Errata Sheet

No. 6

Safety
Explosives Safety and Health Requirements Manual

EM 385-1-97

12 April 2013

The following modifies Chapter III, Change 1, Cover sheet, paragraph 1 to read:

This Change 1 to Chapter III, EM 385-1-97, 15 September 2008, rescinds and consolidates duplicate information currently in EM 385-1-1, 15 September 2008, Section 33; incorporates explosives safety aspects currently in EP 75-1-2, 1 Aug 2004; and rescinds EP 75-1-2. The change goes into effect on 17 Jun 2013. All underlined wording is specific to this Errata.

Errata Sheet

No. 5

Safety

Explosives Safety and Health Requirements Manual

EM 385-1-97

15 September 2008

The following changes are based on DoD 6055.09-STD, Chapter 15, 29 February 2008, Incorporating Change 2, 21 August 2009.

Appendix P of Errata Sheet 3, 13 July 2009, page P-4, Section 8 of ESP Format. Delete "Enter by name and position those individuals that have the authority to determine if MEC is acceptable to move."

Appendix V of Errata Sheet 3, 13 July 2009, page V-6, Section 3.5.2 of ESS format. Delete "Enter by name and position those individuals that have the authority to determine if MEC is acceptable to move."

Appendix W of Errata Sheet 3, 13 July 2009, page W-3, Section 7.6 of TCRA ESS format. Delete "Enter by name and position those individuals that have the authority to determine if MEC is acceptable to move."

1.2.C.01. Change to read "Unless otherwise authorized in the Service-level explosives safety office- (i.e., USATCES, NOSSA, MARCORSYSCOM PM AMMO, or AFSC) and/or DDESB-approved (see DoD 6055.09-STD C12.5.1.) required explosives safety submission (RESS), munitions encountered during a munitions response or other (e.g., operational range clearance) activities will be detonated in place. The exceptions are when technically qualified personnel who are performing the functions of the SUXOS and UXOSO (see DDESB TP-18) determine the risk associated with movement is acceptable, and movement is necessary for the protection of people, property or critical assets, or the efficiency of the activities being conducted. In such cases, the SUXOS and UXOSO responsible for the activities being performed, or EOD personnel responding to an explosive or munitions emergency or supporting the activity may evaluate the

munition and authorize its movement. (See Table I.2-1 for the level of authority required to determine whether the movement or transport of a munition is acceptable.) When material potentially presenting an explosive hazard (MPPEH) or Material Documented as an Explosive Hazard (MDEH) is known or suspected to contain UXO, only EOD may authorize its transport over PTR.

Table I.2-1
Munitions Response Actions
Authority to Determine Acceptability to Transport Over Public Traffic Routes (PTR) or Move within a Munitions Response Site, Operational Range or Installation

Type of MEC	Type of Activity		
	Transport over PTR	Movement	
UXO	EOD	Outside an MRS	Within the MRS
		EOD	SUXOS and UXOSO
DMM[1] or MC posing an explosive hazard	[2]SUXOS and UXOSO	SUXOS and UXOSO	

[1] DMM that has been subjected to abnormal environments (e.g., kick outs) are initially considered as dangerous as UXO until assessed by SUXO or UXOSO.

[2] See 49 CFR and installation SOP for applicable requirements.

CESO-E 16 Jul 2009

Errata Sheet

No. 4

Safety

Explosives Safety and Health Requirements Manual

EM 385-1-97

15 September 2008

Change Chapter IV, paragraph B.02.e to read: Range support facilities that are only used to store and handle HD 1.4S ammunition.

Errata Sheet

No. 3

Safety

Explosives Safety and Health Requirements Manual

EM 385-1-97

15 September 2008

The following changes are based on review of Chapter I, Section 2.

Table of Contents:

Appendix No. (Appendix U is rescinded, Appendices P, T, V, W, X and Y are revised as described below):

P----Format and Content for an Explosives Site Plan (ESP) P-1

T----Format and Content for a Chemical Safety Submission (CSS) T-1

U----Not Used U-1

V----Format and Content for an Explosives Safety Submission (ESS).....V-1

W----Format and Content for a Time Critical Removal Action (TCRA) ESS W-1

X----Format and Content for a No DoD Action Indication (NDAI/NOFA) ESS.....X-1

Y----Format and Content for an After Action Report (AAR).....Y-1

Figure No.

I.2-1----NDAI ESS and After Action Report Process Flow Chart XX

Chapter I, Section 2:

I.2.C.01 As a general rule, all UXO and DMM will be detonated in the original position found. This is the safest method to effect final disposition of munitions. Engineering controls may be required based on site-specific conditions. If authorized by the approved ESS/ESP or WP, UXO and DMM may be moved to a consolidated area for demolition IAW EP 1110-1-17 and I.2.C.03.

Those personnel authorized to determine if items are acceptable to move will be designated by name and position in the ESS/ESP and/or the appropriate work plan.

I.2.F.01.01.b Delete last sentence "In this case the MFR-H will be used for this MSD."

I.2.G.01 Essential Personnel are defined as USACE and contractor project personnel necessary for the safe and efficient completion of field operations conducted in an EZ. **This is limited to**: contractor work team members including the UXO Safety Officer (UXOSO), UXO Quality Control Specialist (UXOQCS), SUXOS, and a USACE OESS.

I.2.I.05.02 Delete "listed above" from first sentence.

I.2.J.08 Inert ordnance will not be disposed of as munitions debris until the internal fillers/voids have been exposed and unconfined, and have undergone the appropriate MPPEH inspection procedure per Section 11.

I.2.K Change to "**CELL PHONE USE** > Refer to EM 385-1-1.

I.2.M.01 Change first sentence to read "DDESB and DASAF will periodically visit USACE MMRP sites in order to conduct explosives safety evaluations."

I.2.N.03 Delete "to the greatest extent practicable."

I.2.O.02.02.c Delete

I.2.Q.02.e Delete

I.2.Q.04.01 Non-Time Critical Removal Action (NTCRA), Remedial Action, and Construction Support (with moderate to high probability of encountering MEC). > ***See Appendix V.***

I.2.Q.04.03.a The NDAI/NOFA ESS is prepared upon finalization of a decision document or final report that identifies an NDAI category I, II, or III (see ER 200-3-1) as the recommended response alternative for an MEC site. The ESS is prepared after the appropriate public comment period has been held on the decision document or final report and any comments received as a result of the public comment period have been addressed in the decision document or final report. (See figure I.2-1 below, NDAI ESS and AAR flow chart.)

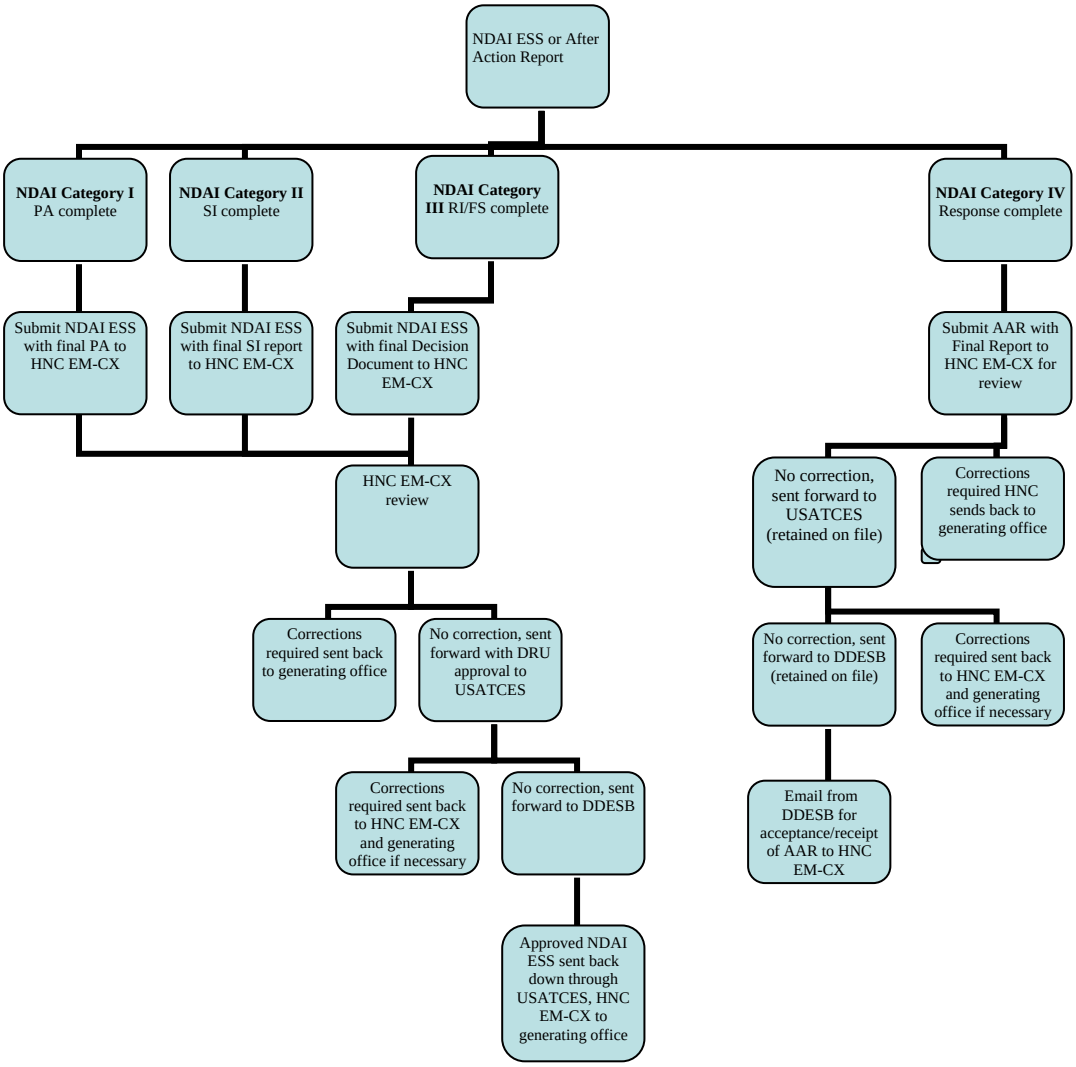
I.2.Q.04.03.b The NDAI/NOFA ESS is submitted for approval with the final approved decision document or final report. In lieu of the actual report a link to the reference is acceptable.

I.2.Q.04.04 After Action Report (AAR). > ***See Appendix Y.***

a. An AAR for completed munitions or CWM responses is required for all DDESB-approved ESS or CSS. The AAR's purpose is to document that the explosives and chemical safety aspects of the selected response have been completed per the approved ESS or CSS. DDESB shall acknowledge receipt of an AAR, and raise any issues that require resolution before land transfer or an alternative use can safely proceed.

b. NDAI category IV requires an After Action Report (AAR) in place of the NDAI ESS. (See figure I.2-1 below, NDAI ESS and AAR flow chart.)

Figure I.2-1



I.2.Q.04.05 Not Used

I.2.Q.05 Amendments to an ESS.

I.2.Q.05.01 Amendments should follow the same format as the Safety Submission it is amending. Only complete the paragraphs, figures, tables or maps that were changed. All other paragraphs will be marked as "no change from original submission."

I.2.Q.05.02 Changes that require an amendment include:

a. Constraints in funding, technology, access, and other site-specific conditions that impact the degree of removal addressed in the approved ESS.

b. Any increase or decrease of the ESQD arcs (note: the new ESQD arc will be implemented immediately and operations may continue at the same time the amendment is being prepared, submitted, and approved.

c. Changes in LUC or long-term management to address residual risks. Such changes would not require intrusive activities to stop while the amendment is being processed.

I.2.Q.06 Corrections to an ESS.

I.2.Q.06.01 Corrections address changes to an approved ESS that do not change explosive safety risk or exposure.

I.2.Q.06.02 Corrections do not require approval and are primarily administrative in nature.

I.2.U **MECHANIZED MEC PROCEDURES.** These processing operations can be classified as either "high input" or "low input" based on a risk assessment that considers the degree of energy with which the process would impact any MEC potentially processed. High-input processing operations (e.g., shredders, crushers) are intended to physically deform material including any MEC being processed, and certain excavations depending upon the risk assessment. During high-input processing operations, nonessential personnel shall be provided protection for intentional detonations based on the MGFD. Low-input processing operations (e.g., on-site transport, dumping, screening, raking, spreading, sifting, and magnetically separating) are not intended to intentionally deform material including MEC being processed, and certain excavations depending upon the risk assessment. During low-input processing operations, nonessential personnel shall be provided protection for accidental (unintentional) detonations (greater of HFD or K40).

I.2.U.01.03 Delete.

I.2.U.03.02.a (2) Delete.

APPENDIX P
Format and Content for an Explosives Site Plan (ESP)

Explosives Site Plan

INVESTIGATIVE/CHARACTERIZATION
ACTION (SI, EE/CA, or RI)

(ENTER SPECIFIC LOCATION)

(ENTER GEOGRAPHIC LOCATION AND PROJECT NUMBER)
(FUDS)

(ENTER DATE)

Prepared by (Contractor or Preparer's Name)
for
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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1.0 Site:

a. Name:

b. State:

2.0 Anticipated Start Date:

3.0 Purpose:
State the purpose of the munitions response action.

4.0 Site Background and Current Conditions:
Enter a description of the site relative to its general location and current conditions.

5.0 Executing Agencies: List all agencies involved in the action.

6.0 Scope of Investigative/Characterization Action:
Table 6-1 identifies the different Munitions Response Sites (MRS) to be investigated within this project location.

Table 6-1
MRS Areas

MRS name or if no MRS name, the sector number or other designator	Type of Investigation	Total acreage of Site

7.0 Safety Criteria:
State MGFD and justification here and add the following statement. "If MEC with a greater fragmentation distance is encountered, the minimum separation distance (MSD) will be adjusted in accordance with DDESB Technical Paper 16, operations will continue, and an amendment to this ESP submitted for approval (a copy of this document will be available on site). Q-D arcs will be adjusted accordingly." State type of engineering control being utilized with Q-D distances identified.

a. See Appendix B for Fragmentation Data Sheets.

b. See Table 7-1 for Minimum Separation Distances.

Table 7-1 Minimum Separation Distances (MSD)							
MRS Name or other designator	MEC	MSD (ft)					
		For Unintentional Detonations			For Intentional Detonations		
		Team Separation Distance (K40)	Hazardous Fragment Distance (HFD)	To Sides and Rear using OFB	Without Engineering Controls	Using Sandbag Mitigation	Using Water Mitigation Carboys/Pool

Notes:
1. See Appendix A for calculation sheets and documentation of MSD.
2. Denotes MGFD during intrusive operations within the area indicated.

c. Any occupied buildings or public roadways in the MSD areas during MEC-related operations will be evacuated and/or roadways blocked to prevent non-essential personnel from entering during the conduct of MEC operations.

8.0 Methods of Disposal:
Describe methods for disposal, transportation and storage of explosives. Enter by name and position those individuals that have the authority to determine if MEC is acceptable to move. In addition, add this statement; "All explosive operations will follow the procedures outlined in TM 60A-1-1-31 and the EM 385-1-97, Explosives Safety and Health Requirements Manual, demolition operations will be performed daily or items properly secured until operations can be conducted."

9.0 Maps:
Refer to Appendix A. Figure 1 shows a map of the site in relation to the surrounding area. Figure 2 is a map showing the MRSs with the Quantity Distance (Q-D) arcs that will be used during the MEC removal action in that area. Additional figures, if required for individual MRSs, are inserted here. Figure 3 shows any area(s) established for the repetitive detonation of MEC (i.e., an area specially set aside as demo area as opposed to detonating MEC within the removal grids) with associated Q-D arcs. The final figure, which will show the explosives storage magazine Q-D arcs and the location of the magazine in relation to the entire MRA.

APPENDIX A
MAPS

Include the following:

1. Overall Site Map for State that shows the general area and MRA;

2. Maps of each MRS within the MRA that identifies the MGFD, the HFD arc, and the MFR-H arc.

3. Map showing any area(s) established for the repetitive detonation of MEC (i.e., an area specially set aside as demo area as opposed to detonating MEC within the removal grids) with associated Q-D arcs.

4. Maps that show the explosives storage/recovered MEC storage magazines.

NOTE: Scale needs to be measurable or ensure the distances are labeled on the map.

APPENDIX B
CALCULATION SHEETS

Include the calculation sheets from the Fragmentation Database, or if they are not available and you are using the Generic Equivalent Calculator or the Buried Explosion Module calculations, include those sheets in this section

APPENDIX T
Format and Content for a Chemical Safety Submission (CSS)

Chemical Safety Submission

MUNITIONS AND EXPLOSIVES OF CONCERN
REMOVAL or REMEDIAL ACTION

(ENTER SPECIFIC LOCATION)

(ENTER GEOGRAPHIC LOCATION AND PROJECT NUMBER)
(FUDS)

(ENTER DATE)

Prepared by (Contractor or Preparer's Name)
for
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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APPENDIX V
Format and Content for an Explosives Safety Submission (ESS)

Explosives Safety Submission

MUNITIONS AND EXPLOSIVES OF CONCERN
NON-TIME CRITICAL REMOVAL, REMEDIAL ACTION or CONSTRUCTION SUPPORT

(ENTER SPECIFIC LOCATION)

(ENTER GEOGRAPHIC LOCATION AND PROJECT NUMBER)
(FUDS)

(ENTER DATE)

Prepared by (Contractor or Preparer's Name)
for
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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APPENDIX A – MAPS A1

APPENDIX B – FRAG DATA SHEETS/MSD B1

1.0 BACKGROUND.

1.1 Site Location.

Enter a description of the site relative to its general location in the state. State if work is being accomplished under the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA)".

Table 1-1

Area	Total Acreage	Munitions Response Action	Institutional Controls

1.2 Site Description.

1.2.1 Terrain and Vegetation. Describe terrain and vegetation in terms of whether it would or would not hinder the MEC removal action. For example, it may not be possible to perform a removal on extremely steep terrain.

1.2.2 Soil Conditions. Describe soil conditions in terms of whether they would or would not hinder detection of MEC. For example, soils with high iron content are not in many cases suitable for survey via magnetometer.

1.3 Site History.

Enter brief history of each MRS covered in the ESS in terms of how the military use of the MRS caused the presence of MEC (e.g., impact area, training area, maneuver area, grenade range, test range, disposal area). how the property came into being contaminated with MEC, past site uses for MRSs within the MRA.

1.4 Current and Future Land Use. Describe the current and (if known) future land use. Examples of use: commercial, residential, agricultural, cattle grazing, wildlife preserve, parks & recreation, open space.

1.5 Project Area.

Identify the different MRSs covered by this ESS.

1.5.1 General.

A description of the MRSs covered by this ESS is given in Section 1.1 and shown in Table 1.1. This ESS covers the munitions response actions (e.g., surface removal, removal to 1 ft, removal to depth of detection) for MRS A and B. The munitions response actions for the remaining MRS

areas will be addressed in future amendments to this ESS or have been addressed in previous ESS. Example: "MRS A and B are covered by this ESS. MRS C, D, and E will be covered by future ESS as funding for these MRS becomes available. MRS F is not eligible for munitions response under the MMRP because it is part of the remaining active installation and is an operational range."

1.5.2 Historical and Characterization Data Analysis. Briefly describe what has been done (ASR, Site Inspection, EE/CA, RI/FS).

1.5.3 Selected Munitions Response Actions.
Table 1-1 summarizes the munitions response actions for MRS A and B.

1.5.3.1 Land Use Controls.
For each MRS, those Land Use Controls selected as likely to be effective and feasible are described in paragraph 10 of this ESS.

1.6 Reason for Munitions and Explosives of Concern (MEC).
The site history in Section 1.3 provides the reason for MEC on the property.

1.7 Type of MEC.
The results are detailed in paragraph 1.5.2 above and Table 1-2.

2.0 MAPS.
Refer to Appendix A. Figure 1 shows a map of the site in relation to the surrounding area. Figure 2 is a map showing the MRSs with the Quantity Distance (Q-D) arcs that will be used during the MEC removal action in that area. Additional figures, if required, for individual MRSs or a map showing any established demo area with its Q-D arcs are inserted here The final figure which will show the explosives storage magazine Q-D arcs and the location of the magazine in relation to the entire MRA.

Table 1-2

Type And Depth Of MEC Recovered

MRS name or other identifier	MEC Recovered	**MAXIMUM DEPTH OF MEC RECOVERED DURING SITE INVESTIGATION (INCHES)**	**MAXIMUM GEOPHYSICAL DETECTION DEPTH (INCHES BELOW GROUND SURFACE, (BGS))**

3.0 EXPLOSIVES SAFETY QUANTITY-DISTANCE (Q-D).

3.1 Munition with Greatest Fragmentation Distance (MGFD).
State MGFD and justification here and add the following statement. "If MEC with a greater fragmentation distance is encountered, the minimum separation distance (MSD) will be adjusted in accordance with DDESB Technical Paper 16, operations will continue, and an amendment to this ESS submitted for approval (a copy of this document will be available on site). Q-D arcs will be adjusted accordingly."

Table 3-1

MINIMUM SEPARATION DISTANCES

MRS name or other identifier	***MEC***	MSD (ft)				
		For Unintentional Detonations 1		For Intentional Detonations 1		
		Hazardous Fragment Distance	To Sides & Rear Using MOFB or OFB	MFD Without Engineering Controls	Using Sandbag Mitigation	Using Water Mitigation

NOTE:1. See Appendix B for calculation sheets and documentation of MSD.

3.2 MEC Area(s).
The MSD restrictions from MEC areas to non-essential personnel will be applied during all surface and subsurface MEC removal and disposal.

3.3 Demolition Explosives.

3.3.1 Delivery on an As-Needed Basis.
Explosives may be provided by a local vendor on an as-needed basis. MEC will be marked and guarded, if necessary, until disposal is accomplished.

3.3.2 Explosive Storage Magazines.
If there is an on-going need for explosives, an explosives storage magazine will be sited. These commercial explosives will have assigned DoD hazard division/storage compatibility groups (HD/SCG) and will be stored in accordance with DoD 6055.09-STD, DA Pam 385-64 and any local installation regulations.

3.4 Planned or Established Demolition Areas.

3.5 Footprint Areas.

3.5.1 Blow-in-Place.
How will this be conducted if necessary?

3.5.2 Collection Points.
Collection points are those areas used to temporarily accumulate acceptable to move MEC. Enter by name and position those personnel having the authority to determine if MEC is acceptable to move.

3.5.3 In-Grid Consolidated Shots. Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites, dated March 2000 will be used and a copy of this report will be available on site.

3.6 Maximum Credible Event (MCE).

4.0 START DATE.
If requesting interim Army approval or a short notice date, this is where justification needs to be stated. Otherwise, state the anticipated start date.

5.0 MEC MIGRATION.

6.0 DETECTION EQUIPMENT AND RESPONSE TECHNIQUES.

6.1 Removal Depth.
The munitions response for each area is listed in Table 1-1.

6.2 Detection Equipment.
A combination of one or more of the following detection technologies will be used at this site.

6.2.1 Analog Mag and Flag using Flux-Gate Magnetic Gradiometers.
List specific equipment of this type being used.

6.2.2 Analog Mag and Flag using Electromagnetic Induction.
List specific equipment of this type being used.

6.2.3 Digital Geophysical Mapping Using Time-Domain Electromagnetic Induction.
List specific equipment of this type being used.

6.3 Sweep Procedures.

6.4 Exclusion Zone Control.
Provide a description of how you will control access to the MRS.

6.5 Intrusive Investigation.

Only UXO-qualified personnel and UXO Tech I under supervision of UXO-qualified personnel will perform excavation and investigation of anomalies.

6.6 Quality Control and Quality Assurance.
Refer to your QASP and describe the process being used.

7.0 DISPOSITION TECHNIQUES.

7.1 Demolition Operations.

All explosive operations will follow the procedures outlined in TM 60A-1-1-31. Demolition operations will be performed daily or properly secured until operations can be conducted.

7.2 Explosive Storage, Accountability, and Transportation.

Explosives will be stored at an explosive magazine or explosives will be delivered on an as needed basis. Total control of explosives will be maintained while the explosives are on site. All vehicles transporting explosives will be properly inspected, equipped, and placarded prior to the loading of explosives onto the vehicle, and DD Form 626 “Motor Vehicle Inspection” completed.

7.3 Engineering Controls.

Engineering controls for demolition will be used as delineated in the “Use of Sand Bags for Mitigation of Fragmentation and Blast Effects due to Intentional Detonation of Munitions,” HNC-ED-CS-S 98-7, dated August 1998 or in the “Use of Water for Mitigation of Fragmentation and Blast Effects Due to Intentional Detonation of Munitions”, HNC-ED-CS-S-00-3, dated September 2000. These controls will be applied as necessary to mitigate fragmentation and blast hazards created during demolition operations, for single item detonations. A copy of HNC-ED-CS-S-98-7 and HNC-ED-CS-S-00-3 will be available on site if these engineering controls are to be used.

7.4 Scrap Procedures.

7.4.1 Inspection and Certification.

All material potentially presenting an explosive hazard (MPPEH) and other debris will be inspected, re-inspected, and certified free of explosives by at least two UXO qualified personnel prior to it being removed from the grid. Munitions debris will be segregated from other debris. See Engineer Manual 1110-1-4009, Chapter 14, for MPPEH handling procedures for USACE operations. Munitions debris will be stored in a metal scrap storage container and secured with a lock by the Senior Unexploded Ordnance Supervisor (SUXOS).

7.4.2 DD Form 1348-1A.

Upon completion of all removal activities, the contractor will complete a DD Form 1348-1A IAW EM 1110-1-4009 Chapter 14 to include the following statement.

> *"This certifies and verifies that the material listed has been 100 percent inspected and to the best of our knowledge and belief, are inert and/or free of explosives or related material."*

7.5 Alternative Disposal Techniques.

8.0 ENVIRONMENTAL, ECOLOGICAL OR CULTURAL CONSIDERATIONS. Describe if and how these considerations hinder the MEC removal action. For example, the presence of Native American burial sites may prevent blow-in-place near them.

9.0 TECHNICAL SUPPORT.

9.1 Military Support.

No chemical warfare materiel (CWM) is suspected at this site. However, if a munition with an unknown filler is found, or if a MEC item cannot be positively identified, the on-site USACE project team will notify the local point of contact (POC) as designated in the workplan. The local POC will contact and facilitate Explosive Ordnance Disposal (EOD) response. If the local POC is not the local law enforcement agent, he/she will notify the local enforcement agency of the discovery, which will contact EOD. If item is RCWM or has an unknown liquid filler, the on-site USACE project team will notify the Chemical Warfare Design Center (CWM-DC) at USAESCH by calling the 24/7 telephone number at 256-895-1180.

9.2 Contractor.

All on-site Contractor UXO personnel will meet the training and minimum experience required by DoD and USACE.

10.0 RESIDUAL RISK MANAGEMENT.

10.1 LUC. The ESS must summarize any LUC to be implemented and maintained on the property.

10.2 Long-Term Management. The ESS must address how any potential residual risks will be managed. It is normal Corps procedure to conduct 5-year reviews after implementation of the selected munitions response actions and if this is the plan, then so state.

11.0 UXO SAFETY EDUCATION PROGRAM. If there are plans for UXO safety education describe them.

12.0 STAKEHOLDER INVOLVEMENT. State who the stakeholders are (e.g., regulators, Restoration Advisor Board, Local Reuse Authority, landowners, Tribes). Indicate how much they agree with the selected response described in this ESS.

13.0 CONTINGENCES.

Describe any changes that may effect MEC opertions ie: larger or smaller MGFD, boundary or footprint changes or simply state “None have been identified at this time”.

APPENDIX A
MAPS

Include the following:

1. Overall Site Map for State that shows the general area and MRA;

2. Maps of each MRS within the MRA that identifies the MGFD, the HFD arc, and the MFR-H arc.

3. Additional figures, if required, for individual MRSs or a map showing any established demo area with its Q-D arcs.

4. Maps that show the explosives storage/recovered MEC storage magazines.

NOTE: Scale needs to be measurable or ensure the distances are labeled on the map.

APPENDIX B
CALCULATION SHEETS

Include the calculation sheets from the Fragmentation Database, or if they are not available and you are using the Generic Equations Calculator or the Buried Explosion Module calculations, include those sheets in this section.

APPENDIX W

Format and Content for a Time Critical Removal Action (TCRA) ESS

Explosives Safety Submission

TIME CRITICAL REMOVAL ACTION

(ENTER SPECIFIC LOCATION)

(ENTER GEOGRAPHIC LOCATION AND PROJECT NUMBER)
(FUDS)

(ENTER DATE)

Prepared by (Contractor or Preparer's Name)
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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1.0 SITE:

1.1 Name:

1.2 Address: State: County:

2.0 ANTICIPATED DATES.

2.1 Start:

2.2 Complete:

3.0 PURPOSE: State the purpose of the TCRA and reference the signed action memorandum.

4.0 SITE BACKGROUND AND CURRENT CONDITIONS.

5.0 EXECUTING AGENCIES.

6.0 SCOPE OF REMOVAL ACTION.

7.0 SAFETY CRITERIA:

7.1 State MGFD and justification here and add the following statement. "If MEC with a greater fragmentation distance is encountered, the minimum separation distance (MSD) will be adjusted in accordance with DDESB Technical Paper 16, operations will continue, and an amendment to this ESP submitted for approval (a copy of this document will be available on site). Q-D arcs will be adjusted accordingly." State type of engineering control being utilized with Q-D distances.

7.2 Q-D. MEC Area Unintentional Detonation.

7.3 Q-D Intentional Detonation Activities.

7.4 Q-D Demolition Explosives Storage Magazines.

7.5 Engineering Controls.

7.6 Enter the name and position of those individuals with the authority to determine if MEC is acceptable to move.

8.0 MAPS:

Refer to Appendix A. Figure 1 shows a map of the site in relation to the surrounding area. Figure 2 is a map showing the MRSs with the Quantity Distance (Q-D) arcs that will be used during the MEC removal action in that area. Additional figures if required for individual MRSs are inserted here. Figure 3 is a map showing any area(s) established for the repetitive detonation of MEC (i.e., an area specially set aside as demo area as opposed to detonating MEC within the removal grids) with associated Q-D arcs.
The final figure which will show the explosives storage magazine Q-D arcs and the location of the magazine in relation to the entire MRA

APPENDIX A
MAPS

Include the following:

1. Overall Site Map for State that shows the general area and MRA;

2. Maps of each MRS within the MRA that identifies the MGFD, the HFD arc, and the MFR-H arc.

3. Map showing any area(s) established for the repetitive detonation of MEC (i.e., an area specially set aside as demo area as opposed to detonating MEC within the removal grids) with associated Q-D arcs.

4. Maps that show the explosives storage/recovered MEC storage magazines.

NOTE: Scale needs to be measurable or ensure the distances are labeled on the map.

APPENDIX B
CALCULATION SHEETS

Include the calculation sheets from the Fragmentation Database, or if they are not available and you are using the Generic Equivalent Calculator or the Buried Explosion Module calculations, include those sheets in this section.

APPENDIX X
Format and Content for No DoD Action Indicated (NDAI)/No Further Action (NOFA) ESS

Explosives Safety Submission

NO DoD ACTION INDICATED or NO FURTHER ACTION
CATEGORY XX

(ENTER SPECIFIC LOCATION)

(ENTER GEOGRAPHIC LOCATION AND PROJECT NUMBER)
(FUDS)

(ENTER DATE)

Prepared by (Contracotr or Preparer's Name)
For
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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APPENDIX B ..... REFERENCE DOCUMENTATION

1.0 Site History.
Brief history of site and reason MEC is/is not suspected.

2.0 Maps.
Refer to Appendix A. Figure 1 shows a map of the site in relation to the surrounding area. Figure 2 is a map showing the MRSs.

3.0 Justification.
Explain the Category selection and reason for NDAI decision.

4.0 Public involvement.
Discuss the public participation activities which occurred as part of the EE/CA process, including:
• public meeting(s);
• Restoration Advisory Board, if applicable;
• 30-day public comment period;
• press conference(s);
• media day(s); and
• location of the Administrative Record.

5.0 5-year Reviews. Summary of 5-year reviews conducted, if any.

6.0 Summary. A FUDS Completion Memorandum or Statement of Clearance will be placed in the Information Repository and may be placed in the Administrative Record.

APPENDIX A

MAPS

Include the following:

1. Overall Site Map for State that shows the general area and MRA.

2. Maps of each MRS within the MRA.

NOTE: Scale needs to be measurable or ensure the distances are labeled on the map.

APPENDIX B

Reference Documentation

Add a link or appropriate document to reference the NDAI decision.

APPENDIX Y
Format and Content for an After Action Report (AAR)

After Action Report

(ENTER SPECIFIC LOCATION)

(ENTER GEOGRAPHIC LOCATION AND PROJECT NUMBER)
(FUDS)

(ENTER DATE)

Prepared by (Contractor or Preparer's Name)
For
US ARMY CORPS OF ENGINEERS
Engineering and Support Center, Huntsville

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1.0 Summary

History of site and address the amount and type of MEC or CA found regardless of configuration. Reference all applicable ESS/CSS documentation, including amendments covered by this AAR.

2.0 Limitations

Describe the effectiveness and limitations of the technologies used during the response and the effect on residual risk relative to that originally projected. Include any terrain limitations for example water or extreme slope and how the terrain affected the response action and results.

3.0 Anticipated Use

Address the known or reasonable anticipated end use of each area.

4.0 Land Use Controls

Summarize the Land Use Controls that were implemented, if any, and the areas to which they apply.

5.0 Long Term Management

Address provision for Long Term Management (LTM). LTM can include but not limited to environmental monitoring, review of site conditions, and maintenance of a remedial action to ensure continued protection.

APPENDIX A

MAPS

Include the following:

1. Overall Site Map for State that shows the general area and MRA.

2. Map depicting areas within the MRA/MRS from which MEC or CA was removed

3. Map depicting areas within the MRA/MRS where response action were not performed. (Reference section 2)

NOTE: Scale needs to be measurable or ensure the distances are labeled on the map.

APPENDIX B

Reference Documentation

To include but not limited to:

-Final Decision Document

-Final Removal/Response report

These documents can be provided in hard copy, electronic, or by hyperlink .

Errata Sheet

No. 2

Safety

Explosives Safety and Health Requirements Manual

EM 385-1-97

15 September 2008

Pending the next update to this EM, the following paragraphs in Chapter I, Section 1, are updated as indicated (underlined text is new or revised).

I.1.A.02.02b(1): For standby support and subsurface removal, the UXO team will consist of a minimum of two UXO-qualified personnel (one UXO Technician III and one UXO Technician II).

I.1.A.02.02b(2): Delete

I.1.A.03.03: Detailed procedures for the completion and submission of an ESS are contained in DOD 6055.09-STD and applicable appendices of this manual.

I.1.A.03.04: An explosives site plan (ESP) or, when appropriate, a CWM site plan (CSP) is required for MRS investigations or characterizations (i.e., SI, EE/CA or RI/FS) that involve the intentional physical contact with MEC or CA, regardless of configuration. Such site plans will address areas (e.g., magazines) used for the storage of commercial or military demolition explosives, MEC or CA, regardless of configuration; planned or established demolition or disposal areas; and the MRA, MRS, or response area boundaries. MRS investigation and characterization are used to collect the information needed to design the required munitions response and to prepare, as appropriate, an ESS or CSS for the selected response.

I.1.A.05.02: Other safety considerations are discussed in Chapter I, Section 2 and ER 385-1-95 and include: MEC safety precautions; MEC storage; MEC transportation on-site and off-site; EZ operations; MEC excavation operations; and MEC disposal operations.

I.1.E.01: All accidents will be reported IAW current USACE guidance provided below. This guidance supplements procedures in AR 385-10, DA Pam 385-40, and EM 385-1-1.

I.1.F: DETERMINATION OF GOVERNMENT SAFETY OVERSIGHT > *Refer to ER 385-1-95 and EP 75-1-3*

I.1.F.02 thru I.1.F.04: Delete

CESO-E 1 June 2009

Errata Sheet

No. 1

Safety

Explosives Safety and Health Requirements Manual

EM 385-1-97

15 September 2008

EM 385-1-97 hereby supersedes EP 385-1-95a, Basic Safety Concepts and Considerations for Munitions and Explosives of Concern (MEC) Response Action Operations dated 27 August 2004, and EP 385-1-95b, Explosives Safety Submission, dated 28 March 2003. Thereby, pending the next update to this EM, all reference to these documents should be deleted.

1.2.C.01. Change to read "Unless otherwise stipulated in the appropriate Service-level explosives safety office- (i.e., USATCES, NOSSA, MARCORSYSCOM PM AMMO, or AFSC) and/or DDESB-approved (see DoD 6055.09-STD C12.5.1.) required explosives safety submission (RESS), munitions that are encountered during a munitions response or other (e.g., operational range clearance) activities will be detonated in place. The exceptions are when technically qualified personnel performing the functions of the SUXOS and UXOSO (see DDESB TP-18) determine the risk associated with movement is acceptable and movement is necessary for the efficiency of either the activities being conducted or the protection of people, property or critical assets. In such cases, the SUXOS and UXOSO responsible for the activity being performed or EOD personnel responding to an explosive or munitions emergency or supporting the activity may evaluate the munition and authorize its movement within the MRS or operational range to an approved location for destruction, either individually or as part of a consolidated shot. When EOD is not involved, both the SUXOS and UXOSO responsible for the activity being performed must agree with the risk determination."