National Guidance for Responding to Munitions and Explosives of Concern in Federal Waters

United States Committee on the Marine Transportation System

2024

Disclaimer

This guidance document represents the current understanding by the United States Committee on the Marine Transportation System (CMTS) and its member agencies at the time of its publication. It is in the Lessee's best interest to follow these guidelines to minimize risk. It does not create or confer any rights for or on any person or operate to bind the public. The recommendations in the document should be viewed as non-binding and advisory only unless specific regulatory authorities are cited, or adherence is otherwise required by separate agency action. Alternative approaches also may be warranted that satisfy the requirements of applicable statutes and regulations. Staff at the applicable agencies are available to discuss and explore alternative approaches. Section 7.A. of this document contains a list of appropriate agency points of contact. If you cannot identify an appropriate agency point of contact, you may call or email the CMTS through the contact information listed in the Acknowledgment. The information appearing in this document is not intended to provide legal advice to any individual or entity. Lessees are urged to consult with their own legal advisor before taking any action based on information appearing in this guidance. Nothing in this document relieves a Lessee of its obligation to comply with all applicable federal laws in conducting activities notwithstanding recommendations in this document. This document provides neither a defense to non-compliance nor authorization to take action in reliance on the document.

Any references in this document to any specific commercial products, processes, or services, or the use of any trade, firm, or corporation name is for the information and convenience of the public and does not constitute endorsement, recommendation, or favoring by the United States, the CMTS, or by its federal member agencies. Additionally, please note that within state waters, state hazardous waste and environmental protection programs may be more stringent and/or broader in scope than federal programs.

This guidance document will be reviewed periodically by the CMTS to maintain accurate points of contact, reflect changes in regulation, and capture best practices as the industry matures.

This guidance document was developed by the CMTS Offshore Energy Facilitation Task Team (OEFTT). For questions about this document, please contact the CMTS via email at OffshoreEnergy@cmts.gov; or phone at (202) 366-3612.

Member Agencies

The CMTS Coordinating Board and the following agencies have reviewed and approved the issuance of this guidance on July 16, 2024.

Bureau of Ocean Energy Management

Bureau of Safety and Environmental Enforcement

Department of Defense, Office of the Secretary of Defense

Marine Mammal Commission

National Oceanic and Atmospheric Administration

Oceanographer of the Navy

Transportation Security Administration

U.S. Army Corps of Engineers

U.S. Coast Guard

U.S. Department of Energy

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

U.S. Maritime Administration

Acronyms and Abbreviations

BiOp – Biological Opinion

BOEM – Bureau of Ocean Energy Management

BSEE – Bureau of Safety and Environmental Enforcement

CHASE – Operation Cut Holes and Sink 'Em

CMTS – U.S. Committee on the Marine Transportation System

COP – Construction and Operation Plan

COTP – Captain of the Port

DDESB – Department of Defense Explosives Safety Board

DMM – Discarded Military Munitions

DOD – Department of Defense

EEZ – Exclusive Economic Zone

EFH – Essential Fish Habitat

EIS – Environmental Impact Statement

EOD – Explosive Ordnance Disposal

EPA – U.S. Environmental Protection Agency

ESA – Endangered Species Act

FDR/FIR – Facility Design Report and Fabrication and Installation Report

FWS – U.S. Fish and Wildlife Service

GMCC – Global MOTR Coordination Center

GMDSS – Global Maritime Distress and Safety System

HAZID – Hazard Identification

MC – Munition Constituents

MEC – Munitions and Explosives of Concern

MMPA – Marine Mammal Protection Act

MOTR – Maritime Operational Threat Response

MPRSA – Marine Protection, Research, and Sanctuaries Act

NEPA - National Environmental Policy Act

NMFS – National Marine Fisheries Service

NOAA – National Oceanic and Atmospheric Administration

OCS – Outer Continental Shelf

OCSLA – Outer Continental Shelf Lands Act

OEFTT – Offshore Energy Facilitation Task Team

POC – Point of Contact

PPE – Personal Protective Equipment

PSO – Protective Species Observers

RCRA – Resource Conservation and Recovery Act

SAP – Site Assessment Plan

TP 18 – Technical Paper 18

USACE – U.S. Army Corps of Engineers

USCG – U.S. Coast Guard

UXO – Unexploded Ordnance

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1. Introduction

Over the past two centuries a plethora of military munitions of various kinds have ended up in United States' waters. Either through disposal, acts of war, military training exercises, or other means, these munitions and explosives of concern[1] (MEC) now lie offshore throughout the United States' Exclusive Economic Zone (EEZ) and on the United States Outer Continental Shelf[2] (OCS). The discovery of MEC on or in the seafloor may broadly affect commercial offshore activities, lease development on the OCS, and the development of offshore energy projects of all kinds. MEC is a broad term that includes unexploded ordnance[3] (UXO), discarded military munitions[4] (DMM), and munitions constituents[5] (MC) that are present in high enough concentrations to pose an explosive hazard. The majority of MEC identified to date in both the Gulf of Mexico and the Atlantic (where current energy projects are concentrated) are DMM. While acts of war, authorized and unauthorized disposal from military vessels, and military live-fire training and testing are the most likely mechanisms by which MEC have arrived on the OCS,

[1] MEC is a broad term that includes specific categories of military munitions that may pose unique explosives safety risks, such as unexploded ordnance (UXO), as defined in 10 U.S.C. § 101(e)(5) (2021); discarded military munitions, as defined in 10 U.S.C. § 2710(e)(2) (2009); or munitions constituents (e.g., TNT, RDX), as defined in 10 U.S.C. § 2710 (e)(3) (2009), that are present in high enough concentrations to pose an explosive hazard.

[2] "The U.S. Outer Continental Shelf (OCS) includes the area between state jurisdiction to 200 nautical miles (nm) from shore. State jurisdiction over the seafloor extends from the shoreline out to 3 nm, except for Texas and the Florida Gulf Coast, which extend out to 9 nm. The 200-nm seaward boundary may occasionally differ depending on an area's geography and geology." *Outer Continental Shelf*, BUREAU OCEAN ENERGY MGMT., https://www.boem.gov/environment/outer-continental-shelf (last visited July 14, 2023).

[3] Unexploded ordnance "means military munitions that—(A) have been primed, fused, armed, or otherwise prepared for action; (B) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material; and (C) remain unexploded, whether by malfunction, design, or any other cause." 10 U.S.C. § 101(e)(5) (2016).

[4] "The term 'discarded military munitions' means 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) (2009). Comparatively, military munitions are defined as "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. (B)Such term includes the following: (i)Confined gaseous, liquid, and solid propellants. (ii)Explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents. (iii)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, and demolition charges. (iv)Devices and components of any item specified in clauses (i) through (iii). (C)Such term does not include the following: (i)Wholly inert items. (ii)Improvised explosive devices. (iii)Nuclear weapons, nuclear devices, and nuclear components, other than nonnuclear 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." 10 U.S.C. § 101(e)(4) (2016).

[5] "The term 'munitions constituents' means any materials originating from unexploded ordnance, discarded military munitions, or other military munitions, including explosive and nonexplosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions." 10 U.S.C. § 2710(e)(3) (2009).

open burning and open detonation operations, munitions treatment, destruction, disposal, or burial activities, and emergency jettisoning from aircraft and ships[6] may also have occurred. Based on current research, the most common mechanism by which MEC came to be present on the OCS was disposal of obsolete conventional and chemical munitions at sea by the Department of Defense (DOD). This practice ceased in 1970 and was prohibited in 1972 by the Marine Protection, Research, and Sanctuaries Act (MPRSA), which, among other things, prohibits the unpermitted dumping of materials, including munitions, at sea.[7] Thousands of tons of munitions containing chemical warfare agents and conventional munitions were disposed of from 1967-1970 through Operation Cut Holes and Sink 'Em (CHASE) alone, which directed these munitions to be loaded into old ships that were sunk at sea;[8] now, the MPRSA prohibits the issuance of permits for ocean dumping of any chemical, biological, or radiological warfare agents. This prohibition became the standard world-wide with the entry into force of the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter,[9] commonly referred to as the Ocean Dumping Treaty. Although federal agencies have identified, characterized, and charted numerous munition dump sites, the location of MEC on the OCS, particularly items that were the result of activities other than large scale authorized disposal, remains largely unknown. In addition, even if known, the location of these legacy MEC may have changed over the decades due to wave action, ocean drift, dredging, storms, and other seafloor disturbing activities, and may continue to do so.

As the demand for renewable energy is increasing, many states and companies are turning to offshore wind, and the industry is growing rapidly. The Biden-Harris Administration has set a goal of significantly increasing the nation's offshore wind energy capacity to 30 gigawatts by 2030 and another goal of deploying 15 gigawatts of floating offshore wind energy by 2035. However, MEC pose a potential hazard for leaseholders developing these offshore wind projects and have the potential to slow implementation of this vision. This pressure to quickly develop an American offshore wind industry is primarily focused on the Atlantic seaboard where there is also the greatest concentration of MEC in United States waters, and the least ability to avoid hazards due to the benthic conditions. The risk of MEC encounters needs to be carefully managed. While developed in response to the growing offshore wind industry, the steps for response this document outlines, including a risk analysis, munitions operation plan, and appropriate government points of contact can be applied to any offshore energy project.

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[6] OFFICE OF THE DEPUTY UNDER SECRETARY OF DEFENSE, DEFENSE ENVIRONMENTAL PROGRAMS ANNUAL REPORT TO CONGRESS - FISCAL YEAR 2009, CHAPTER 10: SEA DISPOSAL OF MILITARY MUNITIONS 85-120 (2009).

[7] 33 U.S.C. § 1401 et seq.

[8] *History of United States Chemical Weapons Elimination*, CTRS. FOR DISEASE CONTROL & PREVENTION (Jan. 6, 2014), https://www.cdc.gov/nceh/demil/history.htm#:~:text=During%20Operation%20Cut%20Holes%20and,441%20(50%20USC%201521).

[9] Jacek Bełdowski, *Contaminated by war: A brief history of sea-dumping of munitions*, MARINE ENVTL. RES., Dec. 2020, at 1-2. Negotiated in 1972, the London Convention did not go into effect until 1975. *Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter*, INT'L MAR. ORG., https://www.imo.org/en/OurWork/Environment/Pages/London-Convention-Protocol.aspx (last visited, Nov. 11, 2022).

A. Overview of the CMTS

The United States Committee on the Marine Transportation System (CMTS) is a Congressionally mandated, Cabinet-level interagency body, created for the purpose of assessing the adequacy of the marine transportation system, promoting the integration of the marine transportation system with other modes of transportation and other uses of the marine environment, and coordinating, improving the coordination of, and making recommendations regarding federal policies that impact the marine transportation system.[10] By charter, the CMTS is chaired by the Secretary of Transportation with membership set by statute.[11] Much of the day-to-day policy coordination and establishment of the CMTS work plan are handled by the sub-Cabinet "Coordinating Board" consisting of agency heads and key office directors, including the White House.[12]

2. Statement of Basis and Purpose

As a result of the increasing number of wind energy leases, the many oil and gas leases, and other marine mineral development on the OCS, the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE), under the Department of the Interior, have received requests from the offshore energy industry for federal guidance on munitions response and the proper procedures for industry to undertake when they discover MEC in their lease sites. Industry has also requested guidance for associated activities, such as the identification, classification, avoidance, relocation, and disposal of MEC.

In response, BSEE approached the CMTS to convene federal agencies to develop this guidance. On September 1, 2021, the CMTS held the first interagency workshop on the topic, resulting in the establishment of the CMTS Offshore Energy Facilitation Task Team (OEFTT). The OEFTT is co-led by BSEE and the United States Coast Guard (USCG) and held its first meeting on October 20, 2021. The mission of the OEFTT, as approved by the CMTS Coordinating Board,[13] is to support the goal to increasing the Nation's offshore wind energy capacity by pursuing and facilitating the development of federal guidance on munitions response

[10] 46 U.S.C. § 50401 (2012).
[11] *Id*. § 50401(c).
[12] *Id*. § 50401(d)(1).
[13] The Coordinating Board of the CMTS is the sub-cabinet body responsible for day-to-day management of the CMTS. The Coordinating Board meets quarterly to consider, approve, and review the CMTS work plan tasks. These tasks are carried out by task teams and integrated action teams. The Coordinating Board is made up of 28 agency heads and key office directors from across the Federal Government, including the White House. The Chair of the Coordinating Board rotates annually among the Secretary of Transportation, the Secretary of Defense, the Secretary of Homeland Security, and the Secretary of Commerce. For more information about the CMTS Coordinating Board, *see Organization Structure*, U.S. COMM. MARINE TRANSP. SYS., https://www.cmts.gov/organizational-structure/ (last visited Nov. 30, 2022).

for MEC found within the boundaries of offshore energy leases and rights-of-way[14] on the United States OCS.

3. Scope of Guidance

This guidance document applies to the federal waters of the United States and on the OCS. This document was not developed for application to discovery of MEC in state waters although some of the statutes described in this document are also applicable in state waters and beyond the OCS. This document may be used as a framework for discoveries in those areas but does not include a primer on applicable state laws – for discoveries in state waters the coastal state should be contacted. While the discovery of MEC in offshore wind industry leases was the impetus and focus of this guidance document, it is intended to apply to all renewable energy programs, and the methods may be applied and applicable to other stakeholders such as oil and gas production and development, and carbon sequestration. Nothing in this document relieves Lessees of their obligations to comply with all applicable federal laws, lease terms and conditions, permit conditions, or plan approvals while conducting MEC-related activities referenced in this document.

Under all circumstances upon discovery of MEC, the Lessee must first demonstrate to BSEE and BOEM that micro-siting around the confirmed MEC is not feasible before performing any MEC response actions. Micro-siting is the process through which the specific location of infrastructure (e.g., wind turbines, offshore substations, or cables) is determined and does not involve the moving of any MEC that may be present. Under its safety purview, BSEE always has the authority to require micro-siting to avoid potential hazards when they are discovered in a lease site, and avoidance of MEC will always be the preferred course of action. It is the Lessee's responsibility to conduct all necessary risk analysis and apply a project- and location-specific decision logic for all actions when MEC is known or suspected to be present within the project footprint. Except as provided by applicable law or regulation, the Lessee bears decision-making responsibility to implement (or not) any recommendations in this guidance document related to munitions response[15] actions and undertake such actions in compliance with conditions attached to their lease and project.

The following sections of this document describe the recommended course of action to Lessees upon the discovery of a MEC. This is broken down into two broad phases. Phase I includes initial reporting based on time and point of discovery, making a micro-siting determination, and the creation of a hazard and risk analysis. Phase II includes the receipt and review of a munitions response plan, the call of an interagency-Maritime Operational Threat Response (MOTR), post-action report expectations, and provide government points of contact.

[14] In this guidance document, the use of the term *offshore energy leases* includes easements and rights-of-way.

[15] A munitions response is defined as "[r]esponse actions, including investigation, removal actions, and remedial actions, to address the explosive safety, human health, or environmental risks presented by UXO, DMM, or MC, or to support a determination that no removal or remedial action is required." 32 C.F.R. § 179.3.

4. Phase I

During any offshore wind development operation, there is great variability of when, where, and at what stage of offshore operations MEC may be discovered. For the purposes of this document, these discovery points are broadly characterized into three periods with slightly different recommended courses of action: (1) discovery during pre-construction surveys, (2) discovery during a period of seabed disturbing activities (such as site clearance, construction, or cable laying), or (3) discovery during post-construction or operations. Based on the relative threat posed by discovery during these points of development, this document lays out different timelines within which Lessees are requested to submit initial information to the federal government regarding the discovery.

At all times, the Lessee must continue to follow all requirements, procedures, and notifications that are outlined in any binding federally issued documents, including, but not limited to, a Lessee's Site Assessment Plan (SAP), Construction and Operations Plan (COP), Facility Design Report, and Fabrication and Installation Report (FDR/FIR), any associated letters of approval issued under the Outer Continental Shelf Lands Act (OCSLA), any conditions related to the acceptable range for re-location of MEC within or very close to the construction site footprint in a Section 10 permit issued under the Rivers and Harbors Act[16], any Incidental Take Statement[17] included in a Biological Opinion (BiOp) issued to BOEM and other federal agencies, if appropriate, a Section 10(a)(1)(B) permit issued to the Lessee under the Endangered Species Act (ESA),[18] and any Incidental Take Authorization issued to the Lessee under the Marine Mammal Protection Act (MMPA).[19] Any MEC response activity proposed inside a national marine sanctuary, or outside a sanctuary with the potential to harm a sanctuary resource must comply with all requirements of the National Marine Sanctuaries Act (NMSA), its regulations, prohibitions, and permit requirements.[20]

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[16] Rivers and Harbors Act of 1899, 33 U.S.C. § 403. *See infra* note 32.

[17] Under the ESA, it is unlawful for anyone subject to the jurisdiction of the United States including Federal agencies, to "take" - defined broadly to include "harm" and "harass" as well as "capture" and "kill" - any endangered animal in the United States, the territorial seas or the high seas, including both United States and foreign EEZs. ESA Section 9(a)(1)(B), (C), 16 U.S.C. § 1538(a)(1)(B), (C); 50 CFR § 17.21(c)(1), 17.31. By regulation pursuant to ESA section 4(d), 16 U.S.C. § 1533(d), the Services have extended the prohibition of take to most threatened animal species. An exemption to this prohibition is only provided in a situation where there is a Federal nexus through an Incidental Take Statement that results from an ESA consultation under Section 7. ESA Section 7(a)(2), 7(o)(2), 16 U.S.C. §§ 1536(a)(2), 1536(o)(2)." Incidental take may also be permitted through issuance of an incidental take permit issued under Section 10 of the ESA. 16 U.S.C. §1539(a)(1)(B).

[18] Endangered Species Act, 16 U.S.C. §§ 1531-1544.

[19] Marine Mammal Protection Act, 16 U.S.C. §§1361-1383b, 1401-1406, 1411-1421h.

[20] The National Marine Sanctuaries Act (NMSA), 16 U.S.C. §§ 1431-1445c, authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or esthetic qualities as national marine sanctuaries. Day-to-day management of the national marine sanctuaries has been delegated from the Secretary of Commerce to NOAA's Office of National Marine Sanctuaries. The primary objective of the NMSA is to protect marine resources, such as marine biodiversity, coral reefs, sunken historical vessels, or unique habitats. The NMSA authorizes regulations to protect the purpose of the sanctuary designation. Any activity permitted within the sanctuary must, therefore, conform to the regulations issued under the NMSA, and no activity shall be valid

Several stages of this document request that communication channels be established with multiple federal agencies. Throughout all these communications, the Lessee should keep BSEE informed of all such communications including who at what agency was contacted and when.

A. Initial MEC Reporting and Timeline

The Lessee must follow all requirements in the lease, SAP, COP, and identification surveys related to the reporting of magnetic anomalies that are potential MEC at all points during the lifetime of the lease.[21] The Lessee must submit such information to BOEM and BSEE as already required, and BSEE will inform other federal partner agencies, as appropriate. For the discovery of potential MEC, BOEM and BSEE may impose requirements on Lessees based on the terms and conditions of their lease, SAP, or COP related to survey activities and initial siting requirements.[22] For the discovery of confirmed MEC, Lessee is requested to inform the federal agencies as follows:

I. Discovery during pre-construction surveys

In the event of the discovery of confirmed MEC during the pre-construction surveys,[23] Lessees should contact BSEE, BOEM, USCG, the National Oceanic and Atmospheric Administration (NOAA), the United States Environmental Protection Agency (EPA), the United States Army Corps of Engineers (USACE), and the United States Fish and Wildlife Service (FWS) within forty-eight (48) hours of the MEC confirmation with their initial discovery report. Specific points of contact (POCs) for these agencies are listed in section 7.A. of this document. Lessee should copy BSEE or send BSEE a record of their federal notifications for each agency contacted. The Lessee should include in their notification to BSEE if they were successful or unsuccessful in notifying all federal agencies within the discovery notification time frame.

II. Discovery during seabed disturbing activities.

Immediately upon discovery during seabed disturbing activities, all work that may result in any interaction with the potential MEC should immediately cease. Lessees should then contact

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which does not do so. See 16 U.S.C. § 1439. It is further unlawful for any person to "cause the loss of, or injure any sanctuary resource." Id. § 1436(1). This includes actions outside of a marine sanctuary which subsequently enter or impact any sanctuary resource, and any activity which harms a sanctuary resource.

[21] A Lessee will not be able to determine whether a munition is a MEC, munitions debris, etc. by visual inspection alone. The determination that an item is a MEC (i.e., UXO or DMM) must be made by a qualified person as defined in the DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 18: MINIMUM QUALIFICATIONS FOR PERSONNEL CONDUCTING MUNITIONS AND EXPLOSIVES OF CONCERN-RELATED ACTIVITIES (2020). Until that determination is made, any potential MEC should be treated as MEC.

[22] This may include micro-siting of turbines during the determination of final plot build locations to avoid identified anomalies.

[2322] BOEM's Guidelines for Providing Geophysical, Geotechnical, and Geohazard Information (https://www.boem.gov/about-boem/renewable-energy-geohazard-guidelines-2023) describes the types of surveying that would occur during pre-construction.

BSEE, BOEM, the USCG, NOAA, EPA, USACE, and FWS within twenty-four (24) hours of the MEC confirmation with their initial discovery report. Upon notification, BSEE may issue an administrative order, including, but not limited to, a suspension order, to protect health, safety, or the environment. If issued, any such order will be lifted once the threat to health, safety, or the environment has been sufficiently abated.

Specific POCs for these agencies are listed in section 7.A. of this document. Lessee should copy BSEE or send BSEE a record of their federal notifications for each agency contacted. The Lessee should include in their notification to BSEE if they were successful or unsuccessful in notifying all federal agencies within the discovery notification time frame.

III. Discovery during post-construction operations

If a potential or confirmed MEC is discovered within an offshore lease site after the completion of construction and the site is operational or near existing infrastructure that may cause an impact[24] to offshore wind, oil and gas development, offshore operations, or other lease sites, the Lessee should contact BSEE, BOEM, USCG, NOAA, EPA, USACE, and FWS within forty-eight (48) hours of discovery. Immediately upon discovery, all work that may result in an interaction with potential or confirmed MEC should immediately cease. Upon notification, BSEE may issue an administrative order, including, but not limited to, a suspension order, to protect health, safety, or the environment. If issued, any such order will be lifted once the threat to health, safety, or the environment has been considered sufficiently abated. Lessee should copy BSEE or send BSEE a record of their federal notifications for each agency contacted.

IV. Information to be included in initial report

An initial report for anomalies that are identified and confirmed as MEC should be reported to BSEE, BOEM, USCG, NOAA, EPA, USACE, and the FWS with the following information:

i. Narrative description of the activities that resulted in the discovery of the MEC (site assessment, survey, clearance, cable installation, etc.).
ii. Location (latitude DDD°MM.MMM', longitude DDD°MM.MMM'), lease area, and block.
iii. Water depth (in meters).
iv. The weather and sea-state at the time of discovery.
v. Number of confirmed MEC items.
vi. Vertical position (description of exposure or estimated depth of burial) of the munition.
vii. Any distinctive features of the MEC (e.g., shape, color, markings).
viii. Actions conducted to further classify or characterize the item(s).

[24] The potential for impact should consider any local and regional oceanographic conditions which may be relevant to munitions response activities.

ix. Type, size, dimensions, configuration (e.g., high explosive, chemical warfare materiel, practice) and net explosive weight (if determinable without disturbance) of confirmed MEC items.
x. Buoys or markings used, if any.
xi. If the location is within a charted disposal area.
xii. A description, if appropriate, of any entanglement (e.g., net, dredge).
xiii. A description of surface or sub-surface structures within 914.4 meters of the confirmed MEC.
xiv. Proposed munitions response method to enable further project operations.
xv. Micro-siting feasibility determination.
xvi. If MEC is confirmed within ten nautical miles of a national marine sanctuary, identify the sanctuary and distance from the sanctuary in the initial MEC report.

B. Micro-siting determination

In the initial notification about the confirmed MEC, the Lessee must report micro-siting feasibility, if known, or describe actions taken and ongoing to assess micro-siting feasibility;[25] BOEM and BSEE have the authority to require a Lessee to micro-site their project to avoid any potential hazard. Micro-siting will be presumed feasible unless determined otherwise. If Lessee determines micro-siting is not feasible, Lessee should submit the relevant environmental, technical, and safety data relied upon to come to that determination. Upon review of this information, if BSEE and BOEM concur with the Lessee, then micro-siting will not be required, and the rest of this document will be applicable. At this stage, Lessee should submit a risk analysis and munitions response plan. If BSEE and BOEM determine micro-siting is feasible, then BSEE will issue an administrative order requiring Lessee to micro-site around the confirmed MEC and will notify the federal partners as such.

C. Risk Analysis

Prior to initiation of any construction or seabed disturbing activities, the Lessee should include a clear process for the discovery of a confirmed MEC in their site-wide risk analysis, decision frameworks, and emergency response plans as already required by BOEM and BSEE. Establishing a general analysis for the project site and determining a process up front prior to the discovery of MECs will facilitate faster response actions that can then be safely implemented.

If the Lessee determines micro-siting is infeasible due to specific project requirements, the Lessee should undertake a site-specific hazard and risk analysis. This risk analysis should be used to guide any munitions response actions the Lessee determines appropriate to undertake for

[25] Micro-siting would consider criteria such as, but not limited to, proximity to geologic hazards, archaeological, environmental, and biological resources, existing debris, and potential MEC and other ferrous targets, water depth, impacts to maritime stakeholders, construction activity areas, geophysical survey coverage and analysis on the area of potential influence, and cable corridor easement and lease boundaries.

the identified MEC risk. The risk analysis should be completed before any MEC response actions (other than micro-siting) are initiated. The risk analysis should be submitted to the same federal agencies contacted about the discovery no later than forty-eight (48) hours after completion of the report and before any munitions response decisions (other than for micro-siting) are made.

If a framework risk analysis and munitions response plan have already been completed, the Lessee should use the framework to guide their site-specific assessment for a confirmed MEC. The Lessee should use a qualitative risk analysis technique, such as a "HAZard IDentification" (HAZID) study or similar analysis, as the basis of their munitions response plan.[26] Uncertainty should be built into this qualitative risk analysis. At every stage of site characterization, including the development of a munitions response plan, a qualitative and quantitative evaluation of uncertainty will help the Lessee decide the level of confidence in the collected information to determine next steps. No single source is likely to provide the information needed to assess the level of certainty or uncertainty associated with the analysis. Therefore, the Lessee's qualitative analysis needs to rely on the weight of the evidence from several different sources of data. This data may include historical information, results of detection studies and sampling, results of geophysical surveys, assessment of current and future site use, and accessibility of the lease areas.[27] In general, the Lessee should treat all potential MEC as MEC until confirmed otherwise; only qualified Explosive Ordnance Disposal (EOD) personnel or qualified UXO technicians can differentiate MEC from munitions debris, further classify MEC as either UXO or DMM, or determine whether an item is safe to move.[28]

At a minimum, the risk analysis submitted should describe:

i. The proximity of the known or potential MEC item(s) to structures, equipment and natural and cultural resources, and local ocean uses (e.g., vessel traffic density/type, fishing).

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[26] "HAZID (Hazard Identification) is a qualitative technique for the early identification of potential hazards and threats that may cause death or injury." *Hazard Identification (HAZID)*, RAIL SAFETY & STANDARDS BD., https://www.rssb.co.uk/en/safety-and-health/improving-safety-health-and-wellbeing/trespass/tackling-trespass-risk/trespass-risk-assessment/hazard-identification#:~:text=HAZID%20(Hazard%20Identification)%20is%20a,the%20potential%20to%20cause%20harm.

[27] ENVTL. PROT. AGENCY, HANDBOOK ON THE MANAGEMENT OF ORDNANCE AND EXPLOSIVES AT CLOSED, TRANSFERRING, AND TRANSFERRED RANGES AND OTHER SITES 7-51 (2022) (available at https://www.epa.gov/sites/default/files/documents/ifuxoctthandbook.pdf).

[28] Under DOD guidelines this determination should only be made after the UXO Technician and Senior UXO Supervisory "have jointly evaluated and documented the determination that the risk of movement is acceptable." DEP'T OF DEF. EXPLOSIVES BD., TECHNICAL PAPER 18: MINIMUM QUALIFICATIONS FOR PERSONNEL CONDUCTING MUNITIONS AND EXPLOSIVES OF CONCERN-RELATED ACTIVITIES 9 (2020) (available at https://denix.osd.mil/ddes/ddes-technical-papers/ddes-technical-papers/tp-18-minimum-qualifications/). *See also* BUREAU OF LAND MGMT. & U.S. FISH & WILDLIFE SERV., MILITARY MUNITIONS & EXPLOSIVES OF CONCERN: A HANDBOOK FOR FED. LAND MANAGERS, WITH EMPHASIS ON UNEXPLODED ORDNANCE CHAPTER 5 (2006) *(available at:* https://www.blm.gov/sites/blm.gov/files/uploads/Media_Library_BLM_Policy_Handbook_H-1703-2.pdf).

ii. The potential for impact or obstruction for future maintenance, decommissioning, or other future operations.
iii. The potential of the MEC to migrate and impacts this migration may have on operations, natural and cultural resources, and navigation safety uses.
iv. Identify available types of munitions response technologies.
v. Priorities for making a decision on types of munitions response.
vi. How the Lessee will mitigate any operational hazards.
vii. The analysis should also consider a "no-action" or leave-in place-scenario.

Even with highly trained personnel and conservative risk management, offshore munitions response has the potential to adversely affect personnel, equipment, infrastructure, natural resources,[29] cultural resources, nearby navigation safety, the surrounding environment, and future availability of the ocean location for competing uses and economic potentialities. The Lessee's risk analysis should take all these potential adverse impacts into account, as well as the risks associated with taking no action.

5. Phase II

A. Munitions Response Plan

If the Lessee determines it cannot avoid the MEC through the micro-siting process, and BSEE agrees with this conclusion, the Lessee should create a site-specific munitions response plan. As with the MEC notification and the risk assessment, the munitions response plan should be provided to BSEE with copies sent to BOEM, USCG, FWS, EPA, USACE, and NOAA, as soon as completed and, if possible, thirty (30) days before the commencement of any munitions response work. Lessee should copy BSEE on these notifications or notify BSEE of what agencies received the response plan and when.

This munitions response plan should be prepared using the decision logic created in the Lessee's risk assessment and identify a proposed munitions response operation method or methods based on site-specific factors and include information on addressing human health and worker safety, among other things. When deciding on a course of action in the munitions response plan, the Lessee should demonstrate how the risk analysis guided its decisions and how the Lessee would use the response plan to minimize the risks posed by MEC hazards. The Lessee's munitions response plan should identify how the Lessee will minimize, to the extent practicable, the identified impacts.

In determining a preferred munitions response method in the plan, a variety of potential munitions response methods should be incorporated and analyzed. The Lessee should choose the method that best works for their situation based on the site-specific risk analysis and the specific

[29] Including marine life, such as marine mammals, threatened and endangered species, fisheries, and habitat and other natural resources.

MEC the Lessee determines to be present. While avoidance through micro-siting will generally be the safest and most preferable option, the analysis should incorporate multiple response options and base the final decision on the site-specific risk analysis and the specific conditions of the circumstance of the MEC discovery.

The scope of potential munitions response methods for suspected or verified MEC can include but is not limited to: (1) further characterization of the suspected MEC; (2) engineering controls for protection of workers, equipment, and the environment; (3) physical munitions response operation methods for addressing the munition *in situ* or through removal or relocation; or (4) other operational procedures. The methods in the munitions response plan should be tailored to identify options for specific munitions or munition types that may be encountered.

To determine the appropriate munitions response method during the construction of fixed structures, the Lessee should evaluate several factors, including the type of MEC, risks to marine resources, and risks to other ocean users. Such response methods may include avoidance or "micro-siting,"[30] relocation[31] of the MEC ("lift-and-shift"),[32] disposal *in-situ* through a proven

[30] Generally, if the MEC can be avoided without disturbance it should be since this would usually be the safest course of action. Avoidance and alternate routes are "the most common approach for UXO munitions response." BUREAU OF OCEAN ENERGY MANAGEMENT, SUPPORTING NATIONAL ENVIRONMENTAL POLICY ACT DOCUMENTATION FOR OFFSHORE WIND ENERGY DEVELOPMENT RELATED TO MUNITIONS AND EXPLOSIVES OF CONCERN AND UNEXPLODED ORDINANCES 4 (available at: https://www.boem.gov/sites/default/files/documents/renewable-energy/state-activities/MEC-UXO%20White%20Paper.pdf).

[31] When evaluating the movement of MEC as a response method, Lessee should at a minimum consider impacts on other marine users, fishing grounds, and uncontrolled relocation of the MEC.

[32] Generally, the Marine Protection, Research, and Sanctuaries Act ("MPRSA"), 33 U.S.C. §§ 1401—1445 (1988), also known as the Ocean Dumping Act, prohibits the dumping (without a permit) of material into the ocean that would unreasonably degrade or endanger human health, welfare, or amenities, or the marine environment, ecological systems, or economic potentialities. 33 U.S.C. § 1402. "Dumping" is defined as the "disposition of material"; and material means "matter of any kind or description." 33 U.S.C. §§ 1402(c), (f). While these definitions are incredibly broad there are a number of exceptions. Here, the re-location of MEC associated with the site preparation and construction of fixed infrastructure for offshore wind energy would not be "dumping" within the meaning of the statue. One of the exceptions from the MPRSA definition of dumping applies to the re-location of MEC as part of site preparation in the construction phase. The definition of dumping excludes the construction of a fixed structure in ocean waters (or on or in the submerged lands beneath such waters), for a purpose other than disposal, when such construction is otherwise regulated by federal law. 33 U.S.C. § 1402(f). Offshore wind infrastructure requires construction of fixed structures, for example, turbine towers and associated cabling. Such structures are placed for the intended purpose of generation and transmission of wind energy, not disposal. The construction of such fixed structures necessarily entails site preparation of submerged lands to enable such construction. When MEC must be re-located, for example, due to the infeasibility of micro-siting, deflagration, or other in-situ operations, as part of site preparation, the conduct is otherwise regulated by Federal law, such as, the Rivers and Harbors Act of 1899. As the distance for relocating MEC increases and become farther than necessary to prevent hazards during the construction of the fixed structures, the relocation of MEC becomes less like pre-construction site preparation activity regulated by the Rivers and Harbors Act of 1899 and more like a disposal activity that may be subject to the MPRSA. Therefore, as those distances increase, the purpose of the MEC relocation may transform from construction (which is a "purpose other than disposal" under the dumping exclusion) to transportation for the purpose of disposal. The MPRSA may apply to the relocation of MEC in those circumstances. The MPRSA does not apply to in situ measures or detonation because no material would be transported for disposal.

technology, removal, or detonation. The evaluation of risk of these methods in a munitions response plan does not on its own replace project analysis requirements under the National Environmental Policy Act (NEPA) or any of the other associated environmental reviews/permits. The Lessee should separately work with the NEPA experts and consultation biologists (e.g., ESA, EFH, and MMPA) engaged in the environmental review and permitting of the project to ensure compliance. Additionally, some of these methods a Lessee may use can trigger additional lease conditions or statutory requirements under other federal laws. One such requirement will be a statutory post-operation reporting requirement to the EPA under the Resource Conservation and Recovery Act (RCRA) for lift and shift operations.[33]

The federal agencies receiving the Lessee's Munitions Response Plan will assist the Lessee with evaluating such requirements under the programs they implement, if applicable.

In-situ disposal or detonation may threaten significant adverse consequences to marine life or habitats that may be present at the site. Generally, *in-situ* detonation encapsulates a range of high-risk munitions response options. *In-situ* disposal may be the most viable measure if the MEC cannot be avoided using re-routing, re-location is not desirable or allowed under other regulations, and the risks are suitably addressed in the Lessee's risk analysis including the risk of uncontrolled detonation during relocation efforts. If disposal or detonation are deemed viable options and can be conducted safely, the munitions response plan should include a thorough analysis to justify the conclusion and should specify appropriate protective measures for marine life and habitats, cultural resources, and human health and safety. Federal authorization, exemptions or permits, for incidental take of marine mammals and other protected species (e.g., federally listed threatened and endangered species) may be required. If required, the status of such permits and how the Lessee is meeting such requirements should be included. The Lessee

[33] The Resource Conservation and Recovery Act (RCRA) is the public law that creates the framework for the proper management of hazardous and non-hazardous waste. Section 107 of the Federal Facility Compliance Act (FFCA) of 1992 amended the act to add section 3004(y) that requires the EPA, in consultation with the DOD and appropriate State officials, to develop regulations that identify when conventional and chemical military munitions become hazardous waste subject to Subtitle C of RCRA, and that provide for the safe storage and transportation of such waste. MEC discarded offshore outside of an operational range would likely be considered a solid waste, and possibly a hazardous waste, under EPA's Federal RCRA regulations. If micro-siting is not an option and management of the MEC is necessary, depending on the management method and the circumstances, it could be considered a new point of generation of hazardous waste and subject to RCRA requirements. EPA expects that most MEC management operations would proceed as an explosives or munitions emergency and explosives or munitions emergency response as defined in EPA's RCRA regulations. *See* 40 C.F.R. § 260.10. Those regulations define an explosives or munitions emergency as "a situation involving the suspected or detected presence of unexploded ordnance (UXO) … that creates an actual or potential imminent threat to human health, including safety, or the environment, including property, as determined by an explosives or munitions emergency response specialist." *Id.* An explosives or munitions emergency response "means all immediate response activities by an explosives and munitions emergency response specialist to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency. An explosives or munitions emergency response may include in-place render-safe procedures, treatment or destruction of the explosives or munitions and/or transporting those items to another location to be rendered safe, treated, or destroyed." *Id.* Under EPA's military munitions rule, explosives or munitions emergency responses are exempt from RCRA permitting and–with one exception (recordkeeping)–other substantive RCRA requirements, so as not to impede the necessary responses. *See* 40 C.F.R. § 266.204.

should seek the technical assistance of federal environmental resource agencies to determine appropriate measures for the protection of marine life and habitats and any compliance needs.

In addition to identifying the method of munitions response, the munitions response plan should describe the decision logic used to identify the method chosen. This description should address the following factors and how each was assessed in determining the response method identified:

i. The type of MEC.
ii. The contractor's expertise and experience in safely disposing of underwater munitions.
iii. The extent to which the contractor's disposal plan follows best practices as employed by the DOD.
iv. Compliance with all applicable laws, regulations, and permits or authorizations, including outcomes of interagency consultations under applicable statutes (such as the ESA or the MMPA).
v. Consistency with any MEC Desk Top Studies.
vi. Inclusion in the project's Environmental Impact Statement (EIS).
vii. Hazard Analysis (Safety & Environmental), or Safety Management System requirements.
viii. Compliance with all applicable conditions required by the Lessee's COP.
ix. Anticipated vessel traffic, type of vessel traffic, traffic density, and navigation risk mitigations.
x. The presence of sensitive species and habitats such as, but not limited to, marine mammals, sea turtles, fish, invertebrates, corals, avian species, including those listed as threatened or endangered, and any associated designated critical habitat or essential fish habitat.
xi. The presence of historic or cultural resources.
xii. Analysis of potential acoustic impacts from the munitions response action on protected species.
xiii. Overlap with existing ocean uses such as fishing.
xiv. Justification scenarios (decision trees) for the proposed munitions response method(s).

The munitions response plan should also address impacts to human health by including details on how the Lessee, or its contractors, will train, or are trained, to perform jobs where there is potential to encounter MEC, including how to recognize munitions, properly handle munitions, safely put on and remove personal protective equipment (PPE), decontaminate potentially contaminated surfaces, and recognize signs and symptoms of exposure. Protecting the health of crew who have the potential to be exposed is necessary in the case of munitions with an unknown liquid fill that may be chemical warfare material and that potentially contains chemical agents which can cause immediate respiratory and blistering effects, as well as other long term health impacts. It is recommended the Lessee or contractor coordinate as soon as possible with

the local USCG or Captain of the Port (COTP) for the establishment of Safety Zones, where applicable, before the initiation of any munition operations.

The Lessee should submit their site-specific munitions response plan, along with their risk analysis to BSEE, BOEM, USCG, NOAA, EPA, USACE, and the FWS. When preparing the response plan, the Lessee should follow the requirements set forth in Defense Explosives Safety Regulation 6055.09 and best practices outlined in Department of Defense Explosives Safety Board (DDESB) Technical Paper 26, Guidance for Explosives Safety Site Plans.[34] In addition to all the information requested above, at a minimum, the plan should also include the following information:

i. The Lessee's munitions response method selection and decision logic.
ii. The type and designation of work vessels, remotely operated vehicles, unmanned surface vehicles, or craft planned to be used in proximity to the MEC.
iii. The contact information of the identified munitions response contractor.
iv. A Hazard Analysis for any operations that involve interaction with known or suspected MEC (this can be a copy of the previously submitted Risk Analysis).
v. The Lessee's proposed timeline.
vi. Any potential hazards in the area.
vii. The position of known or suspected MEC with the potential to shift or migrate.
viii. The impact or potential impact of weather and sea-state on munitions response operations.
ix. The potential for human exposure to MEC.
x. A medical emergency procedures plan.
xi. Protective measures to be implemented to reduce risk and/or monitor effects to protected species and habitats or other ocean users.
xii. A plan for accidental detonation.
xiii. All other pertinent information.
xiv. A plan for managing debris resulting from detonation or deflagration of a MEC.

If Lessee decides to undertake a munitions response action with the MEC or potential MEC following its plan, the Lessee should follow all applicable requirements, technical papers, and guidance outlining best practices for working with MEC as published by the DDESB where appropriate.[35] Some of these technical papers are as follows and are hereby incorporated by

[34] DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 26: GUIDANCE FOR EXPLOSIVES SAFETY SITE PLANS (2014) (available at https://denix.osd.mil/ddes/ddes-technical-papers/ddes-technical-papers/tp-26-guidance-for-required-explosives-safety-submissions/).

[35] *DDESB Technical Papers*, DEP'T OF DEF. EXPLOSIVES BD., https://denix.osd.mil/ddes/ddes-technical-papers/ (last visited May 31, 2023).

reference into this document: DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 10: METHODOLOGY FOR CHEMICAL HAZARD PREDICTION (2018); DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 18: MINIMUM QUALIFICATIONS FOR PERSONNEL CONDUCTING MUNITIONS AND EXPLOSIVES OF CONCERN-RELATED ACTIVITIES (2020); DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 23: ASSESSING EXPLOSIVES SAFETY RISKS, DEVIATIONS, AND CONSEQUENCES (2019); DEPARTMENT OF DEFENSE EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 26: GUIDANCE FOR EXPLOSIVES SAFETY SITE PLANS (2014).

If the Lessee determines the best way forward is a munitions response operation to address the confirmed MEC and hires contractors to undertake these operations, then the Lessee accepts any risk of liability associated with such operations. While compliance with this document is intended to help the Lessee minimize these risks, compliance does not constitute approval by the listed federal agencies, nor does it provide any legal protection for the Lessee's operations.

B. Contractors

The Lessee should identify or retain potential contractors that are appropriately qualified and capable of undertaking munitions response work. The identified contractor(s) should be able to demonstrate to the Lessee that they possess the qualifications and competencies to safely carry out the munitions response the Lessee determines is necessary.

The Lessee should identify in the munitions response plan the contractors it intends to retain. The identification should include contractors that would undertake any munitions response work, as well as protected species observers (PSOs) for work that may impact protected species and their habitats. The munitions response plan should include how identified contractors satisfy minimum requirements to undertake the identified work.

I. Munitions Response Contractors

Contractors or personnel hired (or to be hired) by the Lessee to conduct MEC-related activities should meet all minimum qualification standards as established and defined by the DDESB. [36] These qualification standards are described in the DEPARTMENT OF DEFENSE

[36] The DDESB was established in 1928 by Congress after a major disaster at the Naval Ammunition Depot, Lake Denmark, New Jersey in 1926. 10 U.S.C. § 172 (2021). The DDESB is "the primary forum for coordination among covered components of the Department on all matters related to explosive safety management." *Id*. § 172(f)(2). The DDESB is responsible for *inter alia* "[p]roviding impartial and objective advice to the Secretary of Defense, the Secretaries of the Military Departments, and the Directors of the Defense Agencies on ammunition and explosives manufacturing, testing, handling, maintenance, developing, demilitarization, disposal, transportation, and storage and on the construction and siting of facilities within the United States and overseas when under United States jurisdiction, or when planned or intended for U.S-titled ammunition and explosives. This advice shall be structured to prevent conditions that will endanger life and property both inside and outside DoD or host country installations." 32 C.F.R. § 186.6 (2000). For an overview of the DDESB and their explosive safety rules, *see* ENVTL. PROT. AGENCY, *supra* note 26, at 6-21—7-53.

EXPLOSIVES SAFETY BOARD, TECHNICAL PAPER 18: MINIMUM QUALIFICATIONS FOR PERSONNEL CONDUCTING MUNITIONS AND EXPLOSIVES OF CONCERN-RELATED ACTIVITIES (2020) (TP 18), or the most recent version of TP 18 as published by DDESB at the time of the operation.[37] The text and provisions of the most recently published version of TP 18 at the time of this document's publication is included in the attached appendix and are hereby incorporated by reference into this guidance. When a discovered MEC is identified as a UXO, TP 18 may require specific training and positions for contracting individuals. UXO position descriptions are also defined by the Department of Labor in the Service Contract Act Directory of Occupations.[38]

Failure to retain contractors or employees for MEC-related activities that meet the minimum qualifications and experience outlined in TP 18 greatly increases the risk that a Lessee accepts of exposing its employees, crew, ships, installations, and contractors to MEC-related health and safety hazards, as well as risk of inadvertent environmental impacts related to MEC operations. The Lessee's munitions response plan should identify how the Lessee is ensuring compliance with TP 18, and how the Lessee will ensure human health and safety safeguards are in place before approving or beginning any operations where interaction with potential MEC may occur.

II. Protected Species Observers

The Lessee must abide by any lease stipulations, SAP or COP obligations,[39] reasonable and prudent measures, and terms and conditions included in the Incidental Take Statement of any applicable BiOp issued through formal section 7 ESA consultation, any conditions imposed by any RCRA permit, and any Incidental Take Authorizations issued under the MMPA. The Lessee must apply stipulated requirements during any MEC-related munitions response efforts. Such requirements may include PSO requirements.

PSOs are independent, certified professionals who are qualified and trained in identifying and conducting monitoring for marine mammals and other protected species of concern in offshore environments. PSOs also have the responsibility to call for implementation of required mitigation (e.g., delay in detonation due to protected species presence) and document all protected species and related data but cannot engage or directly interact with the protected species. Protected species include all marine mammals and all species listed as threatened or endangered under the ESA. Observer contractors should have relevant observer training, be compliant with BSEE and National Marine Fisheries Service (NMFS) standards,[40] and have a

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[37] DEP'T OF DEF. EXPLOSIVES BD., *supra* note 27.

[38] DEP'T OF LABOR, SERVICE CONTRACT ACT DIRECTORY OF OCCUPATIONS 117-119 (available at: https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/SCADirectVers5.pdf).

[39] COP obligations include requirements in the COP itself as supplemented by measures imposed by BOEM on the Lessee in its COP approval letter.

[40] NAT'L MARINE FISHERIES SERV., NMFS-OPR-49, NATIONAL STANDARDS FOR A PROTECTED SPECIES OBSERVER AND DATA MANAGEMENT PROGRAM: A MODEL USING GEOLOGICAL AND GEOPHYSICAL SURVEYS (2013) (available at: https://repository.library.noaa.gov/view/noaa/15851/noaa_15851_DS1.pdf).

history of providing PSOs to offshore projects. NOAA/NMFS does not endorse any specific PSO providing company or training program but may review curriculum and training materials.[41] It is the Lessee's responsibility to hire a properly licensed PSO contractor and submit the curriculum vitae of the PSO contractors to NOAA/NMFS for approval before engaging in munitions response activities that may impact protected species. The Lessee should identify how they are ensuring this in their munitions response plan.

C. Sécurité Call Protocol and Expectation

During any munitions response operation undertaken at sea, the Lessee or sub-contracted vessels by the Lessee performing the operation(s) should initiate regular channel 16 sécurité broadcasts to alert nearby mariners about the operation, the activity timelines, contact information/frequencies, and other important information. This is in addition to any possible USCG marine safety information broadcasts or on-scene operations. Though the USCG Sector Commander might assign an on-scene cutter or vessel, this may not always be possible based on resource availability, even if there is a designated USCG Safety Zone. The sécurité broadcast should be issued under Global Maritime Distress and Safety System (GMDSS) protocol as follows:

> SÉCURITÉ x 3
>
> ALL STATIONS x 3
>
> THIS IS (Ship/Station Identification) x 3
>
> Without a break, continue on to the safety message:
>
> SÉCURITÉ
>
> NAME, CALL SIGN, MMSI
>
> POSITION
>
> NATURE OF SAFETY MESSAGE
>
> ADVICE/OTHER INFORMATION
>
> "OUT."[42]

D. The Maritime Operational Threat Response

Upon receipt of the notification of a confirmed MEC and review of the Lessee's information, which demonstrates micro-siting is not feasible, BSEE will determine the appropriateness of calling a MOTR meeting through the Global MOTR Coordination Center (GMCC).[43] The MOTR can be used to ensure quick and decisive action to respond to the

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[41] *Protected Species Observers*, NAT'L MARINE FISHERIES SERV., https://www.fisheries.noaa.gov/national/endangered-species-conservation/protected-species-observers#trainers-and-providers (last visited May, 31 2023).

[42] DENISE BREHAUT, GMDSS: A USER'S HANDBOOK (2013).

[43] DEP'T HOMELAND SEC., *infra* note 43.

notification by industry of the discovery of a MEC within their lease and to ensure a timely and unified response to industry and the dissemination of information between agencies. If BSEE concurs with the Lessee determination that micro-siting is not feasible, in order to review the Lessee's Risk Analysis and Munitions Response Plan, BSEE will call a MOTR with a request for it to be convened within five (5) business days with the federal partners to review the received documents.[44] BSEE will provide, as appropriate, any questions or comments to the Lessee within twenty-four (24) hours of the closing of the MOTR. Any feedback, questions, or comments BSEE provides will solely be in the interests of safety and to provide non-binding recommendations, except on such issues where a participant agency has independent legal authority. The GMCC will include all the listed agencies in this document during the MOTR, as well as any unlisted agency the GMCC deems appropriate.

E. Technical Assistance on Munitions Response Plans

BSEE and the federal agencies requesting to receive copies of a Lessee's munitions response and a response plan will include personnel with subject matter expertise in responses to chemical and conventional munitions from the DOD in the review of received munitions response plans during the MOTR process. DOD technical experts will provide support to enable BSEE and federal partners to identify gaps, make recommendations, and identify other relevant guidance related to explosives safety. As part of implementing this guidance, BSEE will coordinate meetings, as appropriate, that will include the DOD and other appropriate interagency technical experts beyond the scope of the MOTR as necessary.

If these additional meetings are held, BSEE will inform federal agency partners with the time and place of any such meetings and provide all agencies that received a copy of the munitions response plan with an opportunity to review and provide comment. BSEE will provide such comments to the Lessee. While MOTR meetings are closed to the public, the Lessee may request to separately present their munitions response plan to provide more information to BSEE and other federal agencies and to answer questions.

BSEE may request the assistance of the CMTS in the interagency coordination of all such meetings and requirements. Agency members will submit their comments to BSEE, who will transmit them to the Lessee no later than twenty-four (24) hours after any such non-MOTR meetings take place.

Under existing statutory authorities and regulations at the time of the issuance of this guidance, neither the DOD nor any other agency within the Federal Government will approve, permit, or sign off on any munitions response plan submitted by the Lessee. The sole purpose of any technical assistance and comments provided to the Lessee is to ensure the safety of all

[44] The Maritime Operational Threat Response (MOTR) is the presidentially approved Plan to achieve a coordinated United States Government response to threats against the United States and its interests in the maritime domain. *Global MOTR Coordination Center (GMCC)*, DEP'T HOMELAND SEC., https://www.dhs.gov/global-motr-coordination-center-gmcc (last visited Dec. 2, 2022).

involved parties and provide recommendations on how to reduce risk and address any operational gaps related to health, safety, or environmental impacts in a submitted munitions response plan. It is the Lessee's responsibility to make any final decision on addressing any comments, accepting recommendations made by interagency or DOD technical experts, and lawfully carrying out any munitions response actions.

6. Munitions Response After Action Report

Even after a MEC operation has removed known MEC threats, all sites known to contain or suspected of containing MEC, including where a removal action has been completed, must be managed as if the risk of encountering MEC will continue. After undertaking any munitions response activities, the Lessee should submit a brief notification to BSEE and the USCG noting the outcome of the response operation, including when and where it took place. This notification should be sent within twenty-four (24) hours of the completion of any action involving MEC.[45]

Lessee should further submit a report detailing the activity and outcome to BSEE, BOEM, USCG, NOAA, EPA, USACE, and the FWS at the completion of a Munitions Response campaign generally within fifteen (15) business days of the completion of the action.[46] Such report should include at a minimum the following information:

i. Narrative to describe the activities were undertaken by Lessee, including all the following before and after the munitions response action:
    a. Location of the MEC (latitude DDD°MM.MMM', longitude DDD°MM.MMM'), lease area, and block (i.e., the "as left" location of the MEC).
    b. Water depth (m).
    c. The weather and sea-state at the time of munitions response.
    d. Number and detailed characteristics (e.g., type, size, classification) of MEC items subject to response efforts.
    e. The duration of the munitions response activities noting start and stop times.
ii. A narrative describing how the Lessee followed its site-specific munitions response plan and ensured best practices as published by the DDESB were followed.
iii. How Lessee ensured safety measures were in place for other mariners, including, but not limited to, the presence of a USCG safety-zone, any

[45] This notification is intended to be a brief summary identifying the specific location, time of operation, and the success or failure of the operation and immediate next steps.

[46] Additionally, if the response is an immediate emergency response as described in footnote 32, it would be exempt from RCRA permitting and other requirements, except for recordkeeping. The responding emergency response specialist's organizational unit would need to retain records for three years identifying the dates of the response, the responsible persons responding, the type and description of material addressed, and its disposition. *See* 40 C.F.R. § 270.1(c)(3)(iii).

notice to mariners, and/or any other USCG safety actions in place prior to any munitions response actions and how security call protocols were used.

iv. The results of the munitions response.

v. How the munitions response effort addressed any threat(s) to health, safety, or the environment posed by the MEC.

vi. Any effect(s) on the marine environment, including whether an after-the-fact essential fish habitat consultation is appropriate under 50 CFR § 600.920(a)(1).

vii. Any effect(s) on protected species and marine mammals and measures implemented to reduce risk and monitor effects.

viii. Any adverse effects on other users of the OCS.

ix. The details of any geophysical surveys conducted after completion of the munitions response activities.

x. The anticipated need for future munitions response activities in the lease area.

xi. A list of how the Lessee is complying with any legally mandated reporting and recordkeeping requirements. This should include RCRA recordkeeping requirements, and any lease terms and conditions, as applicable.

xii. If a MEC action, particularly a 'lift-and-shift' action would move a MEC to a closer proximity of a sanctuary, NOAA requests that this information is explicitly noted in all reports about that MEC and MEC operation.

If a Lessee's munitions response actions lead to an explosives or munitions emergency or an explosive accident,[47] the Lessee should immediately contact emergency services through the USCG on Channel 16 if at sea or 911 if in port. After contacting emergency services, any explosive accident should be immediately reported to the USCG and BSEE. Lessees should then

[47] Explosive Accidents are defined by the United States Navy as "an unplanned explosion or fire involving an explosive material or system. This includes inadvertent actuation, jettisoning, release or launching thereof resulting in a fatality or injury to personnel, fire, explosion or damage to property." U.S. NAVY, EXPLOSIVES SAFETY MANAGEMENT PROGRAM POLICY MANUAL 18-1 (2022) (available at: https://www.secnav.navy.mil/doni/Directives/08000%20Ordnance%20Material%20Management%20and%20Support/08-00%20General%20Ordnance%20Material%20Support/8020.14B.pdf). The United States Navy Explosives Safety program further splits explosive accidents into two categories: Explosive Events and Explosives Mishaps. An Explosive Event is "any event involving conventional ordnance, ammunition, explosives, explosive systems and devices resulting in an unintentional detonation, firing, deflagration, burning, inadvertent launch or launching of ordnance material (including all ordnance impacting off range), leaking or spilled propellant, fuels, oxidizers or chemical weapon release." *Id*. at 18-1–18-2. And do not meet the DOD severity classification of Class A ($2 million or more in damage, fatality, or permanent disabilities), Class B ($500,000 or more in damage but less than $2 million, or permanent partial disability or hospitalization of three or more personal) or Class C ($50,000 or more in damage but less than $500,000, or a nonfatal injury that results in one or more days away from work not including the day of the injury). *See* DEF. CONTRACT MGMT. AGENCY, ATTACHMENT 17 – DOD ACCIDENT/MISHAP/INCIDENT CLASSIFICATION, REPORTING GUIDE, AND CSSO LIST 1-2 (2011) (available at https://www.dcma.mil/Portals/31/Documents/Policy/8210-1c/A17_DoD_Accident_Mishap_Classification_Tool_and_CSSO_List_Jan_2017_2.pdf). Meanwhile, Explosives Mishaps are Explosive Events that meet a DOD severity classification of Class A, B or C. *See* U.S. NAVY, *supra* note 46, at 18-2.

prepare to brief federal partners as to the consequence of the accident, conduct a root cause analysis, and, as necessary, update then resubmit the response plan before continuing activities.

7. Communication with Federal Government and Marine Users

As described above, in the event of a discovery of potential MEC, the Lessee should contact the following government agencies within forty-eight (48) hours of discovery during site assessment activities, pre-construction, or post construction surveys, or within twenty-four (24) hours of discovery during seabed clearance activities, construction, or operations:[48] BSEE, BOEM, USCG, NOAA, EPA, USACE, and the FWS. After being contacted, the agencies will verify receipt of the communication or plan and implement their obligations, as appropriate, under this guidance. In fulfilling this obligation, agencies will ensure there are open and established channels of inter-agency communication.

The Lessee should also contact other relevant state and federal agency representatives (see list below) as appropriate for their situation. If the potential MEC is discovered within state waters, the Lessee should contact the appropriate governmental body within that state. Even if discovered in federal waters, the Lessee should contact the coastal state agencies as a courtesy due to potential impact to their resources. While this guidance does not apply to state waters, the Lessee may use it as a starting point for discussions with competent state authorities. If the Lessee needs assistance in finding the appropriate point of contact for any agency in this process, it may reach out to the Executive Secretariat of the CMTS.

The Lessee should notify the fishery management councils for the region in which operations may take place and proactively ensure the dissemination of discoveries as soon as possible to inform other marine users of confirmed MEC locations. Further communications with marine users may be necessary to inform activities outlined in the Lessee's Munitions Response Plan. Additional recommendations for outreach may be included as a response to submitted notifications or plans.

A. Points of Contact

I. United States Committee on the Marine Transportation System
   a. Executive Secretariat:
      i. Phone: (202) 366-3612
      ii. Email: Offshore Energy Task Team: OffshoreEnergy@cmts.gov

II. United States Coast Guard

Contact the appropriate Command Center for the region the MEC is discovered:

[48] A twenty-four-hour reporting timeline is requested during site-disturbing activities due to the need to respond quickly to a MEC threat while crews and vessels are on the water.

a. Northeast, First Coast Guard District
   (617) 223-8555
b. Mid Atlantic, Fifth Coast Guard District
   (757) 398-6231
c. Southeast, Seventh Coast Guard District
   (305) 415-6800
d. Gulf of Mexico and Western Rivers, Eighth Coast Guard District
   (855) 485-3727
e. Great Lakes, Ninth Coast Guard District
   (216) 902-6117
f. Pacific Southwest, Eleventh Coast Guard District
   (510) 437-3701
g. Pacific Northwest, Thirteenth Coast Guard District
   (206) 220-7001
h. Hawaii, Fourteenth Coast Guard District
   (808) 535-3333
i. Alaska, Seventeenth Coast Guard District
   (907) 463-2000

III. National Oceanic and Atmospheric Administration

a. NOAA MEC Notification Inbox: noaa.mec.reporting@noaa.gov

IV. The Department of the Interior

a. Bureau of Safety and Environmental Enforcement
   i. BSEE MEC Notification Inbox: mec@bsee.gov
   ii. And the BSEE Project Coordinator for your specific lease site.
b. Bureau of Ocean Energy Management
   i. BOEM MEC Notification Inbox: boem_mec_reporting@boem.gov
   ii. And the BOEM Project Coordinator, Technical Coordinator, and Technical Subject Matter Expert for your specific lease site.
c. Fish and Wildlife Service
   i. Barry Forsythe (Barry_Fosythe@fws.gov), the FWS National Spill Response Coordinator.

V. United States Army Corps of Engineers

a. Contact the USACE permanent liaison to the CMTS, contact info available at https://www.cmts.gov/About-CMTS/Meet-Our-Team/
b. And the USACE Regulatory Project Manager identified as the point of contact in the Department of the Army permit for the project.

c. General contact information for USACE Districts is available at: https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/Regulatory-Contacts/.

VI. United States Environmental Protection Agency
a. Sasha Gerhard (Gerhard.sasha@epa.gov), Office of Resource Conservation and Recovery

VII. Fishery Management Councils
b. New England
i. info@nefmc.org
ii. (978) 465-0492
c. Mid-Atlantic
i. contact@mafmc.org
ii. (302) 674-2331
d. South Atlantic
i. kim.iverson@safmc.net
ii. (843) 571-4366
e. Caribbean
i. diana_martino_cfmc@yahoo.com
ii. (787) 766-5926
f. Gulf of Mexico
i. gulfcouncil@gulfcouncil.org
ii. (813) 348-1630
g. Pacific
i. amy.l'manian@noaa.gov
ii. (503) 820-2280
h. Western Pacific
i. info@wpcouncil.org
ii. (808) 522-8220
i. North Pacific
i. maria.davis@noaa.gov
ii. (907) 271-2809

B. Emergency Situations

In the event MEC is inadvertently recovered or brought onboard a vessel, or in any emergency situation involving MEC or potential MEC, the Lessee should immediately contact the USCG and follow the United States Army's 3Rs Explosives Safety Guide for the Maritime Industry.[49] If at sea, use VHF Channel 16 (156.800 MHz) to contact the USCG, or call the

[49] 3Rs Explosives Safety Education Program for Maritime Workers, DOD Envt., Safety & Occupational Health Network & Info. Exch., https://www.denix.osd.mil/uxo/for-work-crews/maritime/index.html (last visited June 14, 2023).

USCG National Response Center at: (800) 424-8802. If a munition is discovered when already moored in port, first call 911.

8. Conclusion

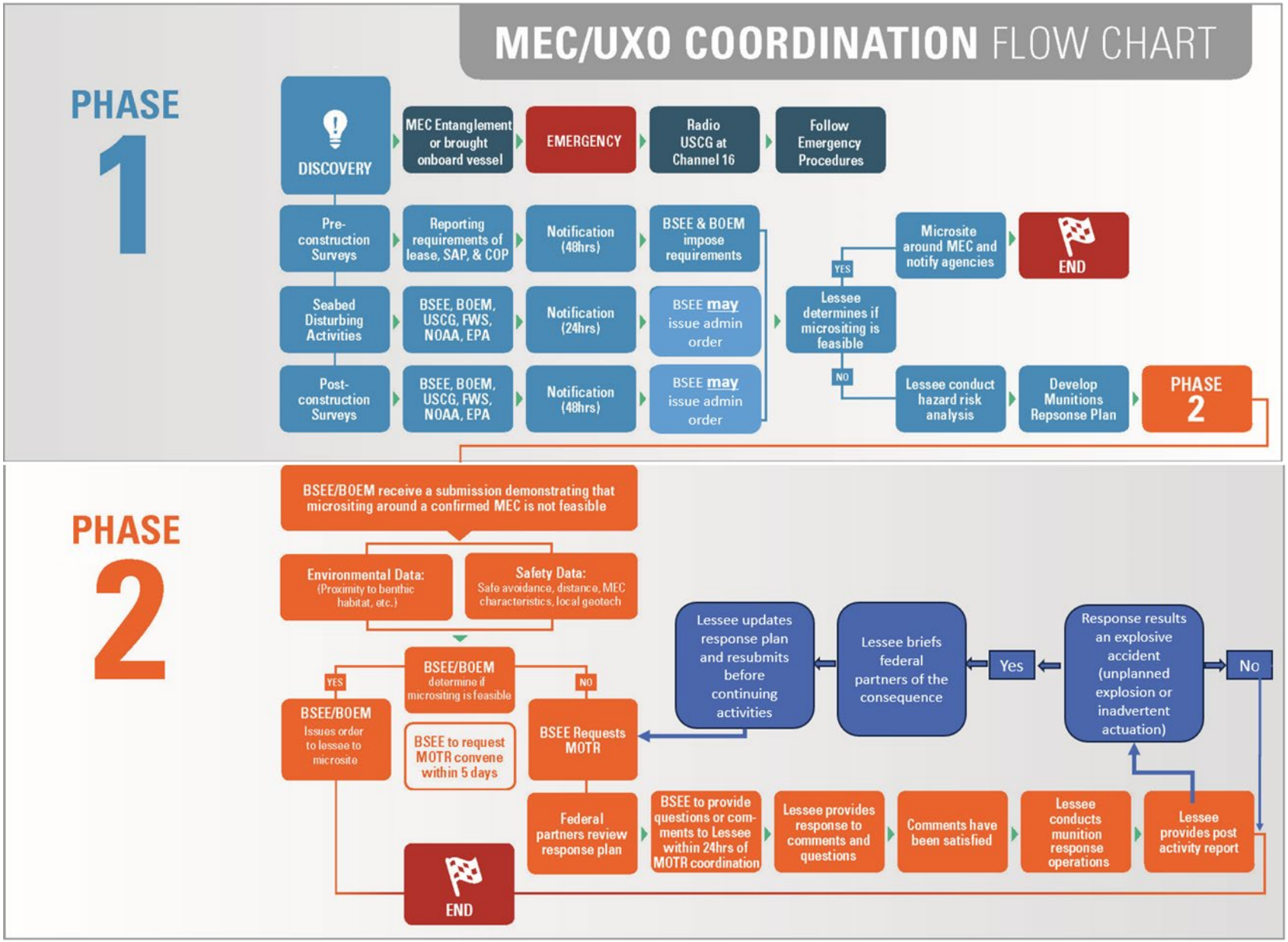
Offshore energy development activities, including offshore wind, have the potential to uncover UXO and other military MEC, which can pose a serious threat to human safety and the environment. The guidelines established by this guidance provide a framework for lessees to contact the federal government, identify potential risks, and develop response and operation plans in the event of discovering MEC. While this framework does not eliminate the risks involved in dealing with MEC or encapsulate the full range of regulatory requirements, it is intended to serve as a baseline for maximizing consistent safe and responsible MEC responses and create uniform channels of communication between industry and all relevant federal stakeholders.

While following this guidance, Lessees must also comply with all federal requirements, prohibitions, and procedures otherwise required by law. Notifying the appropriate agencies within the specified timeline and providing copies of any relevant risk analyses and munitions operation plans will help these agencies work with lessees to ensure the risks associated with MEC are minimized and that offshore energy development activities can proceed safely, responsibly, and in accordance with law.

Appendix

1. MEC/UXO Coordination Flow Chart
2. DEP'T OF DEF. EXPLOSIVES SAFETY BD., TECHNICAL PAPER 18: MINIMUM QUALIFICATIONS FOR PERSONNEL CONDUCTING MUNITIONS AND EXPLOSIVES OF CONCERN-RELATED ACTIVITIES (2020) (available at https://denix.osd.mil/ddes/ddes-technical-papers/ddes-technical-papers/tp-18-minimum-qualifications/).

MEC/UXO COORDINATION FLOW CHART



DDESB

MINIMUM QUALIFICATIONS FOR PERSONNEL CONDUCTING MUNITIONS AND EXPLOSIVES OF CONCERN-RELATED ACTIVITIES

Department of Defense Explosives Safety Board

Alexandria, Virginia

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Questions regarding TP 18 should be directed to the Military Service Offices of Primary Responsibility:
USATCES (918) 420-8002
NOSSA (301) 744-5630
MARCORSYSCOM (703) 432-8781
AFSEC/SEW (505) 846-0375

14. ABSTRACT Department of Defense (DoD) policy provides for the protection of people and property from the unintentional, potentially damaging effects of DoD military munitions. DoD policy also provides for the explosives and chemical agent safety of DoD military munitions throughout the munitions lifecycle. This includes providing for explosives and chemical agent safety during munitions response actions. This technical paper (TP) provides the minimum qualification standards for personnel conducting munitions and explosives of concern (MEC)-related activities in support of the DoD. MEC-related activities include munitions responses to MEC, operational range clearance-related activities, and similar operations that involve intentional physical contact with MEC. These activities may also include determination and documentation of the explosives safety status of material potentially presenting an explosives hazard to be transferred within or released from DoD control. This TP applies to DoD personnel and to contractors who perform MEC-related activities under DoD contracts or in support of DoD-funded activities involving intentional physical contact with MEC.

15. SUBJECT TERMS

munitions and explosives of concern, material potentially presenting an explosives hazard, munitions constituents, material documented as safe, material documented as an explosive hazard

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FOREWORD

Effective 24 June 2020, the Department of Defense Explosives Safety Board (DDESB) Technical Paper (TP) 18, Revision1 "Minimum Qualifications for Personnel Conducting Munitions and Explosives of Concern-Related Activities," supersedes previous versions of TP 18. Existing contracts may continue to apply the provisions specified in the TP 18 in effect at the contract's initiation. However, when a contract option is executed, the provisions of the TP 18 in effect at the time of the option's execution must be applied.

TP 18 provides the minimum qualification standards for personnel conducting munitions and explosives of concern-related activities in support of the DoD. This TP does not preclude licensing, permitting, training, or other defined requirements (e.g., federal, State, local, environmental).

This document will be kept current and updated as new information becomes available. TP 18 is on the DDESB Website at https://denix.osd.mil/ddes/ddes-technical-papers/

This TP has been reviewed by the DoD Components.

Thierry L. Chiapello
Executive Director
Department of Defense Explosives Safety Board

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Table of Contents

TABLES

FIGURE

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CHAPTER 1: INTRODUCTION

1.1. GENERAL.

a. This technical paper (TP) provides minimum qualification standards, established by the Department of Defense Explosives Safety Board (DDESB), for:

(1) Support workers (SWs) and sweep personnel (SP) who support munitions and explosives of concern (MEC)-related activities:

(2) Unexploded ordnance (UXO) technicians (UXOTs) and unexploded ordnance qualified personnel (UXOQP) who conduct or supervise MEC-related activities:

b. MEC-related activities include:

(1) Munitions responses in areas known or suspected to contain DoD military munitions that are UXO, discarded military munitions (DMM), or munitions constituents (MC) that may, on evaluation by qualified personnel, be determined to be MEC.

(2) Operational range clearance-related activities.

(3) The determination of the explosives safety status of material potentially presenting an explosive hazard (MPPEH) to be transferred within, or released from, DoD control. Documentation of the explosive safety status of MPPEH as either material documented as an explosive hazard (MDEH) or material documented as safe (MDAS) is only required when the material is being transferred within, or released from, DoD control.

(4) Operations that involve the intentional physical contact with DoD military munitions that may, on evaluation by qualified personnel, be determined to be MEC including:

(a) Chemical military munitions, chemical agents (CAs) in other than a munitions configuration, and chemical agent identification sets (CAIS), which are collectively referred to as "chemical warfare materiel (CWM)," and munitions and certain materials of interest.

(b) Ground-disturbing or other intrusive activities in areas known or suspected to contain MEC.

(5) Performance of escort duties and construction support (anomaly avoidance or on-site support).

(6) Other activities supporting MEC-related activities in Paragraphs 1.1.b.(1) through 1.1.b.(4), including:

(a) Preparation of required explosives safety submissions, protective action plans, site safety and health plans, and similar explosives safety-related plans.

(b) Generation of field reports.

(c) Conducting on-the-job training.

(d) Participation in on-the-job training.

(e) Performance of maintenance on equipment used.

(7) Other activities (e.g., humanitarian demining, explosive ordnance disposal (EOD)/counter-improvised explosive devices operations) that require knowledge of explosives, explosives safety, compliance with procedures, or requiring an in-depth knowledge of DoD military munitions, foreign or commercial munitions, and other explosives may also be considered MEC-related activities.

c. During MEC-related activities, personnel may be exposed to explosive or CA hazards, referred to collectively in this TP as "explosive hazards," posed by MEC (e.g., UXO, DMM) and/or associated MPPEH. Personnel conducting MEC-related activities should be aware that they may also encounter other environmental contamination (e.g., lead, radiological).

d. Personnel must, commensurate with their duties, meet the minimum qualification standards of this TP when:

(1) Performing or supervising operations when intentional physical contact with MEC is planned or will occur.

(2) Conducting ground-disturbing or other intrusive activities in areas known or suspected to contain MEC.

e. Personnel who support, conduct, or supervise MEC-related activities who do not meet the minimum qualification standards of Tables 4.1, 4.2, or 4.3:

(1) Must not have direct contact with DoD military munitions that may be MEC.

(2) Should not have direct contact with certain categories of MPPEH, particularly MPPEH encountered during a munitions response on a former impact area or range clearance activities on an operational range, until such material has been evaluated and determined by a UXOT or EOD qualified personnel not to pose an explosive hazard.

1.2. APPLICABILITY.

a. The requirements of this TP apply to:

(1) DoD personnel who perform MEC-related activities.

(2) Contractors who perform MEC-related activities in accordance with:

(a) DoD contracts.

(b) State and other non-DoD federal contracts, when the application of these requirements were stipulated or agreed on in property transfer documents (e.g., Finding of Suitability for Early Transfer) and/or agreements (e.g., Environmental Services Cooperative Agreements) between the DoD and a State or other non-DoD federal agency.

(3) DoD personnel or contractors who conduct ground-disturbing or other intrusive activities funded by the DoD in areas known or suspected to contain MEC, and activities involving the intentional physical contact with MEC, except as specified in Paragraph 1.2.b.

b. The requirements of this TP do not apply to:

(1) Uniformed military EOD personnel or operations.

(2) Personnel performing functions directly related to their assigned duties when conducting:

(a) Research, development, test, and evaluation.

(b) Munitions management logistics functions, including storage, manufacturing, transportation, assembly, testing, inspection, maintenance, and demilitarization.

(c) Munitions operating facility demolition, renovation, or maintenance.

(d) Quality assurance (QA) surveillance testing.

(e) Other non-MEC-related activities.

(3) Personnel working in support of operational and former ranges, where based on physical or historical evidence, the only munitions-related activities that occurred on the range were ones that involved live-fire training or testing with small arms ammunition. However, such personnel will, at a minimum, be provided explosives safety education based on the DoD Recognize, Retreat, Report (3Rs) Explosives Safety Education Program. Such training must include recognition of DoD military munitions.

(4) Other personnel (e.g., commercial developers, contractors) performing MEC-related activities under contract with a State or other non-DoD federal agency. However, the DDESB recommends the State or federal agency apply TP 18's requirements.

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CHAPTER 2: MEC-RELATED ACTIVITIES PERSONNEL – POSITION TITLES, DUTIES, AND RESPONSIBILITIES

2.1. GENERAL

This chapter identifies and describes positions by title and outlines the duties and responsibilities of each position. Although this chapter addresses some qualifications, Chapters 3 and 4 present detailed qualifications and training requirements.

a. Training levels and work experience of the following personnel must be documented and verified:

(1) MEC-Related Activities Support Personnel.

(a) SWs.

(b) SP (see 29495 in the appendix to this chapter).

(2) UXOT.

(a) UXO-Technician I (UXO-TI) (see 29491 in the appendix to this chapter).

(b) UXO-Technician II (UXO-TII) (by definition are also UXOQP) (see 29492 in the appendix to this chapter).

(c) UXO-Technician III (UXO-TIII) (by definition are also UXOQP) (see 29493 in the appendix to this chapter).

(3) UXOQP.

(a) UXO Quality Control Specialist (UXOQCS).

(b) UXO Safety Officer (UXOSO).

(c) Senior UXO Supervisor (SUXOS).

(4) Dive-Qualified Personnel.

b. DoD activities and DoD contractors performing MEC-related activities are responsible for ensuring employees meet the qualifications specified in this TP.

c. Personnel assigned to support MEC-related activities that are only responsible for supervising (e.g., dive master) or supporting (e.g., dive tender) dive operations from the surface

are not required to be a UXOT or meet the criteria of UXOQP. When performing MEC-related activities, such personnel must also meet the qualification criteria for the task performed.

d. Under certain circumstances, the duties of a UXOSO and UXOQCS may be filled by a single individual who meets the training and experience requirements for both positions. If not explicitly specified in the contracting documents or applicable Service guidance, site-specific decisions allowing performance of the duties by a single individual will be provided in writing by the government contracting officer's representative (COR) on advice of government explosives safety personnel and in coordination with the contractor.

e. UXOTs and UXOQP must meet the applicable requirements of Section 842 of Title 18, United States Code (U.S.C.) as amended by the Bureau of Alcohol, Tobacco, Firearms, and Explosives in Section 555.26 of Title 27, Code of Federal Regulations (CFR) and State requirements. Personnel who do not meet these requirements will not be provided access to explosives.

f. Personnel supporting or conducting MEC-related activities may be required to have specific or specialized licenses (e.g., a commercial or specialized vehicle driver's license, State blaster's license) and hazardous material endorsements, or be included in a medical monitoring program. (See Section 1910.120 of Title 29, CFR.)

g. Personnel who are working at a hazardous waste site must successfully complete hazardous waste operations and emergency response (HAZWOPER) training in accordance with Section 1910.120 of Title 29, CFR.

2.2. DUTIES AND RESPONSIBILITIES.

a. MEC-Related Activities Support.

Personnel who are not UXOTs or UXOQP, but support MEC-related activities, perform a variety of tasks (e.g., brush-cutting, operating heavy equipment, surveying, site security, dive tenders) required to support the safe performance of MEC-related activities.

(1) SWs.

The SW:

(a) Must be provided general and site-specific training. At a minimum, this must include:

1. General and Site-Specific Safety. This training includes the proper use of equipment and personal protective equipment (PPE) and the physical, biological, and chemical hazards associated with the tasks to be performed.

2. 3Rs Explosives Safety Training. This training includes recognition of DoD military munitions; exposed (bare) or bulk explosives (e.g., trinitrotoluene (TNT) propellants), possibly weathered; chemical agent and CAIS; and the actions that should be taken should a suspect munition be encountered (e.g., 3Rs).

(b) Must be:

1. Protected or escorted when conducting activities (e.g., ground disturbing) that could result in physical contact with MEC, including CWM, CAIS, or MPPEH.

2. Protected from the potential explosive hazards associated with MEC known or suspected to be present within the site (e.g., shielding heavy equipment operators) when determined necessary by a risk assessment.

3. Escorted by UXOQP or a UXOT under the supervision of UXOQP within areas known or suspected to contain MEC. Although escort by a UXO-TI is typically performed under the supervision of UXOQP, the responsible commander or authority may approve UXO-TI personnel to perform escort duties without supervision. Such approval must be based on an approved risk assessment and implementation of methods to mitigate potential exposures. Escorts will help ensure MEC on the surface and subsurface anomalies are avoided. Support activities performed by SWs who may require escort include:

a. Conducting geophysical surveys and similar activities.

b. Clearing vegetation from areas where surface MEC is known or suspected to be present.

c. Operating heavy equipment.

d. Performing site or area security functions requiring access to areas where surface MEC is known or suspected to be present or MEC-related operations are being conducted.

(2) SP.

The SP must:

(a) Assist UXOT and UXOQP in the performance of MEC-related activities, but are not involved in explosive operations.

(b) Be provided general and site-specific training. At a minimum, this must include:

1. General and site-specific safety. Such training includes the proper use of equipment and PPE; physical, biological, and chemical hazards; and the potential hazards associated with the tasks they are to perform.

2. Explosives safety training. Recognition of military munitions; raw, potentially weathered explosives (e.g., TNT, propellants); and CAIS and actions that should be taken should a munition or suspect munition be encountered (e.g., 3Rs).

(c) Not be allowed to conduct activities that could result in physical contact with MEC, including CWM or CAIS; material determined to pose an explosive hazard (sometimes referred to as MDEH); and MPPEH, unless the MPPEH has received an initial inspection by UXOQP who determined the material does not pose an explosive or chemical hazard.

(d) Be supervised or, if required, escorted by a UXOT (see Paragraph 2.2.b.(1)(k)) or UXOQP within areas known or suspected to contain MEC. The need for an escort is determined by a risk assessment that considers the support or tasks to be performed. Escorts will help ensure MEC and MPPEH on the surface and subsurface anomalies are avoided.

(e) Be supervised by a UXO-TIII or above when performing activities in areas where there is a medium to high probability that MEC will be encountered, as determined by a risk assessment. Activities that may be performed by SP include:

1. Conducting visual or technology-aided sweeps for surface MEC.

2. Conducting geophysical surveys for subsurface anomalies.

3. Performing, when necessary, field maintenance and function checks on geophysical instruments and related equipment within an area known or suspected to contain MEC.

4. Moving MPPEH (e.g., munitions debris, range-related debris) that has received an initial inspection by UXOQP who determined the material:

a. Does not pose an explosive hazard

b. Is acceptable for further inspection or processing in accordance with approved DDESB procedures.

b. UXOT.

UXOTs perform a variety of MEC-related activities.

(1) UXO-TI.

When directed and supervised by UXOQP, UXO-TIs must be able to:

(a) Investigate for and identify MEC and MPPEH, including explosive residues in media (e.g., soil), buildings, and installed equipment.

(b) Identify different types of military munitions, including identifying whether a military munition's fuze is armed or unarmed.

(c) Excavate subsurface anomalies for identification.

(d) Move (e.g., consolidate) MEC within a munitions response site (MRS) or on an operational range after the UXOSO and SUXOS have jointly evaluated and documented the determination that the risk of movement is acceptable.

(e) Operate vehicles moving explosives or MPPEH on site. Individuals must be appropriately licensed for the class of vehicle being operated.

(f) Transport military munitions, commercial explosives, and MDEH that meets the criteria in Paragraphs 2.2.b.(1)(a) through (e) and has been determined safe for transport over public traffic routes (PTRs). Such munitions and explosives must be packaged in a manner that allows their safe transport and complies with Department of Transportation (DOT) and other applicable federal and State laws and DoD policies. Only UXO determined to be safe for transport by EOD personnel may be transported over a PTR.

(g) Prepare electric and non-electric firing systems.

(h) Set up decontamination stations and decontaminate CA-contaminated personnel, military munitions, and other material of interest (e.g., munitions debris, glass vials) in accordance with approved plans. Performing these functions may require additional training.

(i) Assist UXOQP in documenting the explosives safety status of MPPEH.

(j) Construct engineering controls (protective works).

(k) Escort personnel who are not directly involved in MEC-related activities (e.g., SWs, SP, visitors to cultural sites) on property known or suspected to contain MEC, but have an operational requirement and authorization to access such property. Although escort by a UXO-TI is typically performed under the supervision of UXOQP, the responsible commander or authority may approve UXO-TI personnel to perform escort duties without supervision. Such approval must be based on an approved risk assessment and implementation of methods to mitigate potential exposures.

(2) UXO-TII.

UXO-TIIs must be able to:

(a) Meet the criteria for and perform the functions of a UXO-TI.

(b) Store explosive materials in accordance with applicable guidance, including preparing on-site holding areas to temporarily store and secure MEC or MPPEH and other explosives (e.g., donor charges).

(c) Determine, using a variety of techniques (e.g., global positioning equipment, land navigation techniques), and record the location of subsurface anomalies, surface MEC, and other material of interest in a field environment.

(d) Perform field collection and testing procedures to identify explosives-contaminated media or material (e.g., equipment used for the load-assemble-pack of military munitions).

(e) Inspect and document the explosives safety status of MPPEH.

(f) Supervise, as required, SWs, SP, and UXO-TIs.

(3) UXO-TIII.

UXO-TIIIs must be able to:

(a) Meet the criteria for, and perform the functions of, a UXO-TI and UXO-TII.

(b) Ensure compliance with DoD Military Service- and/or DDESB-approved site plans.

(c) Supervise and perform on-site destruction or demilitarization of MEC in place or at a consolidated detonation site. This includes determining where and when it is safe to initiate destruction and when engineering controls are required to mitigate the effects of a detonation.

(d) Implement an explosives storage plan in accordance with applicable guidance.

(e) Prepare administrative reports required for munitions responses (e.g., daily UXO team report), operational range clearance activities, and similar operations.

(f) Develop and implement standard operating procedures and work plans for munitions responses and operational range clearance activities.

(g) Assist in the preparation of risk and hazard analyses.

(h) Conduct daily site safety briefings.

(i) Supervise MEC-related activities performed at a site.

(j) Determine if MDEH, which is not known or suspected to be UXO, is safe to ship and properly documented for transport over PTRs in accordance with Technical Bulletin 700-2, Naval Sea Systems Command Instruction 8020.8C, Technical Order 11A-1-47.

(k) Package military munitions, commercial explosives, and MDEH that has been determined safe for transport over PTRs.

(l) Serve as the UXO team leader.

c. UXOQP.

UXOQP conduct, manage, or oversee MEC-related activities (e.g., reacquire and investigate anomalies, document explosives safety status of materials) required during munitions responses and operational range clearance activities and/or verify the completion of such responses and activities safely and in accordance with applicable requirements and approved plans. By definition, UXO-TII and UXO-TIII are considered both UXOTs and UXOQP.

(1) UXOQCS.

UXOQCSs must be able to:

(a) Meet the criteria for and perform the functions of a UXO-TIII.

(b) Develop and, on approval, implement the project's quality control (QC) plan for MEC-related activities in accordance with applicable requirements.

(c) Conduct and document QC audits of MEC-related activities for compliance with applicable requirements.

(d) Identify, document, report, and ensure completion of corrective actions to ensure MEC-related activities are in accordance with applicable requirements.

(e) Ensure compliance with DoD Military Service- and/or DDESB-approved site plans.

(f) Prepare QC reports.

(2) UXOSO.

UXOSOs must be able to:

(a) Meet the criteria for and perform the functions of a UXO-TIII.

(b) Develop and, on approval, implement explosives and health and safety plans and programs in accordance with applicable DoD, federal, State, and local requirements.

(c) Ensure compliance with DoD Military Service- and/or DDESB-approved site plans.

(d) Analyze the potential risks (e.g., operational, explosives safety, general safety) associated with MEC-related activities and develop and implement required mitigating measures.

(e) Establish and ensure compliance with site-specific explosives safety requirements, including:

1. Enforcing personnel limits and explosives safety quantity distance (ESQD) arcs for explosive-related operations.

2. Conducting, documenting, and reporting the results of safety inspections and ensuring implementation of corrective actions.

3. Ensuring protective works and safety equipment within an exclusion zone are used, when required; and operated in accordance with manufacturer's specifications, applicable DDESB approvals, DoD policy, and federal, State, or local statutes, regulations, and codes.

(f) Ensure that air-monitoring equipment is operated and maintained properly at sites with known or potential airborne contaminants (e.g., CWM sites).

(g) Evaluate the risk of movement (e.g., consolidation) of MEC within an MRS or on an operational range with the SUXOS, and provide approval for movement by a UXOT when the risk of movement is determined to be acceptable.

(3) SUXOS.

An SUXOS must:

(a) Meet the criteria for, and perform the functions of, a UXO-TIII, UXOQCS, and UXOSO.

(b) Ensure compliance with a DoD Military Service- and/or DDESB-approved site plans.

(c) Plan, coordinate, and supervise all on-site munitions response and operational range clearance activities.

(d) Supervise up to ten UXO teams.

(e) Assist in the development of required plans (e.g., health and safety plans).

(f) Review all field reports (e.g., daily reports, audits) and approve UXO team reports.

(g) Evaluate the risk of movement of UXO or DMM within an MRS or operational range with the UXOSO, and provide approval for movement by a UXOT when the risk of movement is determined to be acceptable.

d. Dive-Qualified Personnel.

Some MEC-related activities require personnel be dive-qualified. Divers who are performing the duties of a UXOT or UXOQP must meet this TP's criteria for the duties performed and possess the dive-related certifications required for the tasks they are to perform or supervise. A SUXOS, UXOSO, or UXO-TIII providing supervision of MEC-related activities from the surface do not need to possess diver certification.

(1) Dive-qualified personnel will meet the requirements of Part 1910, Subpart T of Title 29, CFR and:

(a) Have dive-related certifications (e.g., dive master, surface-supplied air diver, surface supplied mixed-gas diver) for the tasks they are performing or supervising from an Association of Commercial Diving Educators (ACDE)-accredited school whose curriculum meets the America National Standards Institute (ANSI) Standard ANSI/ACDE-01;

(b) Have a training certificate with a valid Association of Diving Contractors (ADC) Commercial Diver Certification Card for the appropriate training level; or

(c) Have completed the underwater portion of Naval School, Explosive Ordnance Disposal (NAVSCOLEOD) (or foreign equivalent) training.

(2) Divers who are performing MEC-related activities underwater must, at a minimum, meet the qualifications for a UXO-T1. Such divers must be provided guidance from a SUXOS, UXOSO, or UXO-TIII on the surface. This requires the individual providing the guidance have real-time voice communication with the diver and real-time visual or imaging for confirmation of the material (e.g., military munitions, munitions debris) the diver is encountering. A SUXOS, UXOSO, or UXO-TIII providing supervision of MEC-related activities from the surface does not need diver certification.

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APPENDIX: DEPARTMENT OF LABOR, SERVICE CONTRACT ACT DIRECTORY OF OCCUPATIONS - UXO POSITION DESCRIPTIONS[1]

A.1. 29491 UXO-TI.

a. Assists in:

(1) Performing reconnaissance and classification of UXO.

(2) Identifying U.S. and foreign guided missiles, bombs and bomb fuzes, projectiles and projectile fuzes, grenades and grenade fuzes, rockets and rocket fuzes, land mines and associated components, pyrotechnic items, military explosives, and demolition materials.

b. Performs location of subsurface UXO using military and/or civilian magnetometers.

(1) Assists in performing excavation procedures on buried UXO.

(2) Performs operator maintenance of military and/or civilian magnetometers.

(3) Locates surface UXO using visual means.

(4) Assists in transporting and storing UXO and demolition materials.

c. Assists in:

(1) Preparing non-electric firing systems for UXO disposal operations.

(2) Preparing electric firing systems for UXO disposal operations disposing of ammunition/explosives by burning, and disposing of ammunition/explosives by detonation.

(3) Operating a personnel decontamination station. Dons and doffs appropriate PPE in contaminated areas. Assists in the inspection of salvage UXO-related material and erection of UXO-related protective works.

A.2. 29492 UXO-TII.

a. Performs reconnaissance and classification of UXO. Identifies U.S. and foreign-guided missiles, bombs and bomb fuzes, projectiles and projectile fuzes, grenades and grenades fuzes, rockets and rocket fuzes, land mines and associated components, pyrotechnics, military explosives, and demolition materials.

b. Locates subsurface UXO using military and/or civilian magnetometers.

[1] Refer to http://www.dol.gov/whd/regs/compliance/wage/ for the current versions of these descriptions.

(1) Performs excavation procedures on buried UXO by manual means and/or mechanical means.

(2) Performs operator maintenance of military and/or civilian magnetometers.

(3) Locates surface UXO using visual means. Operates motor vehicle transporting UXO.

(4) Prepares an on-site safe holding area for UXO.

(5) Performs storage of UXO and demolition materials.

(6) Prepares a UXO disposal site.

(7) Prepares non-electric firing systems for UXO disposal operations, electric firing systems for UXO disposal operations, and detonating cord firing systems.

(8) Disposes of UXO and explosives by burning or detonation.

(9) Operates a personnel decontamination station.

(10) Dons and doffs appropriate PPE in contaminated areas.

c. Inspects salvage UXO-related material.

(1) Erects UXO-related protective works.

(2) Determines a magnetic azimuth using a lensatic compass.

(3) Performs field expedient identification procedures to identify explosive-contaminated soil.

(4) Performs emergency leak seal and packaging of chemical warfare material.

(5) Uses radiographic (x-ray) equipment.

A.3. 29493 UXO-TIII.

a. Performs reconnaissance and classification of UXO. Identifies U.S. and foreign guided missiles, bombs and bomb fuzes, projectiles and projectile fuzes, grenades and grenade fuzes, rockets and rocket fuzes, land mines and associated components, pyrotechnic items, military explosives, and demolition materials.

b. Supervises the location of subsurface UXO using military and/or civilian magnetometers.

(1) Supervises the:

(a) Excavation and recovery of subsurface UXO.

(b) Construction of UXO-related protective works.

(c) Location of surface UXO by visual means.

(d) Transportation and storage of UXO assuring compliance with federal, State, and local laws.

(e) Disposal of UXO by burning and detonation.

(f) Preparation of a UXO disposal site.

(g) Preparation of an on-site safe holding area for UXO.

(2) Determines UXO-related storage compatibility.

(3) Prepares an explosives storage plan.

(4) Supervises donning and doffing of PPE, operation of a personnel decontamination station, and maintenance and operator checks on all team equipment.

(5) Prepares UXO-related administrative reports and standard operating procedures.

(6) Conducts daily team safety briefings.

c. Supervises segregation of UXO-related scrap from non-UXO-related scrap, safe-handling procedures, team preventive medicine, and field sanitation procedures.

(1) Performs risk hazard analysis and interprets x-ray of UXO.

(2) Supervises field expedient identification procedures to identify explosives contaminated soil, the determining of a magnetic azimuth using a lensatic compass, emergency leak sealing, and packaging of chemical warfare materiel.

A.4. 29494 UXO SAFETY ESCORT.

a. Responsible for the safe escort of non-UXOQP who are not directly involved in MEC-related activities (e.g., range clearance activities, munitions removal actions), but have activities to perform within restricted/exclusion areas. Personnel who may require escorts include contractor personnel involved in the cleanup, cultural visitors, surveying personnel, equipment operators, archaeologists, conservationists, geologists, news media, and visiting government personnel.

b. Ensures safety during the transit of persons being escorted by scanning visually in the immediate path of the escorted party, and redirecting the party, as necessary, to avoid UXO and other hazards.

c. Is involved with hazard recognition and avoidance only, not the execution of UXO search or clearance actions.

d. Must have UXO training qualifications.

A.5. 29495 SP.

a. Assist UXO personnel in the destruction or removal of UXO, DMM, or MPPEH determined to pose an explosive hazard operating only under the direct working supervision of a qualified UXO specialist and/or UXO supervisory personnel.

b. Conduct visual and/or instrumented UXO search activities in the field and operate ordnance detection instruments and similar equipment.

c. Remove MPPEH (i.e., munitions debris or range-related debris) only after a qualified UXO specialist has determined it does not pose an explosive hazard (i.e., it is MDAS).

d. Are not involved in the execution of explosives operations.

e. Must have site- and job-specific contractor training, but does not require UXO qualifications.

CHAPTER 3: UXO-TI TRAINING STANDARDS

3.1. MINIMUM TRAINING STANDARDS FOR UXO-TI.

a. This chapter outlines the minimum training standards for a UXO-TI. Personnel who are trained as a UXO-TI must demonstrate the requisite knowledge and ability to perform required tasks in compliance with applicable operational and explosives safety requirements. Candidates for a UXO-TI position must successfully complete:

(1) 200 hours of explosives safety training as described in Paragraph 3.2. or a comprehensive assessment of the individual's ability to successfully perform as a UXO-TI. The course content must convey the information and skills needed to conduct MEC-related activities in accordance with applicable requirements. Both the course and comprehensive assessment must include practical exercises evaluating the skills required.

(2) 40 hours of HAZWOPER training in accordance with Section 1910.120 of Title 29, CFR.

b. An institution of higher education must provide this training or conduct this assessment and:

(1) Certify successful completion of the course requirements or a comprehensive assessment through written exams and practical exercises.

(2) Have programmatic accreditation by a U.S. Secretary of Education nationally recognized college or university educational accrediting agency, be a component member of a nationally recognized university system, or be designated by statute as an agency of higher education and have a demonstrated history of providing quality training programs.

c. Before being employed as a UXO-TI, an applicant must provide the prospective employer documentation of successful course completion or successful completion of a comprehensive assessment from an institution of higher education that meets the criteria in Paragraph 3.1.a. The employer must verify that the individual was trained by the training institution and the institution meets the requirements in Paragraph 3.1.b.

3.2. CURRICULUM AND TRAINING OBJECTIVES FOR UXO-TI.

a. Munitions Responses to MEC.

(1) Description.

Understand the purpose, requirements, and procedures for a munitions response to MEC. This training includes explosives safety and environmental requirements applicable to performing munitions responses to MEC.

(2) Objectives.

(a) Define terms and identify abbreviations.

(b) Describe the purpose for munitions responses.

(c) Describe planning, safety, and environmental requirements for conducting munitions responses.

(d) Identify the documents (e.g., work plan, accident prevention plan) that should be available for review by field team members.

(e) Describe the typical field tasks of a munitions response and their purpose.

(f) Describe the required process to inspect and document the explosives safety status of MPPEH as either MDAS or as MDEH.

(g) Discuss how to and the importance of maintaining a chain of custody for MDAS and MDEH.

(h) Describe the consequences of losing the chain of custody for MDAS and MDEH.

(i) Discuss potential liability concerns associated with evaluating MPPEH and documenting its explosives safety status as MDAS or MDEH.

(j) Describe the proper assembly of protective works.

(k) Describe the general operation of soil sifting, magnetic, and eddy current equipment as a method to separate MEC and munitions debris from soil.

(l) Describe documentation required from a field team conducting MEC activities.

b. Operational Range Clearance Activities and Similar Operations.

(1) Description.

Understand the purpose, requirements, and procedures for performing operational range clearance activities and similar operations. This training includes explosives safety and environmental requirements applicable to performing operational range clearance activities and similar operations.

(2) Objectives.

(a) Describe the purpose of operational range clearance activities and similar operations and how they differ from munitions responses to MEC.

(b) Describe how operational ranges are designed (e.g., impact areas, safety buffer zones) and used.

(c) Describe planning, safety, and environmental requirements for conducting operational range clearance activities.

(d) Describe the typical field tasks for operational range clearance activities and how they differ from munitions responses to MEC.

(e) Describe the potential hazards associated with operational range clearance activities.

(f) Describe documentation required from a field team conducting operational range clearance activities.

(g) Describe the required process to inspect and document the explosives safety status of MPPEH as either MDAS or MDEH.

(h) Discuss the importance of properly processing and managing MPPEH, MDAS, and MDEH, including the importance of maintaining the chain of custody.

(i) Describe the consequences of losing the chain of custody.

(j) Discuss potential liability concerns associated with evaluating MPPEH and documenting its explosives safety status as MDAS or MDEH.

c. Measurements and Mathematical Computations.

(1) Description.

Understand the methods for conversion between the U.S. customary and metric systems of measurements and basic mathematical computations.

(2) Objectives.

(a) Identify metric prefixes.

(b) Describe mathematical conversions within the metric system.

(c) Convert units from U.S. customary to metric and metric to U.S. customary.

d. Electricity.

(1) Description.

Understand the basics of electricity and circuitry as applied to MEC-related activities.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Describe electrical conductivity and its characteristics in different materials.

(c) Describe types of cells and batteries, their construction features, and process used to generate electro-motive force.

(d) Describe current flow, factors that affect current flow (including switches), and units of measurement of current flow.

(e) Describe electrical resistance and the factors that affect resistance.

(f) Describe the operation of a series direct current (DC) circuit with respect to Ohm's law.

(g) Describe the operation of basic parallel DC circuits to determine equivalent resistance.

(h) Describe capacitance in terms of charging and discharging a capacitor.

(i) Diagram a basic circuit that may be used in an electric firing system.

e. Physics.

(1) Description.

Understand basic physics as applied to MEC-related activities.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Describe forces and how they are graphically represented.

(c) Describe Newton's first and third laws of motion.

(d) Describe the difference between weight and mass.

(e) Describe hydrostatics with respect to fluid pressure.

(f) Describe properties of matter.

(g) Define motion, work, and energy.

(h) Describe measures of and forces affecting motion.

(i) Identify the physical laws affecting gases.

(j) Define magnetism.

f. Military Munitions - Explosives and Explosive Effects.

(1) Description.

Understand the basics of explosives and explosive effects.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Summarize the history of explosives.

(c) Describe the characteristics of military munitions (explosives, propellants, and pyrotechnics).

(d) Identify the types of high explosives groups (primary, secondary, main charge).

(e) Identify the forms and classes of propellants and black powder, pyrotechnic, and tracer compositions.

(f) Describe the functioning of an explosive train.

(g) Define explosion and describe types of explosions (detonations, low order detonations, deflagrations).

(h) Describe the forms of energy produced by explosions.

(i) Describe the effects of an explosion (pressure wave, fragments, debris, thermal, ground shock).

g. Military Munitions - Fuze Functioning.

(1) Description.

Understand how fuzes function.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Describe fuze forces.

(c) Describe the fundamental principles of fuzes, fuze arming, and firing principles.

(d) Describe fuze components.

(e) Describe methods of employment and uses of fuzes.

(f) Describe the typical arming and functioning of fuzes.

(g) Describe fuze types.

h. Explosives Safety Precautions.

(1) Description.

Understand explosives safety precautions as they apply to MEC-related activities, including:

(a) The different categories of MEC (i.e., UXO, DMM, or MC that are explosives and in concentrations high enough to pose an explosive hazard) and MPPEH and MDEH.

(b) The use of hazards of electromagnetic radiation to ordnance (HERO) safe equipment.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Describe the purpose of explosives safety precautions.

(c) Describe safety considerations that apply by categories of MEC and MPPEH and MDEH.

(d) Describe basic safety precautions for:

1. Explosive-loaded munitions.

2. Submunitions.

3. Toxic chemical-loaded munitions.

4. Pyrotechnic and incendiary munitions.

5. Smoke-loaded munitions.

6. Fuzing systems.

7. Small arms ammunition.

8. Training military munitions.

9. Practice military munitions.

10. Underwater munitions.

i. Military Munitions Identification.

(1) Description.

Provide a detailed description (e.g., family, group, type) and identify military munitions and applicable specific safety precautions based on type. (See ammunition terms in the Glossary.)

(a) Surface-fired, launched, or placed munitions:

1. Projectiles (gun, mortar, howitzer).

2. Small arms ammunition.

3. Land mines and associated components.

4. Infantry rockets and rocket fuzes.

5. Grenade and grenade fuzes.

(b) Air launched or fired munitions:

1. Bombs and bomb fuzes.

2. Guided missiles and missile fuzes.

3. Large rockets and rocket fuzes.

4. Submunitions.

(c) CWM (i.e., chemical munitions and CA in other than munitions configurations).

(d) CAIS.

(e) Smokes and pyrotechnics.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Provide a detailed description and identify military munitions and applicable specific safety precautions based on type.

(c) Demonstrate comprehension and detailed knowledge of live, training, and practice munitions.

(d) Recognize munitions' color codes and markings.

(e) Describe the basic safety precautions for explosive-initiating components.

(f) Describe the safety precautions for munitions by category or group.

j. Underwater Munitions Identification.

(1) Description.

Understand underwater munitions.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Provide a detailed description and identify military munitions and applicable specific safety precautions based on type.

(c) Demonstrate comprehension and detailed knowledge of live training and practice underwater munitions by category and specific safety precautions based on type.

(d) Recognize munitions' color codes and markings.

(e) Describe the basic safety precautions for explosive-initiating components.

(f) Describe the safety precautions for underwater munitions.

k. Detection Equipment.

(1) Description.

Understand general, physical, functional, and operational characteristics and maintenance of detection equipment for:

(a) Location of subsurface anomalies using various technologies during geophysical surveys.

(b) Detection of subsurface anomalies.

(c) Basic geophysical investigation (e.g., anomaly identification, mapping, target discrimination, QC processes).

(2) Objectives.

(a) Describe the purpose of geophysical survey equipment, operational characteristics, and capabilities.

(b) Describe the theory of geophysical surveys.

(c) Describe data analysis including the advanced geophysical classification process.

(d) Describe all major and associated components, including displays, controls, and indicators.

(e) Describe the purpose of a geophysical system verification and the various tasks involved.

(f) Describe operational tasks and preventive maintenance procedures.

(g) Understand how to inventory and maintain equipment.

(h) Understand typical instrument outputs and their use in munitions responses.

l. PPE.

(1) Description.

Understand all relevant PPE.

(2) Objectives.

(a) Identify where PPE requirements for MEC-related activities are specified, and who is responsible for determining whether PPE is required and changing PPE requirements at a site.

(b) Understand the capabilities and limitations of PPE given the hazards that may be present.

(c) Understand the requirements for using PPE safely.

(d) Describe the requirements and process for performing decontamination.

m. Demolition Materials.

(1) Description.

Understand demolition materials and their use, including:

(a) Military and commercial explosives (U.S. and foreign).

(b) Initiating components and systems.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Describe military explosives, commercial explosives, and demolition materials and when each might be used.

(c) Describe the purpose of demolition materials and specialized explosive techniques.

(d) Describe tools and equipment used during demolition operations.

(e) Describe demolition accessories.

(f) Describe electric power sources and test sets used with demolition firing circuits.

(g) Describe demolition charge initiators.

(h) Describe demolition charges, charge kits, and assemblies.

(i) Describe safety precautions for preparation and firing of demolition materials.

n. Firing Systems.

(1) Description.

Understand firing systems and their use.

(2) Objectives.

(a) Describe detonating cord demolition procedures.

(b) Describe electric and non-electric firing systems.

(c) Describe safety precautions for preparation and firing of demolition materials, including HERO and static discharge precautions for electric initiators.

(d) Prepare electric and non-electric firing systems for detonation operations.

(e) Describe misfire safety precautions.

(f) Describe hang fire safety precautions.

o. Destruction and Demilitarization.

(1) Description.

Understand the relationship between destruction (i.e., detonation, burning) and demilitarization requirements, and procedures for destroying conventional military munitions.

(2) Objectives.

(a) Define terms and identify abbreviations and symbols.

(b) Describe the requirements and purpose for destroying conventional munitions.

(c) Describe destruction procedures, including the technologies available for contained or controlled destruction.

(d) Describe the authorized destruction methods for different types of military munitions.

(e) Describe requirements and safety precautions for destruction operations.

(f) Describe the destruction of conventional explosives and related hazardous materials.

(g) Describe the requirements for demilitarization of military materiel before disposal or recycling.

p. Storage, Handling, and Transportation of Military and Commercial Explosives.

(1) Description.

Understand storage, handling, and transportation of explosives.

(2) Objectives.

(a) Describe the purpose for proper storage, handling, and transportation of explosives.

(b) Identify relevant regulations governing storage, handling, and transportation of explosives.

(c) Describe the hazard classification system, including that classification assignments within the Joint Hazard Classification System are only applicable to transportation and storage configurations, and not to explosive hazards recovered during MEC-related activities.

(d) Discuss storage compatibility groups.

(e) Discuss safety requirements.

(f) Discuss ESQD and minimum separation distance requirements.

(g) Discuss transportation requirements for munitions and commercial explosives.

q. Skills Requirements.

(1) Description.

Demonstrate knowledge of policies, requirements, and procedures in the safe performance of MEC- and MPPEH-related duties.

(2) Objectives.

Demonstrate, during a practical exercise, knowledge and comprehension of policies and procedures to safely:

(a) Plan and establish a standard (100’ x 100’) UXO search grid.

(b) Operate detection equipment used during geophysical surveys within areas known or suspected to contain MEC.

(c) Detect and determine the coordinates of anomalies.

(d) Reacquire and investigate (e.g., excavating) an anomaly.

(e) Provide a detailed description of military munitions and identify specific safety and applicable storage, handling, and transportation precautions.

(f) Design and construct various types of firing systems (single, dual prime series, dual prime parallel), both electric and non-electric.

(g) Design, construct, and detonate a firing system to initiate a complete explosive charge using a line main and a ring main.

CHAPTER 4: MINIMUM QUALIFICATION STANDARDS

4.1. Minimum qualification standards for UXOQP, UXOTs, and SP and SWs are shown in Tables 4.1, 4.2, and 4.3, respectively.

4.2. UXOTs and UXOQP must meet the applicable requirements of Section 842 of Title 18, U.S.C., as amended by the Bureau of Alcohol, Tobacco, Firearms and Explosives in Section 555.26 of Title 27, CFR and State requirements. Personnel who do not meet these requirements will not be provided access to explosives.

4.3. Individuals preparing materials for transport or transporting hazardous materials must complete a DOT-compliant (Section 172.704 of Title 49, CFR) hazardous materials course.

4.4. Personnel working as UXOTs and UXOQP may have significant breaks between jobs. Only the time personnel have spent working under a contract that is performing MEC-related activities, in accordance with Paragraph 1.1., counts towards advancement, with 1,880 hours considered a 1-year full-time equivalent.

a. The accumulation of time towards advancement is not limited to time involved in the intentional physical contact with DoD military munitions that may be determined to be MEC, or the conduct of ground-disturbing or other intrusive activities in areas known or suspected to contain MEC. It also includes activities in support of MEC-related contracts and contracts with incidental munitions response activities, including munitions response project management, report generation, on-the-job training, equipment maintenance, and other activities required to support a contract's requirements.

b. The accumulation of hours towards advancement in excess of 1,880 hours in a 1-year calendar period is authorized, but cannot exceed 2,350 (125 percent) within a calendar year.

4.5. The contractor is responsible for ensuring that UXOTs and UXOQP, including dive personnel, are qualified to perform the duties assigned. A contractor's evaluation of an individual's military work history (e.g., DD Form 214,Certificate of Release or Discharge from Active Duty) or civilian work history (e.g., employment records, individual logbook, professional certifications, training certificates) will be used as the basis for determining each individual's cumulative MEC-related work experience (see Paragraphs 1.1.b. and 4.4.). The documentation the contractor used for this determination must be available to DoD or Service Explosives Safety personnel, Service independent third-party QA personnel, the contracting officer, COR, or assigned program manager on request.

4.6. UXOTs and UXOQP should maintain a logbook, as shown in Figure 4.1, of their MEC-related work hours for advancement purposes, which may include work that required knowledge of military munitions and the application of explosives safety criteria. If maintained, this logbook will, at a minimum, include:

a. Number of hours worked in a UXOQP or UXOT position;

b. Type of activity (e.g., UXO escort, demolition operations, intrusive, analog operations, digital geophysical mapping (DGM)) performed; and

c. Certification of the number of work hours used for advancement (not required for work hours recorded before 1 September 2016):

(1) As required by employing contractors; or

(2) By on-site supervisor (include supervisor's name and contact information).

4.7. UXO-TIs with a 36-month continuous break in the performance of MEC-related activities require requalification as a UXO-TI based on a comprehensive assessment or supervised on-the-job training.

a. Requalification must be accomplished by attending a UXO-TI requalification training course or completion of a comprehensive assessment provided by a training organization as outlined in Paragraph 3.1. or by supervised on-the-job training that the employer documents.

b. For other personnel with a 36-month continuous break in the performance of MEC-related activities, when appropriate, provide supervised on-the-job training that is documented by the employer. Properly documented logbooks and/or prior employment verification can be used to ensure employment gaps do not exceed 36 months.

4.8. Personnel whose EOD status was terminated for gross negligence in the performance of assigned EOD duties, a flagrant violation of EOD safety procedure or regulation, or who are not discharged under honorable conditions will not be considered EOD qualified and will not be considered a military EOD school graduate. To obtain employment, such personnel must complete the training required for a UXO-TI.

4.9. A UXOT or UXOQP who the government prohibits further access to a work site or an employer terminates from employment for cause (e.g., a flagrant violation of explosives safety criteria or procedures) must re-complete, in the case of a UXOT, or complete, in the case of UXOQP, the training required for a UXO-TI before being allowed to conduct MEC-related activities. Employers who terminate a UXOT or UXOQP for cause are required to notify the COR and should consider notifying the community of UXO contractors.

Table 4.1. Minimum Qualifications for UXOQP[1, 2, 3, 4]

UXOQP Position Description	Training Required	Minimum MEC-related Experience	Minimum MEC-Supervisory Experience	Minimum Total EOD and MEC Experience
SUXOS	Notes 5, 7, 8, 9, 10, and 11	2 years	1 year	10 years
	Notes 6, 7, 8, 9, 10, and 11	10 years	5 years	13 years
UXOSO	Notes 5, 7, 8, and 9	1 year	0.5 year	8 years
	Notes 6, 7, 8, and 9	8 years	2 years	10 years
UXOQCS	Notes 5, 7, 8, 10, and 11	1 year	0.5 year	8 years
	Notes 6, 7, 8, 10, and 11	8 years	2 years	10 years
Dive Qualified	Note 12	As indicated above for the position description.		

Notes:

1. By definition, UXO-TII and UXO-TIII are UXOQP (minimum qualifications for a UXO-T are provided on Table 4.2.
2. Graduate of an Occupational Safety and Health Administration (OSHA)-compliant (Section 1910.120 of Title 29, CFR) 40-hour HAZWOPER course.
3. Limited to performance of MEC-related activities as a UXOT or UXOQP or similar civilian government service (e.g., Ordnance and Explosives Safety Specialist (OESS)). Activities performed as SP or SWs are not considered MEC-related experience and are not counted toward the experiential requirements for UXOQP.
4. Limited to experience in UXO supervisory positions (i.e., UXO-TIII, UXOQCS, UXOSO, OESS).
5. Graduate of a military EOD School of the United States, Canada, Great Britain, Germany, or Australia. (See Paragraph 4.8) for EOD personnel who were terminated for gross negligence in the performance of assigned duties, a flagrant violation of EOD safety procedure or regulation or who are not discharged under honorable conditions will not be considered EOD qualified and will not be considered a military EOD School graduate. To obtain employment, such personnel must complete the training required for a UXO-TI.
6. Graduate of a UXO-TI Course (see Chapter 3), the EOD assistant's course or pass a comprehensive assessment.
7. Graduate of an OSHA-compliant (Section 1910.120(e)(4) of Title 29, CFR) 8-hour Management and Supervisor Training if supervising other personnel.
8. Possesses an understanding of applicable explosives safety criteria and experience in the various phases of a munitions response to MEC or the performance of range clearance activities, as appropriate for the operations to be performed.
9. Must have completed a 10-hour OSHA Construction Safety and Health Training and earned a Department of Labor Construction Safety Course Completion Card.
10. UXOQCS must have either:
    a. Successfully completed training as a quality professional (i.e., International Standards Organization 9001 internal auditor, American Society of Quality Certified quality auditor);
    b. Possess a quality-professional certification by a recognized organization (e.g., U.S. Army the Corps of Engineers and Naval Facility Engineering Command Training Course Construction Quality Management for Contractors; or
    c. Receive company- and project-specific QC training and work under the supervision of a certified quality professional.
11. UXOQCS must demonstrate an understanding of QC and QA practices associated with MEC-related activities and managing and processing MPPEH, including documentation of its explosives safety status.
12 Divers who are independently performing the duties of a UXOT or UXOQP must:
    a. Meet this TP's criteria for the duties performed and the requirements of Part 1910, Subpart T of Title 29, CFR.
    b. Have the dive-related certifications required for the tasks they are to perform or supervise. Certifications (dive or training) must be from an accredited school and meet the requirements contained in ANSI/ACDE Standard-01; be documented as valid by an ADC Commercial Diver Certification Card for the appropriate training level; and/or have documentation of successful completion of an appropriate level of training from an ACDE accredited school or have completed the underwater portion of NAVSCOLEOD (or foreign equivalent) training.

Table 4.2. Minimum Qualifications for a UXOT[1, 2, 3]

UXOT Position Description	Training Required	Minimum MEC-related Experience	Minimum Total EOD and MEC Experience
UXO-TIII	Notes 4, 6, and 7	1 years	8 years
	Notes 5, 6, and 7	8 years	8 years
UXO-TII	Notes 4 and 7	0 years	1.5 years
	Notes 5 and 7	3 years	3 years
UXO-TI	Notes 4 and 7	0 years	0 years
	Notes 5 and 7	0 years	0 years
Dive Qualified	Note 8	As indicated above for the position description.	

Notes:

1. By definition, UXO-TIIs and UXO-TIIIs are also UXOQP.
2. Graduate of an OSHA-compliant (Section 1910.120 of Title 29, CFR) 40-hour HAZWOPER course.
3. Limited to performance of MEC-related activities as a UXOT or UXOQP or similar civilian government service (e.g., OESS). Activities performed as SP or SWs are not considered MEC-related experience and are not counted toward the experiential requirements for UXOQP.
4. Graduate of a military EOD School of the United States, Canada, Great Britain, Germany, or Australia. Military EOD graduates with a minimum of 1 year's MEC-related experience and 8 years' EOD experience may immediately fill position as a UXO-TIII after leaving Active Duty. (See Paragraph 4.8. for EOD personnel who were terminated for gross negligence in the performance of assigned duties, a flagrant violation of EOD safety procedure or regulation or who are not discharged under honorable conditions will not be considered EOD qualified and will not be considered a military EOD School graduate). To obtain employment, such personnel must complete the training required for a UXO-TI.
5. Graduate of a UXO-TI Course (see Chapter 3), the EOD assistant's course or pass a comprehensive assessment.
6. Graduate of an OSHA-compliant (Section 1910.120(e)(4) of Title 29, CFR) 8-hour Management and Supervisor Training course.
7. On-the-job training including, but not limited to, familiarity with the process, procedures, and equipment (e.g., geophysical) used for conducting MEC-related activities.
8. Divers who are independently performing the duties of a UXOT or UXOQP must:
   a. Meet this TP's criteria for the duties performed and the requirements of Part 1910, Subpart T of Title 29, CFR.
   b. Possess the dive-related certifications required for the tasks they are to perform or supervise. Certifications (dive or training) must be from an accredited school and meet the requirements contained in ANSI/ACDE-01; be documented as valid by an ADC Commercial Diver Certification Card for the appropriate training level; and/or have documentation of successful completion of an appropriate level of training from an ACDE accredited school, or have completed the underwater portion of NAVSCOLEOD (or foreign equivalent) training.

Table 4.3. Minimum Qualifications for SP and SWs[1]

SP and SW Position Description	Training Required	Minimum MEC-related Experience[2, 3]
SP	Note 4	0 years
4.1 SW	Note 4	0 years

Notes:
1. Job- and site-specific training including, but not limited to, general and site specific safety (e.g., proper use of equipment and PPE, physical, biological, and chemical hazards); explosives safety training (e.g., recognition of military munitions, 3Rs).
2. Experience as SP or SWs is not required for UXO-TI certification.
3. Activities performed as SP or SWs are not counted toward the experiential requirements for a UXOT or UXOQP.
4. Personnel who are working at a hazardous waste site require successful completion of an OSHA-compliant (Section 1910.120 of Title 29, CFR) HAZWOPER course.

Figure 4.1. UXOT and UXOQP Logbook Recommended Format

Technician's name:	
Location (e.g., Munitions Response Site, Operational Range):	
Contractor:	
Technician's job position:	
Technician's start and finish dates:	
Technician's supervisor, position, telephone number, and e-mail address:	
Instructions UXOTs and UXOQP should maintain a logbook of their MEC-related work hours. These personnel should be able to provide reasonable documentation that supports the hours logged. • MEC-related work hours, as defined by TP 18.[1] includes the time involved in the intentional physical contact with MEC or the performance of ground-disturbing or other intrusive activities in areas known or suspected to contain military munitions that may be MEC, but includes activities in support of a MEC-related contract such as report generation, on-the-job training, equipment maintenance, and other activities required to support a contract's requirements. • A UXOT's or UXOQP's start and finish dates are the dates physically worked at the job site. • File in a loose-leaf binder. (A scanned backup is prudent.)	
Number of hours:	
Type of activity (e.g., escort, demo, intrusive, analog operations, DGM):	
Employee signature:	
Supervisor signature:	
Supervisor contact information (phone and e-mail):	
MEC-related work hours carried forward from employee's resume (first report), or a previous report of MEC-related work.[2]	
MEC-related work hours from this report.	
Total MEC-related work hours.	

[1] DDESB TP 18 (current version).
[2] If there are no previous reports (this is your first form), use the hours accumulated on your latest resume.

GLOSSARY

G.1. ACRONYMS.

3Rs	recognize, retreat, report
ACDE	Association of Commercial Diving Educators
ADC	Association of Diving Contractors
ANSI	America National Standards Institute
CA	chemical agent
CAIS	chemical agent identification sets
CFR	Code of Federal Regulations
COR	contracting officer's representative
CWM	chemical warfare materiel
DC	direct current
DDESB	Department of Defense Explosives Safety Board
DESR	Defense Explosives Safety Regulation
DGM	digital geophysical mapping
DMM	discarded military munitions
DOT	Department of Transportation
EOD	explosive ordnance disposal
ESQD	explosive safety quantity distance
HAZWOPER	hazardous waste operations and emergency response
HERO	hazards of electromagnetic radiation to ordnance
MC	munitions constituents
MDAS	material documented as safe
MDEH	material documented as an explosive hazard
MEC	munitions and explosives of concern
MPPEH	material potentially presenting an explosive hazard
MRS	munitions response site
NAVSCOLEOD	Naval School, Explosive Ordnance Disposal
OESS	Ordnance and Explosives Safety Specialist
OSHA	Occupational Safety and Health Administration
PPE	personal protective equipment
PTR	public traffic route
QA	quality assurance

QC	quality control
SP	sweep personnel
SUXOS	Senior UXO Supervisor
SW	support worker
TNT	trinitrotoluene
TP	technical paper
U.S.C.	United States Code
UXO	unexploded ordnance
UXOQCS	UXO Quality Control Specialist
UXOQP	UXO Qualified Personnel
UXOSO	UXO Safety Officer
UXOT	UXO Technician
UXO-TI	UXO Technician I
UXO-TII	UXO Technician II
UXO-TIII	UXO Technician III

G.2. DEFINITIONS.

ammunition. General meanings follow. Based on use, certain terms may have different meanings.

- Family - weapon system munitions which provide a similar capability (e.g., tank, artillery, bombs).
- Group - family broken into more specific category usually by weapon system (e.g., M1 Abrams 120mm, 105mm).
- Type - denotes payload or capability delivery (e.g., high explosive, armor piercing).
  - Category:
    Operational, combat, training, or testing
  - Storage category
- MEC category (i.e., UXO, DMM, or MC (explosive)).
  Groups - sensitivity of storage compatibility, munitions with similar explosive characteristics relating to means of detonation, blast considerations, and special containment requirements (e.g., sensitivity to heat, friction, percussion)

DMM. Defined in Section 2710(e)(2) of Title 10, U.S.C.

explosive. Defined in DESR 6055.09.

explosive hazard. Defined in DESR 6055.09.

EOD. Defined in DESR 6055.09.

EOD personnel. Uniformed military personnel who have graduated from the Naval School, Explosive Ordnance Disposal; 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 CA hazards during both peacetime and wartime. EOD personnel are trained and equipped to perform render safe procedures on nuclear, biological, chemical, and conventional munitions, and on improvised explosive devices.

MC. Defined in Section 2710 (e)(3) of Title 10, U.S.C.

MDAS. Defined in DoD Instruction 4140.62.

MDEH. Defined in DoD Instruction 4140.62.

MEC. Specific categories of military munitions that may pose unique explosives safety risks when present in high enough concentrations to pose an explosive hazard:

UXO as defined in Section 101(e)(5) of Title 10, U.S.C.

DMM as defined in Section 2710(e)(2) of Title 10, U.S.C.

MC (e.g., TNT, cyclotrimethylenetrinitramine) as defined in Section 2710(e)(3) of Title 10, U.S.C.

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 DoD, the Coast Guard, the Department of Energy, and the National Guard.

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.

Does not include wholly inert items, improvised explosives devices and nuclear weapons, nuclear devices, and nuclear components, but does include non-nuclear components of nuclear devices that are managed in accordance with the Nuclear Weapons Program of the Department of Energy after all required sanitization operations pursuant to the Atomic Energy Act of 1954 (Section 2011 *et seq.* of Title 42, U.S.C.) have been completed. (See Section 101(e) (4) of Title 10, U.S.C.)

MPPEH. Material owned or controlled by the DoD that, before determination of its explosives safety status, potentially contains explosives or munitions (e.g., munitions containers and packaging material; munitions debris remaining after munitions use, demilitarization, or

disposal; and range-related debris) or potentially contains a high enough concentration of explosives that the material presents an explosive hazard (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:

Military munitions and military munitions-related materials, including wholly inert components (e.g., fins, launch tubes, containers, packaging material), that are to be used or reused for their intended purpose and are within a DoD Component-established munitions management system.

Non-munitions-related material (e.g., horseshoes, rebar, other solid objects) and munitions debris that are solid metal fragments that do not realistically present an explosive hazard.

Other 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. (See DoD Instruction 4140.62.)

MRS. Defined in DESR 6055.09.

munitions and certain materials of interest. Defined in DoD Directive 5101.17E.

munitions debris. Defined in DESR 6055.09.

munitions response. Defined in DESR 6055.09.

munitions response area. Defined in DESR 6055.09.

Ohm's law. A law stating that electric current is proportional to voltage and inversely proportional to resistance.

range clearance. Defined in DESR 6055.09.

range-related debris. Defined in DESR 6055.09.

UXO. Defined in Sections 101(e)(5)(A) through (C) of Title 10, U.S.C.

UXOQP. Defined in DESR 6055.09.

UXOT. Defined in DESR 6055.09.

REFERENCES

American National Standards Institute, Association of Commercial Diving Educators-01, "National Standard for Divers – Commercial Diver Training – Minimum Standard," current edition

Code of Federal Regulations, Title 27, Section 555.26

Code of Federal Regulations, Title 29

Code of Federal Regulations, Title 49, Section 172.704

Defense Explosives Safety Regulation 6055.09, Edition 1, January 13, 2019

DoD Directive 5101.17E, "Roles and Responsibilities Associated with the Recovery of Chemical Warfare Material," May 11, 2016, as amended

DoD Instruction 4140.62 "Material Potentially Presenting an Explosive Hazard (MPPEH)," August 20, 2015, as amended

International Standards Organization 9001, "Quality management systems – Requirements," current edition

Technical Bulletin 700-2, Naval Sea Systems Command Instruction 8020.8C, Technical Order 11A-1-47, "Department of Defense Ammunition and Explosives Hazard Classification Procedures," July 30, 2012

United States Code, Title 10

United States Code, Title 18, Section 842

United States Code, Title 42, Section 2011 *et seq.*