DEPARTMENT OF THE NAVY
NAVAL ORDNANCE SAFETY AND SECURITY ACTIVITY
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NOSSAINST 8020.15C
Ser N539/1776
10 Feb 11

NOSSA INSTRUCTION 8020.15C

From: Commanding Officer, Naval Ordnance Safety and Security Activity

Subj: EXPLOSIVES SAFETY REVIEW, OVERSIGHT, AND VERIFICATION OF MUNITIONS RESPONSES (U)

Ref: (a) OPNAVINST 8020.15A/MCO 8020.13A
(b) OPNAVINST 8020.14/MCO P8020.11
(c) OPNAVINST 8027.1G/MCO 8027.1D
(d) NAVSEA OP 5, Volume 1
(e) OPNAVINST 5102.1D/MCO P5201.1B

Encl: (1) Munitions Response Site Identification and Notification Report
(2) Explosives Safety Submission Determination Request
(3) Guide for Preparing an Explosives Safety Submission
(4) Munitions Response Site Self-Assessment Checklist
(5) Guide for Preparing a Munitions Response Site After-Action Report
(6) Definitions and Abbreviations

1. Purpose. To assign responsibility and establish procedures and reporting requirements to enable the Naval Ordnance Safety and Security Activity (NOSSA) to provide effective review, oversight, and verification of the explosives safety aspects of munitions responses, as required by reference (a).

2. Cancellation. NOSSAINST 8020.15B. This instruction is substantially revised and should be reviewed in its entirety.

3. Background. The Navy executes munitions response actions at a Munitions Response Site (MRS) to address explosives safety, human health, or environmental risks posed by munitions and explosives of concern (MEC) and material potentially presenting an explosive hazard (MPPEH). Some munitions response actions are undertaken voluntarily while others are carried out in compliance with environmental regulations such as the Comprehensive Environmental Response, Compensation, and

Liability Act (CERCLA) or the Resource Conservation and Recovery Act (RCRA). A munitions response may include assessments, inspections, evaluations, investigations, and removal or remedial actions. These actions may range from implementing land use controls (LUCs) in order to preserve compatible land use to long-term response actions involving sophisticated technology, specialized expertise, and significant resources. Reference (a) provides policy, defines authority, and assigns responsibilities for the explosives safety aspects of munitions responses. Reference (b) identifies NOSSA as the technical authority for explosives safety throughout the Navy. Enclosures (1) through (6) provide information to manage munitions response projects.

4. Scope.

a. This instruction applies to Navy munitions responses involving MEC or MPPEH at a MRS.

b. This instruction does not apply to operational ranges, except to pre-existing military munitions burial sites located on them.

c. This instruction does not specifically address munitions responses involving chemical agents (CA) or military munitions containing CA, although these items are considered MEC and are included within the Navy Munitions Response Program. Project managers who encounter CA or military munitions containing CA should contact NOSSA (N53) for specific guidance.

d. Marine Corps activities may follow this instruction with approval of the Commander, Marine Corps Systems Command, Program Manager for Ammunition (COMMARCORSYSCOM [PM Ammo]).

5. Procedures.

a. Site Identification and Notification. When MEC or MPPEH are first encountered at site where neither MEC nor MPPEH were known or suspected to be present, the on-site supervisor shall immediately suspend all operations put at risk due to the MEC or MPPEH and shall notify the project manager. The project manager shall then:

(1) Contact the cognizant Explosive Ordnance Disposal (EOD) detachment or unit assigned by reference (c). If contact information is unknown, determine it as follows:

(a) For Navy activities west of the Mississippi River contact COMEODGRUONE, Naval Amphibious Base (NAB) Coronado, California, at 619-437-0720. For Navy activities east of the Mississippi River contact COMEODGRUTWO, NAB Little Creek, Virginia, at 757-462-8452.

(b) For Marine Corps activities contact the installation EOD unit.

(c) For real property no longer under Navy control west of the Mississippi River contact the U.S. Army's 71st Ordnance Group (EOD), Fort Carson, Colorado, at 719-526-2528. For real property no longer under Navy control east of the Mississippi River contact the U.S. Army's 52nd Ordnance Group (EOD), Fort Campbell, Kentucky, at 270-798-7173. The cognizant control group will provide contact information for the responsible Army EOD unit.

(2) Notify NOSSA (N53) within one week of the initial encounter with the MEC or MPPEH by submitting a "Munitions Response Site Identification and Notification Report" at enclosure (1). A Word version of this form may be downloaded from https://nossa.nmci.navy.mil. NOSSA (N53) will respond within two weeks of receiving the report. Depending on the circumstances involved, NOSSA will either concur with the resumption of operations, or require that an Explosives Safety Submission (ESS) Determination Request (ESS DR) or an ESS be submitted before operations can continue. NOSSA (N53) will file the completed report in the NOSSA Technical Library.

b. Explosives Safety Submission.

(1) General.

(a) An ESS is a document that details how explosives safety standards in reference (d) are applied to munitions responses. It also addresses how the project will comply with applicable environmental requirements related to the management of MEC and MPPEH. At an MRS where an ESS is required (see Section 5.b(3)) no site operations can begin unless NOSSA has

reviewed and endorsed, and the Department of Defense Explosives Safety Board (DDESB)has reviewed and approved, the ESS.

(b) The project manager may submit one ESS for each MRS, one ESS for multiple MRSs in a munitions response area (MRA), or one ESS for multiple MRAs at one geographic location.

(c) An ESS compliant with enclosure (3) meets the requirements of an explosives safety site approval request; therefore, Naval Facilities Engineering Command (NAVFAC) Forms 11010.45 Part I and Part II Division A are not required. For active Navy installations, signatures of the cognizant explosives safety officer (ESO) and public works department (PWD) planner will be required on the signature page at enclosure (3), appendix A. ESO and PWD planner signatures affirm that the ESS meets all applicable explosives safety and planning criteria, respectively. For properties being closed or transferred under the Base Realignment and Closure (BRAC) program, the ESO signature block may be completed by either the Navy Regional ESO or a technically qualified explosives safety official designated by the BRAC Program Management Office (PMO). For these same closed or transferred properties the planner’s signature block may be completed by the BRAC Environmental Coordinator.

(d) NOSSA (N53 and N54) will not accept a project plan, work plan, or standard operating procedures (SOPs) in lieu of an ESS. Conversely, the ESS shall not be used in the field as a substitute for a project plan, work plan, or SOPs. The project plan, work plan, and/or SOPs shall not contain less stringent requirements than those prescribed in the NOSSA-endorsed and DDESB-approved ESS. However, the project plan, work plan, and/or SOPs may expand on these elements, as required, for project implementation/execution.

(2) The types of ESSs, corresponding to reference (d) munitions response operational categories, are:

(a) MRS investigation/characterization.

(b) No further [remedial] action [planned] (NFA). Note: An NFA ESS is required in order to remove an MRS from the MRS site inventory.

(c) Time-critical removal action (TCRA) involving MEC or MPPEH.

(d) On-site construction support where the likelihood of encountering MEC or MPPEH is determined to be moderate or high.

(e) Execution of the selected munitions response.

(3) An ESS **is** required for:

(a) Placement of explosives on a site.

(b) Intentional physical contact with MEC or MPPEH, including the decontamination and demolition of buildings and installed equipment potentially contaminated with residual MEC.

(c) Conduct of ground-disturbing or other intrusive activities, including dredging, in areas known or suspected to contain MEC or MPPEH.

(4) An ESS **is not** required for:

(a) Explosives or munitions emergency responses.

(b) Maintenance and clearance activities on operational ranges.

(c) Construction or non-munitions response activities, including dredging, in an area not known or suspected to contain MEC or MPPEH.

(d) Demolition of magazines where there is no evidence of residual MEC contamination or historical record of explosives spills.

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

(5) An ESS **may not be** required for operations taking place in an area known or suspected to contain MEC or MPPEH when the likelihood of encountering them is low.

(a) Examples of such operations are:

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

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

3. Anomaly avoidance techniques employed during vegetation removal, cultural/natural resources survey, preliminary assessment (PA) site reconnaissance, site inspection (SI), sign or fence installation, or similar activities not involving intentional physical contact with MEC/MPPEH.

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

5. Demolition of operating buildings where operations exclusively involved all-up rounds (no exposed explosives) and did not generate explosive residues.

(b) Project managers shall complete an ESS DR using the form at enclosure (2), “Explosives Safety Submission Determination Request”. An ESS DR is normally one to two pages in length and may have maps or graphics attached. Note: A Word version of this form may be downloaded from https://nossa.nmci.navy.mil.

(c) NOSSA (N53) will provide a written response within two weeks of receiving the ESS DR.

(6) ESS Format.

(a) The project manager shall prepare an ESS in accordance with enclosure (3), “Guide for Preparing an Explosives Safety Submission”. NOSSA is developing a web-based tool called WebESS. When it becomes available the project manager may use it to submit their ESS. Contact NOSSA (N53) for WebESS technical support.

(b) The cover page of each draft ESS shall reflect the version number and date (month and year), and all pages and maps will include the version number and date in the footer or legend, respectively. If a draft ESS requires revision all modified text shall be tracked using a “track changes” feature

or shown in *Italic* font. The title of the ESS will not change throughout the review process. All lines of draft text will be numbered, with numbers restarting on each page.

(c) The final ESS shall retain the same title as the ESS draft(s), and all pages and maps will include the word "Final" and the date in the footer or legend, respectively. Lines of the final ESS shall not be numbered.

(d) An ESS for any given MRS shall reference and summarize work accomplished under any previously-approved ESS.

(8) ESS Processing.

(a) Project managers are encouraged to request that NOSSA (N53 and N54) or COMMARCORSYSCOM (PM Ammo), as appropriate, review draft ESSs. The project manager shall submit a draft ESS as an electronic file that is attached to a digitally-signed e-mail and sent to either:

NOSSA (N53) E-mail: inhdnossa-ess@navy.mil	COMMARSYSCOM (PM Ammo) E-mail: explosivessafety@usmc.mil

ESSs greater than 5MB in size shall not be attached to the e-mail. Rather, the project manager shall include in the e-mail the full path, logon, and password to access the file sharing utility from which the electronic file can be downloaded.

(b) The final ESS shall be submitted under a formal cover letter. It shall be addressed to the NOSSA commanding officer (CO) or the COMMARCORSYSCOM, as appropriate, and signed by the cognizant field engineering command (FEC) CO, the cognizant BRAC PMO Director, or persons under them with by-direction authority. When projects are not being managed by either a FEC or BRAC PMO, the cover letter shall be signed by the agency or activity that provides funding or operational project oversight, or persons under them with by-direction authority. The project manager shall deliver one hard copy and one electronic copy (on compact disk) of the final ESS to either:

NOSSA (N53) 4234 Steve's Way, Ste 121 Indian Head, MD 20640-5058 Telephone: 301-744-4450	COMMARSYSCOM (PM Ammo) 39 Tech Parkway, Ste 211 Stafford, VA 22556-8618 Telephone: 703-482-8781

(c) NOSSA may take up to one month to review and endorse the final ESS to the DDESB. The project manager should also plan on the DDESB taking up to a month to review and approve the ESS. Once the ESS is approved by the DDESB, NOSSA (N54) will forward to the project manager the DDESB approval letter and any stipulated changes. Forwarding the DDESB correspondence may take up to two weeks. NOSSA endorsement and DDESB approval of the ESS is a critical milestone in a munitions response project. Therefore, the project manager should make the project team aware of the review and endorsement/approval timelines.

(d) While awaiting DDESB review and approval, NOSSA (N53) is authorized by reference (d) to provide written, interim ESS approval. Interim ESS approval shall only be provided in extenuating circumstances, when written justification is provided by the project manager. Although such approval authorizes the project manager to proceed per the NOSSA-endorsed ESS, there is the risk that the DDESB may impose different or additional requirements.

(e) Should the DDESB stipulate that a change be made to the ESS before they can approve it, NOSSA (N54) shall notify the project manager of the needed change. The project manager shall then make the change and resubmit the ESS following the amendment process described below, after which NOSSA will re-endorse the ESS to the DDESB. In cases where the DDESB approves the ESS with provisions or other stipulations, NOSSA (N54) shall include them in the letter forwarding the DDESB approval.

(f) Until approved by the DDESB, an ESS is a working document and should not be released outside of the Navy.

(9) ESS Amendments and Corrections. Once an ESS is approved, no changes can be made to any part of the munitions response process unless the ESS is amended or corrected.

(a) Amendment.

1. An ESS shall be amended when a proposed change increases explosives safety hazards/risks, identifies requirements for additional or increased explosives safety controls, or enlarges an explosives safety quantity distance (ESQD) arc.

2. ESS amendments follow the same review and endorsement process as an ESS. In extenuating circumstances project managers may request that NOSSA (N54) provide provisional ESS approval when there is a demonstrated need to expedite the amendment review and approval process in order to increase an approved ESQD arc.

(b) Correction.

1. An ESS shall be corrected when a proposed change does not increase explosive safety hazards/risks, identify requirements for additional or increased explosives safety controls, or enlarge an ESQD arc.

2. ESS corrections shall be submitted to and reviewed by NOSSA (N53 and N54) but do not need to be endorsed to the DDESB for their review and approval.

(c) An amendment or correction to an approved ESS does not require the resubmission of the entire ESS. If the number of amended or corrected pages is ten or less then NOSSA and the DDESB will accept the changed pages providing: (1) the amendment or correction is submitted under formal cover letter from the same signature authority as was the final ESS; (2) the cover page retains the same ESS title and reflects the amendment or correction number and date; and (3) each changed page and map includes the amendment or correction number and date in the footer or legend, respectively. If the number of amended or corrected pages exceeds ten, the project manager shall make the changes and resubmit the entire ESS.

(10) The complete ESS approval package shall be maintained at the MRS project site. This package consists of: (1) the final ESS, including any corrections and/or amendments; (2) the NOSSA (N54) letter endorsing the ESS to the DDESB; (3) the DDESB approval memo; and (4) the NOSSA (N54) letter forwarding the DDESB approval to the customer.

(11) An ESS shall expire three years from the date of DDESB approval, latest amendment approval, or latest correction approval unless the project manager does a comparative analysis of the ESS against current explosives safety and environmental criteria and submits this analysis to NOSSA for their review.

c. Mishap Reports. In accordance with reference (e), Mishap Investigation and Reporting, responsible personnel shall report all accidents, incidents, explosive mishaps, or near-mishaps at MRSs that involve MEC or MPPEH. Include on report distribution, as appropriate:

NOSSA (N53) PLAD: NAVORDSAFSECACT INDIAN HEAD MD//N5//	COMMARSYSCOM (PM Ammo) PLAD: COMMARCORSYSCOM QUANTICO VA//AM//

d. Oversight. NOSSA oversight may include, but is not limited to, the following:

(1) Audits. NOSSA (N53) shall audit munitions response projects to assess the extent to which the unexploded ordnance (UXO) contractor complies with applicable environmental, safety, and occupational health requirements related to the management of MEC and MPPEH. An audit will be conducted at the discretion of NOSSA (N53) or when requested by the project manager in order to satisfy a specific project goal such as receiving NOSSA verification. Based on project specifics or other circumstances NOSSA (N53) may determine that an audit is not required.

(a) Notification. At least 30 days in advance of the audit NOSSA (N53) shall provide the project manager written notification, with a copy to other cognizant Navy activities. There may be circumstances when less than a 30-day notice is given. Once notified, the project managers shall coordinate the audit with the designated ESO, the UXO contractor or other munitions response personnel, and other cognizant activities or persons. The project manager shall take the necessary steps to ensure the UXO contractor supports the audit.

(b) Scope.

1. Audits will review the following, as applicable: Explosives Safety Submission; Work Plan and SOPs; quality control (QC) plan or quality assurance/assessment (QA) project plan; site-specific health and safety plan; environmental protection plan; and UXO worker qualification and certification documents.

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

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

(c) Report. Within 30 days of the audit NOSSA (N53) will document the findings in an Audit Report. This report is generally considered internal to the Navy with limited distribution intended to protect business sensitive information (including proprietary data, documents, and personnel records) from unauthorized disclosure. Additionally, auditors will control notes and preliminary reports.

(d) Response. Within 30 days of receipt of the audit report the project manager shall respond to NOSSA (N53) with a copy to the same cognizant Navy activities that were included in the notification memo. The response shall address each discrepancy, including corrective actions taken. Comments and observations need not be answered. If the project manager wishes to refute any discrepancy, they shall provide sufficient justification and substantiation. Failure to provide a response to the audit will preclude NOSSA (N53) closing out the audit report and providing the project manager formal verification.

(2) Technical Assistance Visit. The project manager may request that NOSSA (N53) provide a technical assistance visit (TAV) to assess the level of project compliance, much as they would during an audit. The main difference between an audit and a TAV is that the project manager need not respond to TAV findings. The project manager can ask for a TAV tailored to a specific need or area, or one that is as broad in scope as an audit. TAVs are most beneficial when conducted early in the life of the project.

e. After-action report (AAR). An AAR for completed munitions responses is a required feature of all DDESB-approved ESSs. The purpose of the AAR is to document that the explosives safety aspects of the selected response have been completed per the approved ESS. No AAR shall be submitted following approval of an NFA ESS since no munitions response actions were undertaken.

(1) AAR Format.

(a) The AAR shall contain all of the elements listed in enclosure (5), “Guide for Preparing a Munitions Response Site After-Action Report.” In lieu of an AAR prepared in accordance with enclosure (5), NOSSA (N53) will accept a final report prepared by the UXO contractor if it includes a crosswalk table which correlates the contractor report to the required AAR elements.

(b) The cover page of each draft AAR shall reflect the version number and date (month and year), and all pages and maps will include the version number and date in the footer or legend, respectively. If a draft AAR requires revision all modified text shall be tracked using a “track changes” feature or shown in *Italic* font. The title of the AAR will not change throughout the review process. All lines of draft text will be numbered, with numbers restarting on each page. The final AAR shall retain the same title as the AAR draft(s), and all pages and maps will include the word “Final” and the date in the footer or legend, respectively. Lines of the final AAR shall not be numbered.

(2) AAR Processing.

(a) Within six months of completing all munitions response actions at an MRS the project manager shall prepare and submit the AAR to NOSSA (N53) for their review and endorsement to the DDESB. The six-month time period begins after all field work authorized by the ESS and data processing are complete.

(b) Project managers are encouraged to request that NOSSA (N53) or COMMARCORSYSCOM (PM Ammo), as appropriate, review draft AARs. Draft AARs shall be submitted as an electronic file and attached to an e-mail sent to either:

NOSSA (N53) E-mail: inhdnossa-ess@navy.mil	COMMARSYSCOM (PM Ammo) E-mail: explosivessafety@usmc.mil

AARs greater than 5MB in size shall not be attached to the e-mail. Rather, the project manager shall include in the e-mail the full path, logon, and password to access the file sharing utility from which the electronic file can be downloaded.

(c) The final AAR shall be submitted under a formal cover letter. It shall be addressed to the NOSSA CO or COMMARSYSCOM, as appropriate, and signed by the cognizant FEC

CO, the cognizant BRAC PMO Director, or persons under them with by-direction authority. When projects are not being managed by either a FEC or BRAC PMO, the cover letter shall be signed by the agency or activity that provides funding or operational project oversight, or persons under them with by-direction authority. The project manager shall deliver one hard copy and one electronic copy (on compact disk) of the final AAR to either:

NOSSA (N53) 4234 Steve's Way, Ste 121 Indian Head, MD 20640-5058 Telephone: 301-744-4450	COMMARSYSCOM (PM Ammo) 39 Tech Parkway, Ste 211 Stafford, VA 22556-8618 Telephone: 703-482-8781

(d) NOSSA may take up to one month to review and endorse the final AAR to the DDESB. The project manager should plan on the DDESB also taking up to a month to review and acknowledge receipt of the AAR. AARs are not provided to the DDESB for approval, but are used to close out files maintained by them. The DDESB will acknowledge receipt of the AAR and raise any issues that require resolution before land transfer or an alternative use can safely proceed.

(e) NOSSA (N53) will forward to the project manager the DDESB acknowledgement, together with any issues noted by them. Forwarding this DDESB correspondence may take up to two weeks. NOSSA endorsement and DDESB acknowledgement of the AAR is a critical milestone in a munitions response project. Therefore, the project manager should make the project team aware of the review and endorsement/acknowledgement timelines.

f. Transfer of real property.

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

(a) NOSSA has formally verified that the final munitions response was completed in accordance with the approved explosives safety documentation; and

(b) DDESB has approved measures submitted by the transferring Component to ensure the recipient of the property is fully informed of both the actual and potential hazards relating to the presence or possible presence of explosives, and

restrictions or conditions placed on the use of the property to avoid harm to users due to the presence of explosives.

(2) Formal verification of the munitions response by NOSSA is based upon, but not limited to, a review of the approved ESSs and AARs, QC and QA reports, audit reports (including responses to findings), Record of Decision or similar decision document, Remedial Action Completion Report, Finding of Suitability of Transfer, and proposed deed language addressing any remaining MEC or MPPEH contamination. The project manager shall submit these documents to NOSSA (N53) as part of the request to transfer. NOSSA will then endorse the transfer request to the DDESB.

g. Munitions Response Repository. NOSSA (N53) shall maintain a repository containing munitions response-related documents. This repository is not intended to be a substitute for other required document repositories (e.g., the CERCLA administrative record). The NOSSA Munitions Response Repository shall be a component of the NOSSA Technical Library.

6. Technical Guidance. For munitions response technical guidance contact NOSSA (N53 or N54) at 301-744-4450 or 301-744-6044 (DSN 354), respectively.

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CAPT, USN

Distribution:
Electronic only via NOSSA Web site https://nossa.nmci.navy.mil

MUNITIONS RESPONSE SITE IDENTIFICATION AND NOTIFICATION REPORT

Instructions: Project managers shall complete all blocks of this report and attach it to a digitally-signed e-mail sent to either:

NOSSA (N53) E-mail: inhdnossa-ess@navy.mil	COMMARSYSCOM (PM Ammo) E-mail: explosivessafety@usmc.mil

Site name/number, Activity, City, State and ZIP code:		Date submitted:	
Project manager: Contact information		EOD Det/UXO contractor: Contact information	
Site history: Briefly describe past MEC or MPPEH use at the site			
Work task/project being performed and MEC or MPPEH encountered: Identify quantity, type/nomenclature, and condition			
Summary of actions taken to date and planned actions:			

Note: NOSSA (N53) concurrence that an ESS is not required must be obtained prior to resuming operations.

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EXPLOSIVES SAFETY SUBMISSION DETERMINATION REQUEST

Instructions: Project managers shall complete all blocks of this ESS DR and attach it to a digitally-signed e-mail sent to either:

NOSSA (N53) E-mail: inhdnossa-ess@navy.mil	COMMARSYSCOM (PM Ammo) E-mail: explosivessafety@usmc.mil

Site name/number, Activity, City, State and ZIP code:		Date submitted:	
Project manager and ESO: Names and contact information		EOD Det/UXO contractor: Name(s) and contact information	
Site history: Briefly describe past MEC or MPPEH use at the site			
MEC or MPPEH known or suspected to be present: Identify quantity, type/ nomenclature, and condition			
Work task/project being proposed: Briefly describe proposed work; identify encumbering ESQD arcs			
Likelihood of encountering MEC or MPPEH: Low, Medium or High; include rationale for selected likelihood	Likelihood: Rationale:		

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GUIDE FOR PREPARING AN EXPLOSIVES SAFETY SUBMISSION

Instructions for use:

This enclosure is a guide to assist the project manager in writing an ESS. The following steps describe how this is done:

1. Select from among the reference (d) munitions response operational categories the ESS category which best characterizes the proposed munitions response project. If the project involves more than one category, select all that are applicable. The five ESS categories are listed in the table, below.
2. Identify the sections which shall be addressed in the ESS. Those have an X at the intersection of the ESS section row and the ESS category column.
3. Address each section. The text following the table identifies the minimum information required. If a section is not identified with an X, indicate "N/A" meaning the section is not applicable. Use the numbering convention provided. Do not paginate between major sections.

	ESS category				
ESS section	**MRS investigation or characterization**	**NFA Determination**	**Time-critical removal action**	**On-site construction support**	**Execution of selected response**
1. Background					
1.1. Project manager	X	X	X	X	X
1.2. MRS identifier and description	X	X	X	X	X
1.3. Regional map(s)	X	X	X	X	X
1.4. Scope of munitions response	X		X	X	X
1.5. History of MEC use	X		X	X	X
1.6. Previous studies of extent of MEC or MPPEH contamination	X	X	X	X	X
1.7. Justification for NFA decision		X			
2. Project dates					
2.1. Project dates	X		X	X	X
3. Types of MEC and MPPEH					
3.1. Types and quantities of MEC and MPPEH	X		X	X	X
3.2. MGFD	X		X	X	X
3.3. Maximum credible event	X		X	X	X
3.4. Explosive soil and contaminated buildings	X		X	X	X
4. MEC and MPPEH migration					
4.1. MEC and MPPEH migration			X	X	X

ESS section	ESS category: MRS investigation or characterization	NFA Determination	Time-critical removal action	On-site construction support	Execution of selected response
5. Detection techniques					
5.1. Detection equipment, method, and standards	X		X	X	X
5.2. Navigational equipment, method, and standards	X		X		X
5.3. Equipment check-out	X		X	X	X
5.4. Data collection and storage	X		X		X
6. Response actions					
6.1. Response techniques	X		X	X	X
6.2. Exclusion zones	X		X	X	X
6.3. MEC and MPPEH hazard classification, transportation, and storage,	X		X	X	X
6.4. MEC and MPPEH disposition processes	X		X	X	X
6.5. Explosive soil	X		X	X	X
6.6. Contaminated buildings			X	X	X
6.7. Operational risk management	X		X	X	X
6.8. Contingencies	X		X		X
7. QC/QA					
7.1. QC implementation	X		X		X
7.2. QA implementation	X		X		X
8. Technical support					
8.1. EOD	X		X	X	X
8.2. UXO contractor	X		X	X	X
8.3. Physical security	X		X	X	X
9. Environmental, ecological, cultural and/or other considerations					
9.1. Regulatory statute, phase, and oversight		X	X		X
9.2. Environmental, ecological, cultural and/or other considerations			X	X	X
9.3. Non-explosive soil			X	X	X
10. Residual risk management					
10.1. Land use controls			X	X	X
10.2. Long-term management			X	X	X
11. Safety education program					
11.1. Safety education program			X	X	X
12. Stakeholder involvement					
12.1. Stakeholder involvement		X	X		X
Appendices					
A. Signature page	X		X	X	X
B. Supporting Explosives Safety Data	X		X	X	X
C. ESQD maps	X	X	X	X	X

1. **Background**

1.1. Project manager. Provide the name and contact information of the Navy project manager submitting this ESS.

1.2. MRS identifier and description. Provide the current and/or former name(s) or other unique identifier(s) for the MRS that is the subject of the proposed munitions response operation. For activities still under Navy control include the host installation and cognizant command. Also identify the size (in acres) of each MRS. If the MRS is divided into areas of concern or parcels, identify those as well. Indicate the status of the affected MRS, e.g., active installation, transferring or transferred under BRAC.

1.3. Regional map(s). Include a regional map or maps depicting the location of the MRS relative to the activity or installation and region. Map scale is not critical. This map is not to be confused with the ESQD maps which shall be included in Appendix C.

1.4. Scope of munitions response. Briefly describe the overall scope of the proposed actions, including intermediate and future goals or project objectives. Do not include a description of actions which will be described later in Sections 5 or 6. Identify the current, determined, or reasonably anticipated future land use of the MRS. If multiple proposed actions or land uses will be occurring within the MRS, identify significant differences and respective timeframes. Also include a brief description of any construction or other activities taking place on the MRS concurrent with the proposed munitions response.

1.5. History of MEC use. Summarize the site history and/or background with respect to MEC use, explaining why MEC are known or suspected to be present in the MRS. Cite references for information provided.

1.6. Previous studies of extent of MEC or MPPEH contamination. Summarize the conclusions drawn from previous reports of studies, investigations, characterizations, and/or surveys of MEC or MPPEH contamination. Cite references for information provided.

1.7. Justification for NFA decision. Provide a thorough justification supporting the NFA decision. Include a discussion regarding stakeholder acceptance.

2. **Project dates**. Provide the date on which munitions response activities are scheduled to start. Indicate the potential consequence, if any, should DDESB approval not be obtained by the start date. Also provide the estimated project stop date.

3. **Types of MEC or MPPEH.**

3.1. Types and quantities of MEC and MPPEH. Describe the types and quantities of MEC and MPPEH known or suspected to be present. This information should include item-specific nomenclature and net explosive weight (NEW), if known. The description should be based on historical research identified in Section 1.5 or on previous studies identified in Section 1.6.

3.2. Munition with the Greatest Fragmentation Distance (MGFD). Based on research or other characterization of the MRS, select from among the MEC identified as being present one MEC item which has the greatest maximum horizontal fragmentation distance (MFD-H)[1]. This will be the primary MGFD. The selection criterion for the primary MGFD must only be its MFD (MFD-H or MFD-V). The quantity of MEC identified as present, or any other factor, shall not be considered. If there is anecdotal evidence suggesting that an MEC item with a larger MFD may be present, identify that item (or those items) as contingency MGFD(s).

When decontaminating or demolishing explosively-contaminated buildings and installed equipment (air ducts, concrete drainage ditches, etc.) explosives in the building/equipment shall not be designated as an MGFD, but as a maximum credible event (MCE) (see paragraph 3.3).

Identify the primary and contingency MGFDs for each MRS, as shown in example Table 3-1. Identify the data sources. Ensure that each MGFD identified in this table has a corresponding entry in Table 6-1.

Table 3-1. Primary and Contingency MGFDs for MRS X

MGFD type	Munitions item	MFD-H (ft)
Primary	40-mm Mk 2 projectile(1)	1,095(3)
Contingency	3-inch/50 cal Mk 27 projectile(2)	1,769(4)
Contingency	5-inch/38 cal Mk 35 projectile(2)	2,100(5)

Table notes:
(1) The 40-mm Mk 2 anti-aircraft projectile was selected as the Primary MGFD because EOD incident reports identify that at least a dozen have been recovered in the past 20 years from this MRS.
(2) These MEC items were identified as having been handled, but no record exists that they have ever been found on the MRS (PA, dated 1 Jan 08).
(3) From DDESB Technical Paper (TP) 16 (TP-16 (Rev 2)), Table B-2.
(4) From OP 5, Table 13-1, for 3-inch (robust) rounds.
(5) From Fragmentation Data Review Form, updated 30 Sep 10.

[1] Most munitions response projects will be concerned with MFD-H. However, if aircraft over-flight is an issue, then identify the maximum vertical fragment distance (MFD-V).

If the ESS covers multiple MRSs identify the primary and contingency MGFDs for each MRS. Address each MRS in a separate table.

If while executing a munitions response the UXO contractor identifies an MEC item that has a greater fragment distance than the selected MGFD or contingency MGFDs, as applicable, the project manager will: (1) direct all munitions response personnel to immediately cease operations; and (2) submit an amended ESS to NOSSA (N53).

If while executing a munitions response the UXO contractor identifies an MEC item that has a greater fragment distance than the selected MGFD, but less than or equal to one of the contingency MGFDs, the project manager will: (1) select from among the contingency MFGDs a new MGFD that has a fragment distance equal to or greater than the newly-identified MEC item; (2) implement the increased protection required by the selected contingency MGFD; and (3) notify NOSSA (N53) of the change in MGFD. If the project manager wants to insert the newly-identified MEC between MEC already identified as the primary or contingency MGFDs, the project manager may submit a corrected ESS to NOSSA (N53) who shall provide the project manager with EZs for the new MGFD using DDESB guidance. The change in the MGFD will be documented in the AAR.

3.3. Maximum credible event (MCE). At an MRS where only bulk explosives or non-munition items are known or suspected to be present, or where contaminated buildings or equipment are being decontaminated/demolished, the MCE will determine the appropriate ESQD arcs and EZs. The MCE is developed on a case-by-case basis using either the amount of explosives expected to be present or by selecting an analogous munitions item in situations when the residual explosives in drains or pipes, etc. can produce hazardous fragments. The ESQD arc and EZ distances will be based on blast overpressure or the fragments from the analogous munition item, as appropriate.

While both a primary and secondary MGFDs must be identified for munitions response actions involving MEC/MPPEH, for munitions responses involving bulk explosives or non-munition items only a primary MCE needs to be identified. If more than one operation is being conducted, identify an appropriate MCE for each operation.

3.4. Explosive soil and contaminated buildings. Describe the type(s), concentration(s), and location(s) of explosive

contamination believed to be present at the site. For buildings, include a description of the contaminated equipment, drains, ductwork, sumps, etc.

4. **MEC and MPPEH migration.**

4.1. MEC and MPPEH migration. Describe naturally occurring phenomena (e.g., drought, flooding, erosion, frost heave, wave action) that could cause the migration or exposure of MEC and MPPEH, and all procedures for monitoring and managing such. Identify the frost line depth. Describe controls that will be in place for MEC and MPPEH left above the frost line but below the proposed removal depth.

5. **Detection techniques**. Since the detection techniques to be employed directly impact the overall effectiveness of the response actions and the residual explosives safety hazards, briefly describe these techniques.

5.1. Detection equipment, method, and standards.

Summarize the techniques and equipment that will be used to detect subsurface MEC or MPPEH. When describing the detection methods, include the rationale used to select them, e.g., best available technology based on geology, topography, munitions characteristics. Address limitations and mitigating actions, if any, e.g., equipment, terrain, soil type.

Identify the performance standards. Include any contractual or regulatory standards that are being imposed. Summarize methods used to establish or validate the performance standards, e.g., test grid, test strip, test plot, geophysical prove-out. If anomaly classification is proposed, explain what methods will be used to establish or validate the expected performance.

5.2. Navigational equipment, method, and standards. Identify the types of navigational equipment to be used and the methods by which they will be employed. Include any contractual or regulatory navigational standards that are being imposed. This information is not required for construction support unless the project calls for reacquisition of anomalies.

To assure compliance with the Navy Hazards of Electromagnetic Radiation to Ordnance (HERO) program, identify the extent to which radio frequency emissions from detection and navigation equipment affect known or suspected MEC items containing electromagnetically-susceptible initiators or fuzes.

5.3. Equipment checkout. Describe daily checkout procedures for each critical piece of equipment, e.g., detectors, navigational equipment.

5.4. Data collection and storage. Summarize the various processes (e.g., hardware, software, storage media) that will be employed to collect, process, and archive data amassed during the response action. This information is not required for construction support unless the project calls for reacquisition of anomalies.

6. **Response actions**.

6.1. Response technique.

Identify the overall munitions response techniques being proposed (e.g., surface removal, excavation, LUCs). If multiple techniques will be employed, describe each in terms of who is doing it, and how and when it is to be done.

Provide details regarding vegetation removal, if being performed. Describe the equipment and processes to be employed. Identify the measures that will be taken to protect vegetation removal operators from the explosive and non-explosive hazards associated with the operation.

If a mechanized MEC processing operation is being proposed, describe the equipment and operation. If low-input mechanized operations are being proposed provide justification for the low-input categorization.

Describe the types of protections, including engineering controls, which will be employed to defeat hazardous fragments and protect essential personnel. Shield thickness and barricade design shall be based on the MGFD and approved on a case-by-case basis. Describe the types of blast overpressure protections, including personnel protective measures and engineering controls, which will be employed to reduce arcs or reduce minimum separation distances.

Describe the processes by which UXO technicians intrusively investigate and recover MEC and MPPEH. Include a discussion of the decision tree used by the Senior UXO Supervisor (SUXOS) and the Unexploded Ordnance Safety Officer (UXOSO) to determine whether MEC or MPPEH are unsafe to move, or safe to move to the designated collection point or storage location. State that MEC safe-to-move decisions must be documented in writing prior to movement. Collection points must be separated from intentional detonations by HFD of the MGFD in order to prevent propagation. If engineering controls are being used the HFD will be the expected sandbag throw distance, but not less than 66 feet.

Discuss use of munitions handling equipment and how compliance with either reference (d), or its contractor equivalent, is to be met.

6.2. Exclusion zones.

6.2.1. Identify EZs for the primary and contingency MGFDs identified in example Table 3-1 in an EZ table as shown in example Table 6-1. Include a separate EZ table (6-1.1, 6-1.2, etc.) for each MRS. Identify all data sources. EZs will be shown graphically on maps in Appendix C. If a Fragmentation Data Review Form(s) or a tool from TP 16 such as the Buried Explosion Module or the Primary Fragment Range Generic Equations Calculator are used, include the relevant page(s) or calculations in Appendix B. Possible information sources, in order of preference, include: (1) Fragmentation Data Review Form for hazardous fragment distance (HFD) and MFD; or (2) using the largest value from Tables 13-1 or 13-2 of OP 5 for MFD and Tables 4-1 and 4-2 of TP-16 (Rev 2) for HFD. Calculate blast overpressure using the appropriate K-factor and the NEW from any source. Do not use overpressure distances from the Fragmentation Data Review Form published earlier than 30 September 2010.

Table 6-1. EZs for MRS X

MGFDs		**EZs (ft)**				
Description	**NEW (lbs)**	**Fragmentation effects**		**Blast overpressure effects(1)**		
		HFD	**MFD**	**K328**	**K40**	**K24**
40-mm Mk 2	0.19(2)	200(2)	1,095(2)	189	23	14
3-inch/50 cal Mk 27	0.74(3)	291(4)	1,769(6)	297	37	22
5-inch/38 cal Mk 35	7.25(2)	398(5)	2,100(5)	635	78	47

Table notes:
(1) Calculated using in $D=KW^{1/3}$, with W equaling the NEW taken from the Fragmentation Data Review Form (show date), without TNT equivalency or safety multipliers applied.
(2) From TP-16 (Rev 2), Table B-2.
(3) From OP 1664.
(4) From OP 5, Table 7-9, for rounds up to 1 lb NEW.
(5) From Fragmentation Data Review Form, updated 30 Sep 10.
(6) From OP 5, Table 13-1, for 3-inch (robust) rounds.

6.2.2. Identify by MRS or work area the operation(s) to be conducted. Characterize each operation as having the potential for either an unintentional

or intentional detonation. Identify all exposed sites (ESs). Lastly, identify the basis and size of the ESQD arcs shown on ESQD maps in Appendix C. Place all of this information in a table such as example Table 6-2. Include a separate controlling EZ table (6-2.1, 6-2.2, etc.) for each MRS. Identify all data sources.

Table 6-2. Controlling EZs for MRS X

Operation	Sited as	ES	Basis(4)	ESQD (ft)
Manual operations(1)	Unintentional detonation	UXO teams	K40 of the MGFD	Primary 23(6)
				Contingency-1 37(6)
				Contingency-2 78(6)
Manual operations(1)	Unintentional detonation	Public and non-essential personnel	HFD of the MGFD	Primary 200(7)
				Contingency-1 291(7)
				Contingency-2 398(7)
Mechanized (low input) operations(2)	Unintentional detonation	Essential personnel	K24 of the MGFD(5)	Primary 14(6)
				Contingency-1 22(6)
				Contingency-2 47(6)
Mechanized (low input) operations(2)	Unintentional detonation	Public and non-essential personnel	HFD of the MGFD	Primary 200(7)
				Contingency-1 291(7)
				Contingency-2 398(7)
MEC treatment up to 37.2 lbs NEW(3)	Intentional detonation	Public and all personnel	MFD of the MGFD	1,095(6)(7)
Portable magazine (up to 100 lbs NEW)	Above ground magazine	Non-essential personnel in structures	Inhabited building distance (IBD)	580
		Non-essential personnel in the open	Public traffic route (PTR)	348

Table notes:
(1) Manual operations involve excavating anomalies with hand tools.
(2) Mechanized operations involve excavating anomalies with an excavator and mechanically screening the soil.
(3) The maximum NEW for which blast overpressure (K328) does not exceed the MFD of the MGFD.
(4) MGFD is the 40-mm Mk 2 projectile with 0.19 lbs NEW of trinitrotoluene.
(5) Requires shields or barricades designed to defeat hazardous fragments from the MGFD. The K18 distance of 11 ft may be used if essential personnel wear hearing protection that provides $\geq$9 decibel attenuation.
(6) Calculated using $D=KW^{1/3}$, with W equaling the NEW of a single MGFD without donor charge.
(7) This distance can be reduced by employing engineering controls authorized by DDESB TP-16.

6.2.3. Identify in example Table 6-3 all potential explosion sites (PESs) such as magazines and explosives operating buildings that encumber any

part of the MRS. If the project contains multiple MRSs and multiple PES encumbrances, then add a column identifying which MRSs are encumbered by which PESs. Alternately, include a separate table (6-3.1, 6-3.2, etc.) for each MRS for each MRS. Identify all data sources.

Table 6-3. PESs Encumbering MRS X

PES Bldg/ Area	PES type/ operation	Closest distance to MRS (ft)	IL/ K18(1) from PES (ft)	PES explosive limits by class/division (C/D) (lbs)					
				1.1	1.2.1 (MCE)	1.2.2	1.2.3 (MCE)	1.3	1.4
Bldg 314	Weapons Assembly	444(2)	450	15000	15,000 (>450)	15000	0	15000	MEQ(3)
ECM(4) 3105	Explosives Storage (side)(5)	450(6)	497	30000	28,118 (>450)	30000	0	30000	MEQ(3)

Table notes:
(1) IL/K18 = Unbarricaded intraline (IL) distance.
(2) Since the closest distance between Bldg 314 and the MRS (444 ft) is less than the required IL distance (450 ft) for C/D 1.2.1 with an MCE >450 lbs (OP-5, Table 7-16), operations in Bldg 314 will be suspended during munitions response activities at the MRS. (Alternatively, the MCE for C/D 1.2.1 could be limited to <440 lbs and both operations could be conducted concurrently, as long as Bldg 314 is not within the EZs identified in Table 6-4 for the operation(s) being conducted at the MRS.)
(3) MEQ = Mission-essential quantities.
(4) ECM = Earth-covered magazine.
(5) Identify ECM orientation toward the MRS.
(6) Since the closest distance between ECM 3105 and the MRS (450 ft) is less than the required IL distance (497 ft) for 30000 pounds C/D 1.1 (OP-5, Table 7-11), no explosives operations will be conducted within ECM 3105 during munitions response activities at the MRS.

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

Access to an EZ while munitions response operations are occurring is limited to essential personnel and authorized visitors.

The UXOSO is responsible for conducting an operational risk management (ORM) assessment in

accordance with OPNAVINST 3500.39C prior to initiating response actions involving MEC. In addition, the UXOSO must determine the maximum number of persons (essential personnel and authorized visitors) that can be in the EZ at one time. The ratio of UXO-qualified escorts to visitors will be determined by the UXOSO based on this site-specific operational risk analysis.

Based on the risk posed by the munitions response operation underway, the UXOSO may determine that access to the EZ is unsafe for visitors. However, every effort should be made to accommodate the authorized visitor’s needs.

With concurrence of the responsible project manager, the UXOSO will grant EZ access to authorized visitors. Access to the site will be based upon the operational risk analysis of the scheduled MEC operations and availability of escorts, as well as a demonstrated visitor need and subsequent completion of visitor safety briefings.

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

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

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

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

Other requirements, such as Occupational Safety and Health Administration (OSHA), may also apply.

6.3. MEC and MPPEH hazard classification, transportation, and storage,.

Describe how recovered MEC and MPPEH will be hazard classified in accordance with reference (d).

Describe how recovered MEC and MPPEH items will be transported, both on and off site. If items are to be transported off-site for storage or treatment, affirm that an EOD technician from the responding EOD unit or a UXO contractor UXO Technician III (or higher) will certify the items as safe to transport prior to being offered for shipment following criteria in reference (d). Affirm that Navy and Department of Transportation (DOT) transportation requirements are strictly observed for on- and off-site transportation of ammunition and explosives, as applicable. When regulations are in conflict, DOT regulations shall apply and the originator of the conflicting regulation should be notified immediately.

Describe how and where recovered MEC and MPPEH items will be held or stored. Affirm that reference (d) requirements shall be strictly adhered to during handling and storage by UXO contractor and EOD personnel.

Note: Discussions regarding the environmental requirements and/or legal aspects related to the handling, transportation, and/or storage of MEC and MPPEH items should be presented in Topic 9 of the ESS.

6.4. MEC and MPPEH disposition processes.

Describe in separate paragraphs the disposition processes for MEC and MPPEH items. Affirm that reference (d) requirements shall be strictly adhered to during MEC and MPPEH disposition by UXO contractor and EOD personnel.

For MEC, briefly describe the use of a planned or established open burning/open detonation (OB/OD) area to treat MEC recovered during a munitions response. The area may be an existing OB/OD range or a new site.

For MPPEH, briefly describe the processes and procedures that will be used to assess and document MPPEH as either Material Documented as Safe (MDAS) or Material Documented as an Explosive Hazard (MDEH) in accordance with reference (d).

For other debris, briefly describe the processes and procedures that will be implemented in order to prevent it from being comingled with MPPEH, MDAS, and MDEH.

6.5. Explosive soil. Address methods used to reduce explosives concentrations to a non-reactive level or to reduce explosive hazards.

6.6. Contaminated buildings. Identify and describe processes being proposed to disassemble and/or demolish explosively-contaminated buildings and installed equipment. If multiple techniques will be employed, describe each in terms of who is doing it and how and when each is to be done. If decontamination is involved, discuss processes to be employed and summarize the decontamination plans required by DoD 5160.65M.

6.7. Operational risk management. As required by OPNAVINST 3500.39C, all operations undertaken by or for the Navy must incorporate ORM principles into all phases of planning, operations, and training. Since munitions response actions involve inherent risks, the project manager shall evaluate those risks using facts, prudence, experience, judgment, and situational awareness.

Using the following table extracted from reference OPNAVINST 3500.39C, assess the inherent risks involved in the proposed munitions response action. Do not include this table in the ESS. Risks to be assessed include, as a minimum, MEC or MPPEH removal or treatment operations. Show the risk assessment in a table such as example Table 6-4.

		Mishap probability(1)			
		A	**B**	**C**	**D**
Hazard severity(2)	**I**	1	1	2	3
	II	1	2	3	4
	III	2	3	4	5
	IV	3	4	5	5

Mishap probability(1):	Hazard severity(2):	Risk assessment codes:
A Likely to occur immediately **B** Probably will occur in time **C** May occur in time **D** Unlikely to occur	**I** May cause death **II** May cause severe injury **III** May cause minor injury **IV** Presents a minimal threat	**1** Critical **2** Serious **3** Moderate **4** Minor **5** Negligible

Table notes:
(1) Mishap probability is the probability that a hazard will result in a mishap or loss, based on an assessment of such factors as location exposure, affected populations, experience, or previously established statistical information.
(2) Hazard severity is an assessment of the worst credible consequence that can occur as a result of a hazard. Severity is defined by potential degree of injury, illness, property damage, loss of assets, or effect on mission. The combination of two or more hazards may increase the overall level of risk. For the munitions encountered or believed to be present, consider the munitions and fuzing type and configuration, and its armed/unarmed status.

Table 6-4. Hazard Analysis Matrix for MRS X

Process Step	Hazard	Triggering event	Initial risk index	Hazard mitigation	Final risk index
1	Manual MEC removal operations	MEC reacts to impact or movement during soil removal	C/II/3	Initial mechanized excavation beside anomaly; final excavation with hand tools	D/IV/5
2	Mechanized MEC screening operations	MEC reacts to high-energy, uncontrolled mechanical forces	C/II/3	Use of blast shields (fragment protection) and K24 distance (blast overpressure protection)	C/IV/5
3	Receipt, handling, holding of donor charges	MEC reacts to impact, heat, friction, electro-static discharge	C/II/3	Same-day donor charge delivery; detonators stored separately from main charges in ATF-approved day box; all personnel will wear cotton clothing; demo ops will not take place if electrical storm ≤6 miles	D/II/4
4	Recovered MEC treatment by OD	MEC and donor charges react to impact, heat, friction, electro-static discharge	C/II/3	All demo op personnel trained; 1,095-ft EZ established; all personnel will wear cotton clothing; demo ops will not take place if electrical storm ≤6 miles	D/II/4

6.8. Contingencies. Describe alternative actions that may be implemented should site conditions prevent the primary approach from working efficiently or effectively. As an example, if the proposed operation involves mechanically screening soil using a 1-inch screen, but soil consistency prevents it from passing through the screen. Contingency MGFDs shall not be identified here, but in Section 3.2.

7. **QC/QA.** Each munitions response project shall have a QC program administered by the UXO contractor and a QA program administered

by an independent, third-party source. The complexity of the QC and QA programs is dependent on the nature of the project.

7.1. QC implementation. Describe the QC program by summarizing the QC processes to be employed and the standards against which the Unexploded Ordnance Quality Control Specialist (UXOQCS) will be evaluating (e.g., project quality objectives or contractual and/or regulatory requirements). Identify the pass/fail criteria for each standard and the corrective action processes that will be employed should the UXOQCS identify a failure.

7.2. QA implementation. Identify the third-party, activity, organization or independent contractor that will be executing project QA. Identify scope of work elements which will assure or assess project quality.

8. **Technical support**.

8.1. EOD. Identify the military EOD unit that may be supporting this project, and reference the memorandum of agreement or understanding securing that support.

8.2. UXO Contractor. Affirm that all UXO personnel performing UXO duties meet or exceed the requirements of DDESB TP-18 for their respective jobs. For operations involving decontamination and demolition of explosively contaminated buildings, affirm that all employees having actual contact with explosives (and explosives residues) have been trained in the identification, classification, and remediation of the explosive hazards.

In accordance with OPNAVINST 8023.24B/MCO 8023.3A contractors involved in the manufacturing, handling, transportation, storage and assembling of ammunition and explosives must be prepared to produce documentation that shows their employees performing these tasks have been trained, found qualified, and are certified by the contractor. This documentation will be made available upon request and subject to review by Navy representatives while performing contractual work for the Navy.

All contractor employees performing MEC-related duties at an MRS shall have received the required 40-hour hazardous waste operations and emergency response (HAZWOPER) training (including HAZWOPER refresher training, if appropriate) mandated by the OSHA. Additionally, the SUXOS shall have received OSHA-mandated supervisory training. The UXOQCS and the UXOSO shall have received specialized training in quality and safety, respectively.

Although the size and scope of MR projects may vary, each project is required to have a SUXOS, a UXOQCS, and a

UXOSO. For smaller projects, the USOQCS and UXOSO may be the same person. Under no circumstances shall the SUXOS also serve as either the UXOQCS or UXOSO.

8.3. Physical security. Identify the extent to which Arms, Ammunition and Explosives physical security, private security forces, and/or protective barriers are required while munitions response actions are underway. This includes security of munitions storage facilities, open excavations, EZs, and the job site after operational hours. Include entry control points (ECPs) on maps and describe how the ECPs will be controlled.

9. **Environmental, ecological, cultural, and/or other considerations**.

9.1. Regulatory statute, phase, and oversight. Identify the regulatory statute governing the proposed munitions response action and its phase (e.g., a removal action being conducted under CERCLA or a facilities investigation being conducted under RCRA). Identify the regulatory agency or agencies providing oversight and any legally binding dates for actions to occur. If the response action is not being mandated by regulation or regulators, then so state.

9.2. Environmental, ecological, cultural, and/or other considerations. Address any additional environmental (e.g., permitting, mandated sampling and analysis), ecological (e.g., threatened and endangered species listed under the Endangered Species Act under the jurisdiction of the U.S. Fish and Wildlife Service, cultural (e.g., tribal or religious gathering sites protected by the National Historic Preservation Act), and/or other considerations related to the management of MEC and MPPEH including any additional legal factors that may impact the proposed munitions response actions.

9.3. Non-explosive soil. Describe the management of soil (or other media) contaminated with explosives at concentrations that do not present an explosive hazard.

10. **Residual risk management**.

10.1. Land use controls. Summarize all LUCs, both institutional controls (e.g., state, county, city ordinances, deed restrictions, signage) and engineering controls (e.g., fencing, capping) that are to be placed on the real property. Describe how each will enhance explosives safety consistent with the current, determined, or reasonably anticipated future land use of the MRS. Do not address LUCs for a munitions response to a military munitions burial site located on an operational range.

10.2. Long-term management. Describe site management, including maintenance, monitoring, record-keeping, 5-year reviews, etc. that are initiated to manage potential residual risks after response objectives have been met.

11. **Safety education program**. Address methods to be used to educate the public or receiving entity on the hazards/risks associated with MEC or MPPEH that may remain following the proposed munitions response action.

12. **Stakeholder involvement**. Briefly describe the extent to which stakeholders are involved and summarize how their concerns, if any, regarding the explosives safety and the environmental aspects of the munitions response are being addressed.

13. **Appendices**.

Appendix A – Signature page. In lieu of the NAVFAC Forms 11010.45 Part I and Part II Division A, and until such time as ESSs are submitted to NOSSA using WebESS, the signatures of the cognizant ESO, PWD planner, and project manager are required. (Signatures of persons providing equivalent services for munitions response projects executed by the BRAC PMO are also required.) The ESO or UXO contractor safety officer and the PWD planner are affirming that they have reviewed the ESS and that it meets all applicable explosives safety and planning criteria, respectively. The project manager is affirming that the ESS represents the facts as known to them. Use example Table A-1 as a signature page template.

Appendix B – Supporting Explosives Safety Data. Include Fragmentation Data Review Form(s), or calculation sheets generated from other TP 16 tools such as the Buried Explosion Module or the Primary Fragment Range Generic Equations Calculator. Contact NOSSA (N54) to obtain the latest version of TP 16.

Appendix C – ESQD maps. The following information shall be shown on the ESQD maps (scale 1:400 preferred, but multiples of 100 required):

- The planned locations for MEC or MPPEH response-related operations and surrounding MEC response operations.
- ESQD arcs/EZs. Note: For MEC operations ESQD arcs/EZs are calculated using the criteria in reference (d), Chapter 7 and 14, and are based on the MGFD. Contact NOSSA (N54) to determine EZs for multiple MGFDs or complex processes (e.g., controlled burning of contaminated facilities, use of barricades and shielding or any other engineering controls designed to protect personnel or facilities).
- EZ access points.

Table A-1. Signature page

NAVFAC Project		**BRAC PMO Project**	
Project name:		Project name:	
Explosive Safety Officer or UXO Contractor Safety Officer*		**Explosive Safety Officer or UXO Contractor Safety Officer****	
Signature		Signature	
Printed name	Date	Printed name	Date
PWD Planner		**BRAC Environmental Coordinator**	
Signature		Signature	
Printed name	Date	Printed name	Date
Remedial Project Manager		**Remedial Project Manager**	
Signature		Signature	
Printed name	Date	Printed name	Date

*This must be signed by the cognizant Navy Explosives Safety Officer when the munitions response actions are being executed on active Navy facilities.

**This may be signed by either the Navy Regional Explosives Safety Officer or a technically qualified explosives safety official designated by the BRAC PMO.

- Storage location(s) and associated ESQD arc(s) for demolition explosives and/or recovered MEC and MPPEH.
- MCE and associated ESQD arc(s) for explosive soil and contaminated buildings.
- All ES and PES and their relationships, whether on or off Navy property. Each must be properly labeled.
- All other primary ESQD arcs.
- Map scale bar and text, revision date, project name, and legend.

Additional information that may be included on the ESQD maps:

- Areas that contain or are suspected to contain MEC or MPPEH.
- Areas that were suspected to contain MEC or MPPEH, but that research or site characterizations have subsequently shown do not contain such.
- Areas that the ESS does not address, but that either a previous ESS has addressed or a future ESS will address.
- The current, determined or reasonably anticipated future land use of the MRS that is known or suspected to contain MEC or MPPEH.
- The ownership and land use of adjacent properties, as appropriate.
- Any other situation that may influence or require consideration during the response (e.g., over-flight corridors, traffic routes).
- Soil sampling locations when the property involves concentrations of explosives in the soil high enough to present an explosive hazard.

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MUNITIONS RESPONSE SITE
SELF-ASSESSMENT CHECKLIST

Instructions for use:

This Munitions Response Site (MRS) self-assessment checklist is intended to be used by project managers to evaluate their unexploded ordnance (UXO) contractor compliance with applicable environmental, safety, and occupational health requirements related to the management of munitions and explosives of concern (MEC) and/or material potentially presenting an explosive hazard (MPPEH).

Ref: (a) DoD Policy to Implement the U.S. Environmental Protection Agency (EPA) Military Munitions Rule
(b) NAVSEA OP 5, Volume 1, Seventh Revision
(c) OPNAVINST 5090.1C
(d) 40 Code of Federal Regulations (CFR)
(e) NOSSAINST 8020.15C
(f) NOSSAINST 8023.11A
(g) DTIC ADA 427785
(h) Interstate Technology Regulatory Council – Quality Considerations for Munitions Response Projects
(i) ESTCP–Geophysical System Verification
(j) OPNAVINST 5530.13C
(k) 27 CFR
(l) NAVSEAINST 8020.9
(m) 29 CFR
(n) NAVSEA SW020-AF-HBK-010, Sixth Revision
(o) Defense Transportation Regulation 4500.9-R
(p) NAVSEA SW020-AG-SAF-010, Ninth Revision

1. **Environmental**

		YES	NO	N/A
a.	If the project generates Explosive Hazardous Waste (EHW) and/or Waste Military Munitions (WMM) is it being properly managed? (a) Paragraph 1.D.1.b.	☐	☐	☐
b.	Is generated EHW/WMM being tracked by location and treatment status? (b) Paragraph 13-1.3.	☐	☐	☐
c.	Is EHW/WMM being managed in accordance with a Hazardous Waste Management Plan? (Note: This may be included in the Work Plan) (c) Paragraph 15-5.3.	☐	☐	☐
d.	Is the EHW/WMM storage area being managed properly with respect to storage time? (b) Paragraph 9-2.6.5 and (d) Section 262.34(a)(2).	☐	☐	☐
e.	Is EHW/WMM in storage labeled properly? (b) Paragraph 9-2.6.5 and (d) Section 262.34(a)(3).	☐	☐	☐
f.	Have all WMM/EHW Site Managers (storage) been properly trained? (b) Paragraph 9-2.6.5 and (d)	☐	☐	☐

Section 265.16.

		YES	NO	N/A
g.	Is the EHW/WMM storage area being inspected at the required interval? (b) Paragraph 9-2.6.5 and (d) Section 265.174.	☐	☐	☐
h.	Are WMM/EHW transported off site being properly manifested? (c) Paragraph 15-4.1d.	☐	☐	☐
i.	Is the transported WMM/EHW being shipped off site by a qualified Hazardous Waste Transporter? (c) Paragraph 15-4.1.d.	☐	☐	☐
j.	Is WMM/EHW being shipped off site properly identified by its hazardous waste codes? (c) Paragraph 15-4.1.f	☐	☐	☐
k.	For WMM/EHW being shipped off site are copies of the hazardous waste manifest being retained for three years? (c) Paragraph 15-4.1.g(2).	☐	☐	☐
l.	Is the discharge of rinse water generated during the decontamination of explosively-contaminated buildings being managed in accordance with all terms or conditions of EPA, State, or locally issued permits? (c) Paragraph 9-4.2.a or 9-4.2.b.	☐	☐	☐
m.	Are dredge spoils being disposed of at sites which have been selected, prepared, and are being used in accordance with EPA, State, or U.S. Army Corps of Engineers issued permits? (c) Paragraph 9-5.4.	☐	☐	☐

2. **Explosives safety**

		YES	NO	N/A
a.	Are applicable explosives safety publications available and current? (b) Paragraph 1-5.2.1	☐	☐	☐
b.	Is a placard specifying the explosive limits posted or painted on either the inside front wall or inside the front door of the magazine? (b) Paragraph 7-4.4.2.2.	☐	☐	☐
c.	Is the complete Explosives Safety Submission approval package maintained at the MRS project site? (e) Paragraph 5b(10).	☐	☐	☐
d.	Has the UXO contactor developed standard operating procedures (SOPs) to address all explosive operations being conducted? (b) Paragraph 2-1.1 and (f) Paragraphs 3 and 4b(8).	☐	☐	☐
e.	Has the UXO contractor developed, validated, approved, and used SOPs for ammunition and explosives (A&E) and MPPEH operations wholly under its control? (f) Paragraph 8b.	☐	☐	☐

f.	Do personnel responsible for the technical requirements and execution of the process review SOPs on a continuous basis? (f) Paragraph 11a thru d.	YES ☐	NO ☐	N/A ☐
g.	Is access to an exclusion zone (EZ) while munitions response operations are occurring limited to essential personnel and authorized visitors? (b) Paragraph 14-7.5.a.	YES ☐	NO ☐	N/A ☐
h.	Has the Senior UXO Supervisor developed formal, written procedures addressing EZ entry, including authorized visitor access? (b) Paragraph 14-7.5.b.	YES ☐	NO ☐	N/A ☐
i.	Is recovered MEC being managed as hazard class/division 1.1, unless assigned differently, and assigned an appropriate storage compatibility group? (b) Paragraph 14-11.11.3.d(1).	YES ☐	NO ☐	N/A ☐
j.	When storage of recovered MEC and/or MPPEH at the MRS is necessary, is it stored separately from serviceable explosives? (b) Paragraph 14-11.11.3.d(1).	YES ☐	NO ☐	N/A ☐
k.	Is the inhabited building distance EZ and A&E security controls for collection points being maintained if the recovered MEC and/or MPPEH items remain at the collection point when there are no intrusive munitions response operations taking place? (b) Paragraph 14-11.11.3.d(5).	YES ☐	NO ☐	N/A ☐
l.	Are multiple collection points separated by at least K11 based on the total net explosive weight of the MEC and/or MPPEH items in each collection point? (b) Paragraph 14-11.11.3.d(5).	YES ☐	NO ☐	N/A ☐
m.	Are portable and mobile radios properly labeled with the Hazards of Electromagnetic Radiation to Ordnance (HERO) unsafe and HERO susceptible ordnance separation distance as indicated in the HERO survey report? (b) Paragraphs 1-8.2 and 1-8.3.	YES ☐	NO ☐	N/A ☐
n.	Is Personal Protective Equipment (PPE) purchased by or furnished to employees being used properly? (b) Paragraph 2-4.1 and 2-4.3	YES ☐	NO ☐	N/A ☐
o.	Is PPE properly maintained? (b) Paragraph 2-4.5	YES ☐	NO ☐	N/A ☐
p.	Is a red (bravo) flag displayed prominently near the entrance of any building or location when work involving A&E is in progress? (b) Paragraphs 9-2.4.5 and 10-1.1.12.	YES ☐	NO ☐	N/A ☐

q. Is only authorized/approved equipment used for A&E operations? (b) Paragraph 10-3.1 & 10-3.3	YES ☐	NO ☐	N/A ☐

3. **MPPEH**

a. Are all structures or open areas used to store MPPEH site approved? (b) Paragraph 13-15.4.1.	YES ☐	NO ☐	N/A ☐
b. Are all structures or open areas being used to store MPPEH secure? (b) Paragraph 13-15.4.3.	YES ☐	NO ☐	N/A ☐
c. Are explosives limits posted for MPPEH processing and storage locations? (b) Paragraphs 13-15.4.3 and 7-4.4.2.2.	YES ☐	NO ☐	N/A ☐
d. Are adequate controls in place to prevent comingling of MPPEH awaiting documentation of its explosives safety status as material documented as safe (MDAS)? (b) Paragraph 13-15.5.	YES ☐	NO ☐	N/A ☐
e. Is the drum and/or structure used to hold MDAS secure? (b) Paragraph 13-15.5.1.	YES ☐	NO ☐	N/A ☐
f. Is MPPEH stored in covered or closed containers? (b) Paragraph 13-15.5.3.	YES ☐	NO ☐	N/A ☐
g. Is MPPEH documentation being performed by individuals who are designated in writing to perform these tasks? (b) Paragraph 13-15.7	YES ☐	NO ☐	N/A ☐
h. Does MDAS have the required two independent inspections? (b) Paragraph 13-15.7.1 and 13-15.7.2.	YES ☐	NO ☐	N/A ☐
i. Does the activity have a process in place to ensure proper chain of custody for MDAS? (b) Paragraphs 13-15.7.3 and 13-15.8.4.	YES ☐	NO ☐	N/A ☐
j. Is documentation for MDAS items completed properly? (b) Paragraph 13-15.8.1.	YES ☐	NO ☐	N/A ☐
k. Are personnel who assess the explosives safety status of MPPEH qualified to do so? (b) Paragraph 13-15.13.	YES ☐	NO ☐	N/A ☐

4. **Quality Assurance/Quality Control**

a. Does the UXO contractor have a Quality Control (QC) program and is a UXO QC Specialist (UXOQCS) assigned? (e) Enclosure (3), Paragraph 7.2.	YES ☐	NO ☐	N/A ☐
b. Is the UXOQCS not supervised by the SUXOS? (e) Enclosure (3), Paragraph 8.2.	YES ☐	NO ☐	N/A ☐
c. Is the Quality Assurance (QA) program administered by an independent, third-party activity? (e) Enclosure (3), Paragraph 7.2.	YES ☐	NO ☐	N/A ☐
d. Is there a Quality Assurance Project Plan (QAPP)?	YES ☐	NO ☐	N/A ☐

(g) Paragraph 1.2.

e. Does the QAPP cover the entire scope of the MR project? (g) Paragraph 1.2.4.

f. Are the Project Quality Objectives being implemented in accordance with the QAPP? (h) Paragraph 2.2.1. YES ☐ NO ☐ N/A ☐

g. Does the QAPP identify a mechanism, (e.g., a nonconformance report or deficiency notice) that formally documents nonconformance and requires root cause analyses, corrective actions, and approved departures? (h) Paragraph 2.2.3. YES ☐ NO ☐ N/A ☐

i. Does the QAPP identify the pass/fail criteria for each task and the corrective action processes that will be employed should the UXOQCS identify a failure? (h) Paragraph 2.2.3. YES ☐ NO ☐ N/A ☐

j. Has the UXO contractor implemented the three phases of quality (preparatory, initial, and follow-up) and is the UXOQCS inspecting the project by phase? YES ☐ NO ☐ N/A ☐

k. Does the UXOQCS issue daily QC reports and are the reported facts consistent with other contractor production reports? YES ☐ NO ☐ N/A ☐

l. Has the UXO contractor implemented the Geophysical System Verification process and has the UXOQCS installed an Instrument Verification Strip and emplaced blind seeds? (i) Chapters 3 and 4. YES ☐ NO ☐ N/A ☐

5. **Security**

a. Are barricades set up at EZ entry points to deter unauthorized access to areas that are known or suspected of containing military munitions? (b) Paragraphs 2-1.14.6.c and 14-7.5. YES ☐ NO ☐ N/A ☐

b. Is the EZ established at the approved distance. (b) Paragraph 14-11.11.3.c. YES ☐ NO ☐ N/A ☐

c. Are magazines fenced at a minimum of 30 feet (outer clear zone) or 20 feet (inner clear zone), not placed closer than intermagazine distance (based on magazine explosive limit) to a magazine, and not closer than intraline distance to operating buildings? (b) Paragraph 2-2.2.2. YES ☐ NO ☐ N/A ☐

d. Are guards assigned to protect A&E which have been recovered, but which have not been secured in magazines? (b) Paragraph 2-2.4. YES ☐ NO ☐ N/A ☐

		YES	NO	N/A
e.	Are high-security locks being used to secure magazines? (j) Paragraph 0206a.	☐	☐	☐
f.	Are keys to magazines stored separately from other keys and accessible only to those individuals whose official duties require access to them? (j) Paragraph 0206b.	☐	☐	☐
g.	Are keys either in the physical possession of authorized personnel or in approved storage? (j) Paragraph 0206c.	☐	☐	☐

6. **Storage**

		YES	NO	N/A
a.	Have all locations where A&E are being handled or stored obtained explosive safety site approval? (b) Paragraph 8-1.2.1.	☐	☐	☐
b.	Are "portable" magazines properly sited? (b) Paragraph 8-2.4.3h	☐	☐	☐
c.	Are commercially built, pre-engineered "portable" magazines/magazine groups properly grounded to provide 25 ohms or less ground resistance? (b) Paragraphs 6-8.2.2.1 and 6-8.2.2.2.	☐	☐	☐
d.	Are magazine ground systems tested, inspected and records maintained as required? (b) Paragraphs 5-8.1.1, 5-8.2 and 5-8.3.	☐	☐	☐
e.	Are magazines free and clear of extraneous materials? (b) Paragraphs 2-1.5.1, 4-1.7 and 11-2.8.	☐	☐	☐
f.	Is a firebreak or cleared space (vegetation maintained at a maximum of 18 inches) at least 50 feet wide maintained around each magazine? (b) Paragraph 4-1.10.	☐	☐	☐
g.	Are correct hazard/fire division symbols posted on magazines? (b) Paragraph 4-4.2.9; Figures 4-2 thru 4-4 and Tables 4-1 thru 4-3.	☐	☐	☐
h.	Are requirements for A&E stored in containers being observed? (b) Paragraph 11-1.4.1 & 11-2.6.4.	☐	☐	☐
i.	Are empty container requirements being met? (b) Paragraph 11-1.5.	☐	☐	☐
j.	Are different types of A&E stored together? If so, is storage compatibility being maintained? (b) Paragraphs 11-2.2c and d and 11-2.2.1.	☐	☐	☐
k.	Are partially filled containers of A&E marked “light box”? (b) Paragraph 11-2.6.4 and 11-3.1.1i.	☐	☐	☐

		YES	NO	N/A
l.	Are A&E inventory records being properly maintained? (b) Paragraph 11-2.6.5.	☐	☐	☐

7. **Training and qualifications**

		YES	NO	N/A
a.	Have all UXO personnel conducting munitions responses to MEC and/or MPPEH been trained and qualified in accordance with the Department of Defense Explosives Safety Board Technical Paper 18? (b) Paragraph 14-5.1.g.	☐	☐	☐
b.	Have the UXO Quality Control Specialist and the UXO Safety Officer received specialized training in quality and safety, respectively? (e) Encl (3), Paragraph 8-2.	☐	☐	☐
c.	Has each UXO technician been licensed/ permitted by a Bureau of Alcohol, Tobacco, Firearms, and Explosives to use, store, and transport explosives? (k) Paragraph 555.26.	☐	☐	☐
d.	Are personnel qualified at defined levels/work tasks/SOPs as applicable? (l) Paragraph 6.	☐	☐	☐
e.	Have all site workers received their initial Hazardous Waste Operations (HAZWOPER) training? (m) Section 1910.120(e)(3).	☐	☐	☐
f.	Have all managers and supervisors of site workers received supervisory training? (m) Section 1910.120(e)(4).	☐	☐	☐
g.	Have all site workers, managers, and supervisors received HAZWOPER refresher training annually? (m) Section 1910.120(e)(8).	☐	☐	☐
h.	Have all personnel engaged in explosives operations been certified by qualified medical personnel to be physically qualified, and do all site workers possess a current medical surveillance examination certificate? (b) Paragraph 2-3.1 and (m) Section 1910.120(f).	☐	☐	☐
i.	Do all explosives drivers possess a current explosive driver license or certificate? (n) Paragraph 2-2.1.	☐	☐	☐
j.	Do all civilian A&E and hazardous material drivers meet commercial driver’s license endorsement requirements? (n) Paragraph 2-2.a.	☐	☐	☐
k.	Do all explosives drivers possess a current medical certificate to transport explosives? (n) Paragraph 2-2.b.	☐	☐	☐
l.	Do UXO contractor personnel who, by contract requirement, are tasked with the responsibility of transporting or preparing shipments of MEC	☐	☐	☐

and/or MPPEH for transport over public roads meet all training requirements of 49 CFR Part 172 and applicable state requirements? (b) Paragraph 14-8.1.c.

8. **Transportation**

		YES	NO	N/A
a.	Do vehicles used to transport explosives have one first-aid kit, four placards, one fully charged Underwriters Laboratory rated 10 B:C or greater capacity extinguisher, and one set of chocks? (b) Paragraph 12-6.3.	☐	☐	☐
b.	If the vehicle used to transport explosives has a drop-in or sprayed-on plastic bed liner, are the explosives or ammunition items packaged in approved shipping containers that will protect from initiation by static electric discharge? (b) Paragraph 12-6.3.5.	☐	☐	☐
c.	Are vehicles used for the transportation of A&E given a pre-loading inspection? (b) Paragraph 12-6.4.1.	☐	☐	☐
d.	Have Explosive Ordnance Disposal or UXO contractor personnel determined that recovered MPPEH or MEC items are safe to transport over public routes, and made this determination in writing (for UXO contractors this written determination must be made by the Senior UXO Supervisor and the UXO Safety Officer)? (b) Paragraphs 13-15.12.2, 14-8.1.	☐	☐	☐
e.	Has the UXO contractor obtained written acknowledgement from the lease vehicle carrier to transport explosives? (o) Paragraph 204.F.3.	☐	☐	☐
f.	Are vehicles used over public highways for the transportation of A&E inspected using DD form 626? (p) Paragraph 3-7.1	☐	☐	☐

GUIDE FOR PREPARING A MUNITIONS RESPONSE SITE AFTER-ACTION REPORT

Instructions for use:

An AAR must contain the following elements:

1. A brief description of the MRA or MRS.

2. A request to cancel any EZ or site approval established in the ESS.

3. A summary of the MEC and/or MPPEH found.

4. A description of the relative effectiveness and any limitations of the technologies used during the munitions response and the effects on residual risk relative to that originally projected.

5. A summary of the QC and QA reports for the response.

6. Maps showing:

   a. Areas from which MEC and/or MPPEH was removed.

   b. Areas within a response area (such as within a MRA or MRS) where response actions were not performed and the rationale for not addressing those areas.

   c. The known or reasonably anticipated end use of each area.

7. A summary of the land use controls that were implemented, if any, and the areas to which they apply.

8. A summary of provisions for long-term management.

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DEFINITIONS AND ABBREVIATIONS

The following definitions and abbreviations appear in this instruction. Definitions that do not include a reference are unique to this instruction.

AAR – After-Action Report. See After-Action report (AAR).

After-Action report (AAR) – A document required by reference (d), that shall be submitted to NOSSA (N53) within six months of the completion of a munitions response. The AAR documents that the explosives safety aspects of the response have been completed as outlined in the approved ESS and addresses the MEC and MPPEH found, effectiveness of the response techniques, any LUCs, long-term management provisions for the residual risk, and other pertinent information.

Anomaly avoidance – Techniques employed by EOD or UXO-qualified personnel at sites known or suspected to contain MEC or MPPEH in order to avoid contact with potential surface or subsurface explosive hazards. Anomaly avoidance often will be practiced in support of sampling well installation, surveying, site reconnaissance, etc. Intrusive anomaly investigation is not authorized during anomaly avoidance operations. Anomaly avoidance is sometimes referred to as UXO avoidance. (Reference (d)).

Authorized visitor – Personnel conducting project or mission-related functions that require them to be present in the EZ for a specific purpose and for a limited time. (Reference (d)).

BRAC – Base Realignment and Closure.

C/D – Class/Division.

CA – Chemical Agent.

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act.

CO – Commanding Officer.

Collection points – Collection points are areas inside an MRS where recovered MEC or MPPEH items that are determined to be safe to move are temporarily held in the open, pending movement to another area for storage or destruction. Collection points do not require siting unless the inhabited building distance (IBD) (K40) for the total NEW of the MEC or MPPEH items anticipated to be collected is the distance greater than the HFD of the single MGFD. The IBD exclusion zone and arms, ammunition and explosives security controls for the collection point must be maintained if the recovered MEC or MPPEH items are to remain at the collection point when there are no intrusive munitions response operations taking place. Multiple collection points must be separated by at least K11 based on the total NEW of the MEC or MPPEH items in each collection point. (Reference (d)).

COMMARCORSYSCOM – Commander, Marine Corps Systems Command.

Construction support – Assistance provided by EOD- or UXO-qualified personnel during intrusive construction activities on real property known or suspected to contain MEC or MPPEH to ensure the safety of personnel or resources from any potential explosive hazards. The two categories of construction support are on-call and on-site. Reference (d)). See also On-call construction support and On-site construction support.

Contingency MGFD – A specified munitions item or items that may potentially be present at an MRS; however, there is a low likelihood of the item actually being present. The likelihood of presence is based upon: (a) limited historical documentation that merely suggest possible usage of the item at the site; or (b) encountering a single, unexpected item during site reconnaissance conducted as part of a PA/SI when the item is not consistent with other MEC or MPPEH found at the site and is not supported by documented historical site usage, e.g., the MRS proximity to a target area/firing point at which the contingency MGFD was used. See also Munition with the Greatest Fragmentation Distance (MGFD).

DDESB – Department of Defense Explosives Safety Board.

Defense sites – Locations that are or were owned by, leased to, or otherwise possessed or used by the DoD. The term does not include any operational range, operating storage or manufacturing facility, or facility that is used for or was permitted for the treatment or disposal of military munitions. (Reference (d)).

Discarded Military Munitions (DMM) – 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 UXO, 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. (Reference (d)).

DMM – Discarded Military Munitions. See Discarded military munitions (DMM).

DoD – Department of Defense.

DOE – Department of Energy.

Navy – Department of Navy.

DOT – Department of Transportation.

EOD – Explosive Ordnance Disposal.

ES – Exposed Site. See Exposed Site (ES).

ESO – Explosives Safety Officer.

ESQD – Explosives Safety Quantity-Distance. See Explosives Safety Quantity-Distance (ESQD) arcs.

ESS – Explosives Safety Submission. See Explosives Safety Submission (ESS).

Essential personnel – Personnel whose duties require them to remain within an ESQD arc to ensure the safe and efficient completion of the munitions response action. Examples of essential personnel include the contactor's SUXOS, UXOQCS, UXOSO, and the munitions response team.

Exclusion Zone (EZ) – An ESQD arc established around a munitions response work area where operations involving MEC or MPPEH recovery are being conducted. An EZ is created by a response operation that may move within defined boundaries, can be suspended, and will be cancelled upon project completion. (Reference (d)). An EZ may be suspended when no MEC or MPPEH recovery operations are underway, e.g., after-hours or on weekends. This EZ suspension does not, however, remove the requirement to maintain general site access security and control.

Explosives (or munitions) emergency response – An immediate response by explosives and munitions emergency response personnel to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency. An explosives or munitions emergency response may include in-place render-safe procedures, treatment or destruction of the explosives or munitions or their transport to another location to be rendered safe, treated, or destroyed. Reasonable delay in the completion of an explosives or munitions emergency response, which a necessary, unforeseen or uncontrollable circumstances cause, do not terminate the explosives or munitions emergency. Explosives and munitions emergency responses can occur on either public or private lands and are not limited to responses at RCRA facilities. (Reference (d)).

Explosives Safety quantity-distance (ESQD) arcs – The prescribed minimum [separation] distance between sites storing or handling hazard Class 1 explosive material and specified exposures (that is inhabited buildings, public highways, public railways, other storage or handling facilities, ships, aircraft, etc.) to afford an acceptable degree of protection and safety to the specified exposure. The size of the ESQD arc is proportional to the NEW present. (Reference (d)).

Explosives safety site approval – Authorization obtained prior to beginning new construction, modifying existing structures, or conducting munitions response actions that create new or impact existing ESQD arcs at Navy shore activities where ammunition and explosives are handled, processed, stored treated, or on a defense site that is known or suspected to contain MEC or MPPEH. (Reference (d)).

Explosives Safety Submission (ESS) – A document required by reference (d), that shall be submitted to NOSSA (N53) and approved by the DDESB prior to the initiation of any munitions response activities that involve explosives, intentional physical contact with MEC or MPPEH,

ground disturbing or other intrusive activities in areas known or suspected to contain MEC or MPPEH. The ESS addresses the explosives safety aspects of a munitions response including, but not limited to, site location, response techniques, the Munition with the Greatest Fragmentation Distance, explosives safety arcs or exclusion zones, site conditions, and other pertinent information.

Exposed Site (ES) – A location exposed to the potentially hazardous effect (blast, fragments, debris, and heat flux) from an explosion at a potential explosion site (PES). The distance to a PES and the level of protection required for an ES determine the quantity of ammunition/explosives permitted in a PES. (Reference (d)).

EZ – Exclusion Zone. See Exclusion Zone (EZ).

FEC – Facilities Engineering Command.

Hazardous Fragment Distance (HFD) – Distance at which the areal number density of hazardous fragments or debris becomes one per 600 ft^2 [55.7 m^2]. (Reference (d)).

HAZWOPER – Hazardous waste operations and emergency response.

HFD – Hazardous Fragment Distance. See Hazardous Fragment Distance (HFD).

IBD – Inhabited Building Distance. See Inhabited Building Distance (IBD).

Inhabited Building Distance (IBD) - The minimum distance permitted between an inhabited building and an ammunition or explosives location for the protection of administration, quarters, industrial and other similar areas within a naval shore establishment. Inhabited building distances shall be provided between ammunition or explosives locations and the boundary of a shore establishment of the nearest point beyond the boundary where such inhabited structures could be erected. (Reference (d)).

Intrusive activities – Any activity that involves or results in the penetration of the ground surface in an area known or suspected to contain MEC or MPPEH.

Material Documented as Safe (MDAS) – MPPEH that has been assessed and documented as not presenting an explosive hazard and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH.

Material Documented as Hazardous (MDAH) – MPPEH that cannot be documented as MDAS, that has been assessed and documented as to the maximum explosive hazards the material is known or suspected to present, and for which the chain of custody has been established and maintained. This material is no longer considered to be MPPEH. (The MDEH characterization only addresses the explosives safety status of the material.)

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

Maximum Credible Event (MCE) - In hazards evaluation, the maximum credible event from a hypothesized accidental explosion, fire, or agent release is the worst single event that is likely to occur from a given quantity and disposition of ammunition and explosives. The event must be realistic with a reasonable probability of occurrence considering the explosive propagation, burning rate characteristics, and physical protection given to the items involved. The MCE evaluated on this basis may then be used as a basis for effects calculations and casualty predictions. (Reference (d)).

Maximum Fragment Distance (MFD) - The calculated maximum distance to which any fragment from the cylindrical portion of an ammunition and explosives case is expected to be thrown by the design mode detonation of a single ammunition and explosives item. This distance does not address fragments produced by sections of nose plugs, base plates, boat-tails, and/or lugs. These special fragments, from the non-cylindrical portions of the ammunition and explosives case, can travel to significantly greater distances (that is less than 10,000 feet (3048 meters)) than the calculated maximum distances. The maximum fragment distance may also be the measured distance, based on testing, to which any fragment from an ammunition and explosives item is thrown. Reference (d).

MC – Munitions Constituents. See Munitions Constituents (MC).

MCE – Maximum Credible Event. See Maximum Credible Event (MCE).

MDAH – Material Documented as Hazardous. See Material Documented as Hazardous (MDAH).

MDAS – Material Documented as Safe. See Material Documented as Safe (MDAS).

MEC – Munitions and Explosives of Concern. See Munitions and Explosives of Concern (MEC).

Mechanized MEC Processing Operation – Mechanized MEC processing operations require special ESQD considerations. These processing

operations can be classified as either "high-input" or low-input" based on a risk assessment that considers the degree of energy applied to any MEC or MPPEH potentially processed.

(1) High-input processing operations (for example, shredding, crushing, and non-hand-held powered vegetation cutting equipment) are intended to physically deform material including any MEC or MPPEH being processed, and certain excavations or dredging operations depending upon the risk assessment.

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

Hand-raking, manual sorting, removing vegetation with powered or non-powered hand tools using string or plastic cutting surfaces, and using non-intrusive fill interrogation devices are not considered mechanized MEC processing for the purposes of siting. Depending on the proposed operation and MGFD expected, operations involving excavator and hand-held vegetation cutting devices with metal blades or other cutting surfaces shall be considered mechanized MEC processing operations, unless determined otherwise by NOSSA (N53). Reference (d).

MFD – Maximum Fragment Distance. See Maximum Fragment Distance (MFD).

MGFD – Munition with the Greatest Fragmentation Distance. See Munition with the Greatest Fragmentation Distance (MGFD).

Military munitions – All ammunition products and components produced, or used by or for U.S. DoD or U.S. Armed Services for national defense and security, including military munitions under the control of DoD, U.S. Coast Guard, U.S. Department of Energy (DOE), and National Guard personnel. The term military munitions includes confined gaseous, liquid and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries used by DoD Components, 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. Military munitions do not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof. However, the term does include non-nuclear components of nuclear devices, managed under DOE’s nuclear weapons program after all required sanitization operations under the Atomic Energy Act of 1954, as amended, have been completed. (Reference (d)).

Military Munitions Burial Site – A site, regardless of location, where military munitions were intentionally buried, with the intent to abandon or discard. This term includes burial sites used to dispose of military munitions in a manner consistent with applicable

environmental laws and regulations or the national practice at the time of burial. It does not include sites where munitions were intentionally covered with earth during authorized destruction by detonation, or where in-situ capping is implemented as an engineered remedy under an authorized response action. (Reference (d)).

MPPEH – Material Potentially Presenting an Explosive Hazard. See Material Potentially Presenting an Explosive Hazard (MPPEH).

MRA – Munitions Response Area. See Munitions Response Area (MRA).

MRS – Munitions Response Site. See Munitions Response Site (MRS).

Munitions and explosives of concern (MEC) – Distinguishes specific categories of military munitions that may pose unique explosives safety hazards/risks and means UXO, DMM, or MC (such as TNT, RDX) present in high enough concentrations to pose an explosive hazard. (Reference (d)).

Munitions Constituents (MC) – Any material originating from UXO, DMM, or other military munitions, including explosive and non-explosive materials, and emission, degradation, or breakdown elements of such ordnance or munitions. (Reference (d)).

Munitions response – Response actions, including investigation, removal actions, and remedial actions to address the explosives safety hazards and human health or environmental risks presented by UXO, DMM, or MC. (Reference (d)).

Munitions Response Area (MRA) – Any area on a defense site that is known or suspected to contain UXO, DMM, or MC. Examples include former ranges, munitions burial areas, and explosive processing facilities. An MRA is comprised of one or more MRSs. (Reference (d)).

Munitions Response Site (MRS) – A discrete location within an MRA that is known to require a munitions response. (Reference (d)).

Munitions response team – Those people required to be in a munitions response EZ when MEC or MPPEH recovery operations are being conducted. The team shall be led by a UXO Technician III, as defined by DDESB TP 18, and include at least one other UXO-qualified person. Up to five additional people may be included on the team. The five additional people may be, but are not limited to, UXO Technicians, UXO Sweep Personnel, Geophysicist/ Geophysical Technicians, heavy equipment operators, and QC/QA Specialists.

Munition with the Greatest Fragmentation Distance (MGFD) – The munition with the greatest fragment distance that is reasonably expected (based on research or characterization) to be encountered in any particular area. (Reference (d)).

NAB – Naval Amphibious Base.

NAVFAC – Naval Facilities Engineering Command.

Net Explosive Weight (NEW) – The actual weight of an explosive mixture or compound, including the TNT equivalent of other energetic material, which is used in the determination of explosive limits and ESQD arcs. (Reference (d)).

NEW – See Net Explosive Weight (NEW).

NFA – No Further Action. See No Further [Remedial] Action [Planned] (NFA).

No Further [Remedial] Action [Planned] (NFA) – A determination made following a preliminary assessment that a site does not pose a significant risk and so requires no further activity under CERCLA.

NOSSA – Naval Ordnance Safety and Security Activity.

OB/OD – Open Burning/Open Detonation.

On-call construction support – Construction support provided by EOD- or UXO-qualified personnel who are called to the site on an as-needed basis. Personnel may come from off-site when called, or be on-site and available but not continually present during intrusive activities. On-call construction support is appropriate where the probability of encountering MEC has been determined to be low using risk/hazard assessment methodology. (Reference (d)). See also Construction support.

On-site construction support – Construction support provided by EOD- or UXO-qualified personnel who are continuously present at the site during intrusive activities. On-site construction support is appropriate where the probability of encountering MEC has been determined to be moderate to high using risk/hazard assessment methodology. (Reference (d)). See also Construction support.

Operational range – A range that is under the jurisdiction, custody, or control of the Secretary of Defense and is used for range activities; or although not currently being used for range activities that is still considered by the Secretary to be a range and has not been put to a new use that is incompatible with range activities. The term “range” when used in the geographical sense, means a designated land or water area that is set aside, managed, and used for range activities of the Department of Defense. This term includes the following: firing lines and positions, maneuver areas, firing lanes, test pads, detonation pads, impact areas, electronic scoring sites, buffer zones with restricted access, and exclusionary areas; and airspace areas designated for military use in accordance with regulations and procedures prescribed by the Administrator of the Federal Aviation Administration. (Reference (d)).

Operational Risk Management (ORM) - The process of dealing with risk associated within military operations, which includes risk assessment, risk decision making and implementation of effective risk controls. (Reference (f)).

ORM – Operational Risk Management. See Operational Risk Management (ORM).

OSHA – Occupational Safety and Health Administration.

Other than operational range – A former range that is not currently being used for range activities, not considered by the Secretary of Defense to be an operational range, and/or has been put to a new use that is incompatible with range activities.

PA – Preliminary Assessment.

PES – Potential Explosion Site. See Potential Explosion Site (PES).

PMO – Program Mangement Office.

Potential Explosion Site (PES) - The location of a quantity of explosives that will create a blast, fragment, thermal, and/or debris hazard in event of an accidental explosion of its contents. Quantity limits for ammunition/explosives at a PES are determined by the distance to an exposed site. (Reference (d)).

Project manager – The Navy person responsible for managing a munitions response, construction, or other project.

PTR – Public Traffic Route. See Public Traffic Route (PTR).

Public Traffic Route - Any public street, road, highway, navigable stream, or passenger railroad (includes roads on a military reservation that are used routinely by the general public for through traffic). (Reference (d)).

PWD – Public Works Department.

QA – Quality Assessment/Assurance. (See Quality Assessment/ Assurance (QA)).

QC – Quality Control. (See Quality control (QC)).

Quality Assessment/Assurance (QA) – An integrated system of management activities involving planning, implementing, assessing, reporting, and quality improvement to ensure a process, item, or service is of the type and quality needed to meet project requirements. (U.S. Army Corps of Engineers Engineering Pamphlet [EP] 1110-1-18).

Quality Control (QC) – The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements. (EP 1110-1-18).

Real property – Land and/or facilities (including installed equipment) owned by or under the control of the Navy or land where the Navy is primarily responsible for conducting response actions. (Reference (d))

SI – Site Inspection.

Small arms ammunition – Ammunition, without projectiles that contain explosives (other than tracers), that is .50 or smaller, and for shotguns. (Reference (d)).

Small arms range – A range used exclusively for expenditure of small arms ammunition. (Reference (d))

SOP – Standard Operating Procedure.

SUXOS – Senior UXO Supervisor. Qualifications are identified in DDESB TP-18.

TAV – Technical Assistance Visit.

TCRA – Time-Critical Removal Action. See Time Critical Removal Action (TCRA).

Team Separation Distance – The distance that munitions response teams must be separated from each other during munitions response activities involving intrusive operations. (Reference (d)).

Time Critical Removal Action (TCRA) – Removal actions where, based on the site evaluation, a determination is made that a removal is appropriate, and less than six months exists before on-site removal activity must begin. (40 CFR 300.5).

TP – DDESB Technical Paper.

Unexploded ordnance (UXO) – Military munitions that (a) have been primed, fused, armed, or otherwise prepared for action; (b) have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or materiel; and (c) remain unexploded either by malfunction, design, or any other cause. (Reference (d)).

UXO – Unexploded Ordnance. See Unexploded ordnance (UXO).

UXO technician – A person who is qualified for and filling Department of Labor, Service Contract Act, Directory of Occupations contractor positions of UXO Technician I, UXO Technician II, and UXO Technician III. (Reference (d)).

UXOQCS – Unexploded Ordnance Quality Control Specialist. Qualifications are identified in DDESB TP-18.

UXO-qualified personnel – Personnel who have performed successfully in military EOD positions, or are qualified to perform in the following Department of Labor, Service Contract Act, Directory of Occupations contractor positions: UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, or Senior UXO Supervisor. (Reference (d)). Qualifications are identified in DDESB TP-18.

UXOSO – Unexploded Ordnance Safety Officer. Qualifications are identified in DDESB TP-18.