response

Response actions, including investigation, removal actions and remedial actions to address the explosives safety, human health, or environmental risks presented by UXO, DMM or MC.

Munitions Response Area(MRA)

Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges and munitions burial areas. A munitions response area is comprised of one or more munitions response sites.

Munitions Response Site(MRS)

A discrete location within an MRA that is known to require a munitions response.

Quality Control Program Plan (QCPP).

The Quality Control Program Plan (QCPP) is developed by the contractor in close coordination with Department of Defense, Environmental Protection Agency, and /or State and Local

regulator/stakeholders to ensure measurable, verifiable demonstration and documentation of the quality ((fidelity, utility, objectivity, integrity) of products and services provided to the Government. The QCPP describes project-specific quality management activities that will be achieved, with the objective of assessing the quality of the work performed; examining, assessing, and reporting the adequacy of Work Plans, Standard Operating Procedures, and programmatic Quality Management Systems; and assessing the status of in-progress quality assessment and quality control activities and results. The plan will address organizational roles and responsibilities; document the approach and procedures to be used to preclude/resolve deficiencies, non-conformances, mischaracterization of project needs; and provide a clear definition of the performance criteria for each particular project objective. This will include (1) definition of project needs and appropriate quality metrics, (2) preventative actions and controls to avoid quality degradation, and (3) a continuous review of processes and services to identify opportunities for quality improvement. The QCPP will also detail the processes to be implemented to capture lessons learned in order to prevent recurrences of design or execution deficiencies, clarify interpretation of requirements, and preserve and communicate information, good work practices, efficient/cost-effective work practices across the program. The QCPP will specify requirements for training, personnel qualifications/certifications, documentation and records management, audit processes, and data validation.

Range Clearance.

The removal and destruction of used or fired military munitions (e.g., unexploded ordnance), munitions debris and other range-related debris (e.g., target debris, munitions packaging and crating material) on an operational range to maintain or enhance operational safety or to prevent the accumulation of such material from impairing or precluding the continued use of the range for its intended purpose. The term “range clearance” is not intended to include removal, treatment, or remediation of chemical residues or munitions constituents (MC) in environmental media, or actions to address discarded military munitions on operational ranges.

Technical Escort Unit (TEU).

A DoD organization manned with specially trained personnel that provide verification, sampling, detection, mitigation, render safe, decontamination, packaging, escort and remediation of chemical, biological and industrial devices or hazardous material.

Unexploded Ordnance (UXO).

Military munitions that (a) have been primed, fuzed, armed, or otherwise prepared for actions; (b) have been fired, dropped, launched, projected or placed in such a manner as to constitute a hazard to operations, installations, personnel or material; and (c) remained unexploded either by malfunction, design or any other cause. (10 U.S.C. 101(e)(5)(A) through (C)).

UXO-Qualified Personnel.

Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations, contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist or Senior UXO Supervisor.

UXO Technician.

Personnel who are qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III