

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. CONTRACT ID CODE  
PAGE OF PAGES  
1

2. AMENDMENT/MODIFICATION NO. 0001	3. EFFECTIVE DATE 2 June 2004	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. (If applicable) Ft. Irwin Range Maint.
6. ISSUED BY CODE		7. ADMINISTERED BY (If other than Item 6) CODE	

Department of the Army  
Corps of Engineers, Los Angeles District  
P. O. Box 532711  
Los Angeles, CA 90053-2325

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)	(√)	9A. AMENDMENT OF SOLICITATION NO. W912PL-04-R-0014
	X	9B. DATED (SEE ITEM 11) 18 MAY 2004
		10A. MODIFICATION OF CONTRACTS/ORDER NO.
		10B. DATED (SEE ITEM 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers  is extended,  is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

(√)	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor  is not,  is required to sign this document and return 1 copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)  
RANGE MAINTENANCE TO LOCATE, IDENTIFY, MARK AND DISPOSE OF MUNITIONS AND EXPLOSIVES (ME), NATIONAL TRAINING CENTER, FORT IRWIN, CALIFORNIA

- This amendment provides the following Enclosures:
- Attachment A EP 385-1-95a
  - Attachment E, NTC Map and Viewer and installation instructions.
  - Attachment H Ordnance List

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
15B. CONTRACTOR/OFFEROR  (Signature of person authorized to sign)	15C. DATE SIGNED
16B. UNITED STATES OF AMERICA BY (Signature of Contracting Officer)	16C. DATE SIGNED



**US Army Corps  
of Engineers®**

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SAFETY

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**BASIC SAFETY CONCEPTS AND  
CONSIDERATIONS FOR ORDNANCE  
AND EXPLOSIVES OPERATIONS**

**ENGINEER PAMPHLET**

**"Approved for public release; distribution is unlimited."**



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### AVAILABILITY

Electronic copies of this and other U.S. Army Corps of Engineers publications are available on the Internet at <http://www.usace.army.mil/inet/usace-docs/>. This site is the only repository for all official USACE engineer regulations, circulars, manuals, and other documents originating from HQUSACE. Publications are provided in portable document format (PDF).

DEPARTMENT OF THE ARMY  
U.S. Army Corps of Engineers  
Washington, DC 20314-1000

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CESO

Pamphlet  
No. 385-1-95a

29 June 2001

Safety  
BASIC SAFETY CONCEPTS AND  
CONSIDERATIONS FOR ORDNANCE  
AND EXPLOSIVES OPERATIONS

1. Purpose. This pamphlet establishes U.S. Army Corps of Engineers (USACE) operating procedures for dealing with ordnance and explosives (OE) items at Formerly Used Defense Sites (FUDS), Base Realignment and Closure, and Installation Restoration projects. There are no absolutely safe procedures for dealing with OE items, merely procedures considered to be least dangerous; therefore, it is essential that a planned and systematic approach to dealing with such items be established.
2. Applicability. This pamphlet applies to all Headquarters, U.S. Army Corps of Engineers elements and all USACE Commands having responsibility for performing OE response activities.
3. Distribution Statement. Approved for public release; distribution is unlimited.
4. References.
  - a. 27 CFR 55, Commerce in Explosives.
  - b. 29 CFR 1926, Subpart P, Excavations.
  - c. DOD 6055.9-STD, DOD Ammunition and Explosives Safety Standards.
  - d. AR 385-64, U.S. Army Explosives Safety Program.
  - e. DA Pam 385-64, Ammunition and Explosives Safety Standards.
  - f. TM 60A-1-1-31, Explosive Ordnance Disposal Procedures: General Information on EOD Disposal Procedures.
  - g. TB 700-2, Department of Defense Ammunition and Explosives Hazard Classification Procedures.
  - h. ER 5-1-11, Program and Project Management.

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- i. ER 1110-1-12, Quality Management.
  - j. EP 1110-1-17, Establishing a Temporary Open Burn and Open Detonation Site for Conventional Ordnance and Explosives Projects.
  - k. EP 1110-1-18, Ordnance and Explosives Response.
  - l. EM 385-1-1, Safety and Health Requirements Manual.
  - m. HNC-ED-CS-S-98-1, Methods for Predicting Primary Fragmentation Characteristics of Cased Explosives, January 1998. This document is available on the Internet at <http://www.hnd.usace.army.mil/>.
  - n. HNC-ED-CS-S-98-2, Method for Calculating Ranges to No More Than One Hazardous Fragment per 600 Square Feet, January 1998. This document is available on the Internet at <http://www.hnd.usace.army.mil/>.
  - o. Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites, U.S. Army Engineering and Support Center, Huntsville, August 1998. This document is available on the Internet at <http://www.hnd.usace.army.mil/>.
  - p. AFM 91-201, Explosives Safety Standards.
  - q. NAVSEA OP5, Ammunition and Explosives Ashore Safety Regulations for Handling, Storing, Production, Renovation, and Shipping.
  - r. NFPA 780, Standard for the Installation of Lightning Protection Systems.
5. Explanation of Abbreviations and Terms. Abbreviations/acronyms and special terms used in this document are explained in the glossary.
6. Policy. The policy of USACE is to produce products and services that fully meet customers' expectations of quality, timeliness, and cost effectiveness, within the bounds of legal responsibility. An acceptable level of quality does not imply perfection; however, there should be no compromise of functional, health, or safety requirements. Adherence to the principles outlined in ER 5-1-11 and ER 1110-1-12 will contribute to achieving this goal. OE response procedures must be formulated to ensure harmony with the USACE Strategic Vision and should be executed in concert with activities presented in other USACE guidance.

7. Responsibilities. USACE and contractor personnel involved with OE response projects are responsible for safely executing response actions in accordance with (IAW) the approved Site Safety and Health Plan, approved Work Plan, and all applicable laws, regulations, and policies.

8. General Safety Concerns and Procedures.

a. As a general rule, all fuzed unexploded ordnance (UXO) will be detonated in the original position found. This is the safest method to effect final disposition of munitions.

b. OE operations will not be conducted until all applicable plans for the site in question are prepared and approved. These plans will be based upon the concept of limiting exposure to the minimum number of personnel, for the minimum amount of time, to the minimum amount of OE consistent with safe and efficient operations.

c. Only UXO-qualified personnel will perform OE procedures. As an exception, a UXO Technician I may assist in the performance of OE procedures when under the supervision of a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III. Non-UXO-qualified personnel who have been determined to be essential for the operations being performed may be utilized to perform OE-related procedures when supervised by a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III. All personnel engaged in field operations will be thoroughly trained and capable of recognizing the specific hazards of the procedures being performed. To ensure that these procedures are performed to standards, all field personnel will be under the direct supervision of a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III.

d. Personnel who will be handling OE items will not wear outer or inner garments having static-electricity-generating characteristics. Materials made of 100-percent polyester, nylon, silk, and wool are highly static producing. Refer to DA Pam 385-64 for more information regarding nonstatic-producing clothing.

e. Prior to any action being performed on an ordnance item, all fuzing will be definitively identified. This identification will consist of fuze type by function and condition (armed or unarmed) and the physical state/condition of the fuze, i.e., burned, broken, parts exposed/ sheared, etc.

f. OE operations will be conducted only during daylight hours.

9. OE Safety Precautions.

a. Every effort will be made to identify a suspect OE item. Under no circumstances will any fuzed UXO be moved in an attempt to make a definitive identification. The OE item will be visually examined for markings and other external features such as shape, size, and external

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fittings. If an unknown OE item is encountered, the onsite USACE representative will be notified immediately. If there is no onsite USACE representative, the USACE district or the U.S. Army Engineering and Support Center, Huntsville (USAESCH) OE Safety Group will be notified as soon as possible. If research of documentation is required, it will be initiated by USAESCH. Following is additional guidance for the safe handling of OE items:

- (1) Projectiles containing base-detonating fuzes are to be considered armed if the round is fired.
- (2) Arming wires and popout pins on unarmed fuzes should be secured prior to moving OE items.
- (3) Do not depress plungers, turn vanes, or rotate spindles, levers, setting rings, or other external fittings on OE items. Such actions may arm or activate the items.
- (4) Do not attempt to remove any fuze(s) from OE items. Do not dismantle or strip components from any OE items.
- (5) UXO personnel are not authorized to render inert any OE items found onsite.
- (6) OE items will not be taken from the site as souvenirs/training aids.
- (7) Civil War ordnance will be treated in the same manner as any other OE items.

b. Prior to entering areas/ranges contaminated with Improved Conventional Munitions (ICMs) or submunitions, a Department of the Army (DA) waiver must be obtained by the affected installation or for FUDS properties, the executing Corps district. If an ICM or submunition is found at a site not previously known to contain ICMs or submunitions, work will cease. The discovered item will be identified, then properly disposed of (including guarding the item if disposition is to be delayed). Work will resume only when an ICM waiver has been obtained. For guidance on the preparation of waiver requests, contact the OE Mandatory Center of Expertise.

c. Any time suspect chemical warfare materiel is encountered during conventional OE site activities, all work will immediately cease. Project personnel will withdraw along cleared paths upwind from the discovery. A team consisting of a minimum of two personnel will secure the area to prevent unauthorized access. Personnel should position themselves as far upwind as possible while still maintaining security of the area.

(1) On FUDS properties, the UXO team will notify the local point of contact (POC) designated in the Work Plan. The local POC will facilitate explosive ordnance disposal (EOD) response, and two personnel will secure the site until the EOD unit's arrival. If the local POC

designated in the Work Plan is not the local law enforcement agency, the local POC will inform the local law enforcement agency of the discovery if necessary. The EOD unit will notify the Technical Escort Unit (TEU) and secure the area until TEU's arrival. After notifying the local law enforcement agency (when necessary), the local POC will notify the USAESCH OE Safety Group of the actions taken.

(2) On active installations, the UXO team will normally notify the Range Control Officer, the Facility Engineer, post headquarters, or the POC designated in the Work Plan.

d. Avoid inhalation of and skin contact with smoke, fumes, and vapors of explosives and related hazardous materials.

e. Consider OE items which may have been exposed to fire and detonation as extremely hazardous. Chemical and physical changes may have occurred to an item's contents, which may have rendered the item more sensitive than in its original state.

f. Do not rely on the color coding of OE items for definitive identification. Munitions having incomplete or improper color codes have been encountered.

g. Avoid approaching the forward area of an OE item until it can be determined whether or not the item contains a shaped charge. The explosive jet, which is formed during detonation, can be lethal at great distances. Assume that all shaped-charge munitions contain a piezoelectric (PZ) fuzing system until investigation proves otherwise. PZ fuzing is extremely sensitive. It can function at the slightest physical change and can remain hazardous for an indefinite period of time.

h. Approach an unfired rocket motor from the rear at a 45-degree angle. Accidental ignition can cause a missile hazard and hot exhaust.

i. Do not expose unfired rocket motors to any electromagnetic radiation (EMR) sources. See DA Pam 385-64 for safe separation distances from various sources of EMR.

j. Consider an emplaced landmine to be armed until proven otherwise. It may be intentionally boobytrapped to deceive.

(1) Many training mines contain spotting charges capable of inflicting serious injury.

(2) Exercise extreme care with wooden mines that have been buried for long periods of time. Certain soil conditions can cause the wood to deteriorate, and any inadvertent movement or pressure can initiate the fuze.

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k. Assume that a practice OE item contains a live charge until investigation proves otherwise. Expended pyrotechnic and practice devices can contain red or white phosphorus (WP) residue. Due to incomplete combustion, this residue may re-ignite spontaneously if the crust is broken and exposed to air.

l. Do not approach a smoking WP munition. Burning WP may detonate the explosive burster charge at any time.

m. Foreign ordnance was shipped to the United States for exploitation and subsequent disposal. Every effort will be made to research all applicable documentation prior to commencement of a project involving foreign ordnance.

10. OE Storage. During OE projects, explosives storage falls into two categories, on Department of Defense (DOD) installations and off DOD installations.

a. On DOD installations, DOD 6055.9-STD and Service requirements (Army – AR 385-64; Navy – NAVSEA OP5; Air Force – AFM 91-201) will be met. For the remainder of this pamphlet, reference to DOD standards (i.e., DOD 6055.9-STD) also implies that Service explosives safety publications will be adhered to. Generally, the installation will have an existing explosives storage facility that meets DOD standards. If not, the contractor will establish a temporary storage facility. The compatibility of explosives defined in chapter 3, DOD 6055.9-STD, will be followed. Recovered OE items awaiting final disposition will not be stored with serviceable explosives. Commercial explosives will be assigned a DOD hazard classification (i.e., 1.1, 1.2, etc.) and storage compatibility grouping by the U.S. Army Technical Center for Explosives Safety prior to being stored on a military installation.

b. Off DOD installations, the contractor will be responsible for establishing a temporary explosives storage facility. This temporary storage facility will meet local, state, 27 CFR 55, AR 385-64, and DOD 6055.9-STD requirements to the greatest extent practicable.

(1) In cases where the facility cannot meet the intermagazine, inhabited building, and public traffic route quantity-distance requirements specified in DA Pam 385-64 and DOD 6055.9-STD, a barricading plan or other engineering controls to protect the public from accidental detonation must be submitted to and approved by the USAESCH Directorate of Engineering.

(2) Magazines must meet the requirements of 27 CFR 55, and each magazine must have a Net Explosive Weight and hazard classification established for the explosives to be stored.

(3) Each magazine must be provided lightning protection IAW DA Pam 385-64. The provisions of NFPA 780, which are consistent with Army guidance, may be used to supplement Army guidance where necessary.

(4) A physical security survey will be conducted to determine if fencing or guards are required. This survey will be coordinated through local law enforcement agencies. Generally, a fence around the magazine is not needed, IAW 27 CFR 55. However, the contractor is responsible for providing the degree of protection needed to prevent the theft of OE items.

c. A fire plan for either an on- or off-installation explosives storage facility will be prepared and coordinated with the local fire department. Placarding of magazines will be IAW local rules and regulations.

11. OE Transportation, Offsite. In the event that OE items must be transported offsite, the provisions of chapter 15, EP 1110-1-18, will be followed. In addition, USACE contractors are prohibited from transporting UXO offsite for destruction until the provisions of paragraph 1-9, TB 700-2, have been met.

12. OE Transportation, Onsite. The following safety procedures will be followed for the transportation of OE items onsite:

- a. Do not transport WP munitions unless they are immersed in water, mud, or wet sand.
- b. If loose pyrotechnic, tracer, flare, or similar mixtures are to be transported, they will be placed in No. 10 mineral oil or equivalent to minimize the fire and explosion hazards.
- c. Incendiary-loaded munitions should be placed on a bed of sand and covered with sand to help control the burn if a fire should start.
- d. If an unfired rocket motor must be transported, it will be positioned in the vehicle parallel to the rear axle. This will afford maximum protection for the personnel operating the vehicle.
- e. If a base-ejection projectile must be transported to a disposal facility, the base will be oriented in the vehicle such that it is parallel to the rear axle. This will afford maximum protection for the personnel operating the vehicle.
- f. OE items with exposed hazardous fillers, such as High Explosive, will be placed in appropriate containers with packing material to prevent migration of the hazardous fillers. Padding should be added to protect the exposed filler from heat, shock, and friction.

13. Exclusion Zone Operations. On OE project sites, it is the responsibility of the contractor's Unexploded Ordnance Safety Officer (UXOSO) to establish the exclusion zone for each UXO work area.

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a. The purpose of the exclusion zone is to protect nonessential personnel from blast overpressure and fragmentation hazards. Calculating exclusion zones with respect to intentional and unintentional detonations is discussed below.

(1) Intentional Detonations. The minimum separation distances specified in DOD 6055.9-STD, chapter 5, paragraph C5.5.4, will be used unless lesser distances have been calculated using HNC-ED-CS-S-98-1.

(2) Unintentional Detonations. If the identity of OE items on a site is unknown, the minimum separation distance specified in DOD 6055.9-STD, chapter 5, paragraph C5.5.4, will be used to establish the exclusion zones. When the identity of OE items is known, the USAESCH Directorate of Engineering will use HNC-ED-CS-S-98-1 and HNC-ED-CS-S-98-2 to determine the criteria for establishing the exclusion zones.

b. When multiple teams are working onsite, a team separation distance (TSD) will be established. The minimum TSD will be the greater of 200 feet or the K50 (0.9 pounds per square inch) overpressure distance.

c. While OE procedures are being conducted, only personnel essential for the operation will be allowed in the exclusion zone. When nonessential personnel enter the exclusion zone, all OE operations will cease. In addition to this work stoppage, the following actions will be taken:

(1) The individual(s) must receive a safety briefing and sign the visitors log prior to entering the zone.

(2) The individual(s) will be escorted by a UXO-qualified individual.

d. All personnel working within the exclusion zone will comply with the following:

(1) There will be no smoking within the exclusion zone, except in areas designated by the UXOSO.

(2) There will be no open fires for heating or cooking (gas stoves, grills, etc.) within the exclusion zone, except where authorized by the UXOSO.

(3) During geophysical detection operations, personnel will not wear any metal that would interfere with instrument operations.

14. OE Excavation Operations.

a. Hand excavation is the most reliable method for uncovering an OE item. However, hand excavation exposes personnel to the hazard of detonation . Therefore, only UXO-qualified personnel will be used to perform this task.

b. Earth-moving machinery (EMM) may be used to excavate overburden from suspected OE items. EMM will not be used to excavate within 12 inches of a suspected OE item. Once the EMM is within 12 inches of the suspected OE item, the excavation will be completed by hand excavation methods. Personnel who are not UXO qualified may operate EMM only when supervised by a UXO Technician III or a UXO-qualified individual of higher rank than UXO Technician III.

(1) If more than one earth-moving machine is to be used onsite, the same minimum separation distances required for multiple work teams apply.

(2) EMM operations will be conducted within the guidelines of EM 385-1-1 and 29 CFR 1926, subpart P.

c. Excavation operations, whether by hand or EMM, will employ a stepdown or offset access method. Under no circumstances will any excavation be made directly over suspected OE items.

15. OE Disposal Operations. All disposal operations will be conducted IAW TM 60A-1-1-31, EP 1110-1-17, and the unnumbered USAESCH publication entitled Procedures for Demolition of Multiple Rounds (Consolidated Shots) on Ordnance and Explosives (OE) Sites.

a. As a general rule, all disposal operations will be accomplished by electrical means to ensure maximum safety. There are exceptions to this requirement in situations where static electricity or EMR hazards are present. Unintentional detonations can occur because of these induced currents (or lightning). The following precautions from DA Pam 385-64 are to be followed:

(1) Premature detonation of electric blasting caps by induced current from radio frequency signals is possible. Refer to DA Pam 385-64 for minimum safe distance with respect to transmitter power and indication of distance beyond which it is safe to conduct electric blasting even under the most adverse conditions.

(2) Lightning is a hazard with respect to both electric and nonelectric blasting caps. A direct hit or a nearby miss is almost certain to initiate either type of cap or other sensitive explosive elements such as caps in delay detonators. Lightning strikes, even at distant locations, may cause extremely high local earth currents that may initiate electrical firing circuits. Effects

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of remote lightning strikes are multiplied by their proximity to conducting elements such as those found in buildings, fences, railroads, bridges, streams, and underground cables or conduits. The only safe procedure is to suspend all blasting activities when an electrical storm approaches to within 10 miles of the site.

(3) Electric power lines also pose a hazard with respect to electric initiating systems. It is recommended that any disposal operation closer than 155 meters to electric power lines be done with a nonelectric system.

b. The only acceptable disposal method is the one stated in the appropriate TM 60 Series manual for specific ordnance types. Any commercial explosives being used will be equivalent to the military explosive required for the disposal operation.

c. If justified by the situation, protective measures to reduce shock, blast over-pressure, and fragmentation will be taken. The USAESCH Directorate of Engineering will assist in any design work and will review for approval all proposed protective measures.

d. Minimum separations distances for personnel during OE disposal will be IAW DOD 6055.9-STD, chapter 5.

e. During open detonation operations, lifting lugs, strong backs, base plates, etc., will be oriented away from personnel locations.

f. Once disposal operations are completed, a thorough search of the immediate area will be conducted with a magnetometer to ensure that a complete disposal was accomplished.

g. Inert ordnance will not be disposed of as scrap until the internal tillers/voids have been exposed and unconfined.

FOR THE COMMANDER:



ROBERT L. DAVIS  
Colonel, Corps of Engineers  
Chief of Staff

## GLOSSARY

### Section I Abbreviations

AFM .....	Air Force Manual
AR .....	Army Regulation
CFR .....	Code of Federal Regulations
DA .....	Department of the Army
DA Pam .....	Department of the Army Pamphlet
DOD .....	Department of Defense
EMM .....	Earth-Moving Machinery
EMR .....	Electromagnetic Radiation
EOD .....	Explosive Ordnance Disposal
FUDS .....	Formerly Used Defense Sites
IAW .....	In Accordance With
ICM .....	Improved Conventional Munition
NAVSEA OP .....	Naval Sea Systems Command Ordnance Pamphlet
NFPA .....	National Fire Protection Association
OE .....	Ordnance and Explosives
POC .....	Point of Contact
PZ .....	Piezoelectric
STD .....	Standard
TB .....	Technical Bulletin

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TEU ..... Technical Escort Unit  
TSD ..... Team Separation Distance  
USACE ..... U.S. Army Corps of Engineers  
USAESCH ..... U.S. Army Engineering and Support Center, Huntsville  
UXO ..... Unexploded Ordnance  
UXOSO ..... Unexploded Ordnance Safety Officer  
WP ..... White Phosphorus

## Section II Terms

### OE Procedures

Procedures which include, but are not limited to, the following actions performed by a UXO-qualified individual:

- a. Gaining access to (manual excavation) and identifying subsurface anomalies and assessing the condition of buried OE.
- b. Identifying and assessing the condition of surface OE.
- c. Recovering and making final disposal of all OE.

### OE-Related Procedures

Procedures which include, but are not limited to, the following actions which may be performed by a non-UXO-qualified individual:

- a. Locating and marking subsurface anomalies.
- b. Locating and marking suspected surface OE.
- c. Transporting and storing recovered OE.
- d. Utilizing EMM to excavate overburden from suspected OE.

**Ordnance and Explosives (OE)**

Consists of (1) military munitions that have been abandoned, expelled from demolition pits or burning pads, lost, discarded, or buried, (2) UXO, (3) soil presenting explosion hazards, and (4) buildings with explosives residues that present explosion hazards.

**Unexploded Ordnance (UXO)**

Military munitions that have been primed, fuzed, armed, or otherwise prepared for action and have been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remain unexploded either by malfunction, design, or any other cause.

**UXO-Qualified Personnel**

Personnel meeting the requirements for the positions of UXO Technician II, UXO Technician III, UXO Safety Officer, UXO Quality Control Specialist, and Senior UXO Supervisor. For qualification requirements, refer to EP 1110-1-18.

**Ordnance List NTC Ft. Irwin**

<b>Code</b>	<b>Ordnance Description</b>	<b>Code</b>	<b>Ordnance Description</b>	<b>Code</b>	<b>Ordnance Description</b>
1	Non-Ordnance Item Entry	50	Mortar, 4.2 ", Illumination	100	Projectile, AT-4 Comp
2	Ballistic Aircraft Target	51	Mortar, 4.2", Smoke	101	Propellant
3	Bomb, High Explosive	52	Mortar, 4.2", WP	102	Recoilless Rifle, 106mm
4	Bomb, Practice	53	Mortar, 60mm, HE	103	Recoilless Rifle, 90mm
5	Candle, Illumination	54	Mortar, 60mm, Illumination	104	Recoilless Rifle, Comp
6	Cartridge Case	55	Mortar, 60mm, WP	105	Rocket Motor
7	Dispenser, Aircraft	56	Mortar, 81mm, HE	106	Rocket Motor, 2.75"
8	Electro Explosive Device	57	Mortar, 81mm, Illumination	107	Rocket Warhead, 2.75" HE
9	Expl/Smoke/WP Residue	58	Mortar, 81mm, TP	108	Rocket Warhead, 2.75" Illum
10	Explosive Component	59	Mortar, 81mm, WP	109	Rocket Warhead, 2.75" Prac
11	Flares	60	Penetrator	110	Rocket Warhead, 2.75" WP
12	Fuze, Base Detonating	61	Primer	111	Rocket Warhead, 3.5"
13	Fuze, Bomb	62	Projectile, 105mm, HE	112	Rocket Warhead, 5" HE
14	Fuze, Grenade	63	Projectile, 105mm, Illumination	113	Rocket, 35mm Sub Cal
15	Fuze, Mine	64	Projectile, 105mm, Smoke	114	Rocket, 66mm, LAW
16	Fuze, Misc, Component	65	Projectile, 105mm, TPT	115	Rocket, 66mm, LAW, Comp
17	Fuze, MT/MTSQ	66	Projectile, 105mm, WP	116	Rocket, RPG-7
18	Fuze, Point Detonating	67	Projectile, 120mm, HE	117	Rocket, RPG-7, Comp
19	Fuze, PTF	68	Projectile, 120mm, TP	118	Sabots
20	Fuze, Rocket	69	Projectile, 152mm, HE	119	Simulators
21	Fuze, Unk	70	Projectile, 152mm, TP(T)	120	Small Arms Ammunition
22	Fuze, VT/Proximity	71	Projectile, 155mm, HE	121	Smoke Canister/Generator
23	Grenade, 40mm Illumination	72	Projectile, 155mm, Illumination	122	Submunitions
24	Grenade, 40mm, Smoke	73	Projectile, 155mm, Smoke	123	Unknown
25	Grenade, Hand, CS	74	Projectile, 155mm, TPT	124	Tracer
26	Grenade, Hand, Practice	75	Projectile, 155mm, WP	125	Projectile, 120mm, WP
27	Grenade, Hand, Smoke	76	Projectile, 165mm, HE	126	Mortar, 120mm, WP
28	Grenade, Rifle, Comp	77	Projectile, 165mm, TP	127	2.36" Rocket, HEAT
29	Grenade, 40mm, HE	78	Projectile, 20mm, HE	128	Mortar, 60mm, TP
30	Grenade, 40mm, Practice	79	Projectile, 20mm, TPT	129	High Pressure Bottle
31	Igniter	80	Projectile, 25mm, HE	130	Mortar, 120mm, Illum
32	Landmine	81	Projectile, 25mm, TP	131	Redeye Launcher
33	Missile, Chaparral	82	Projectile, 30mm, HE	132	IED, Pipe Bomb
34	Missile, Chaparral, Comp	83	Projectile, 30mm, TPT	133	Grenade, Hand, Diversionary
35	Missile, Copperhead	84	Projectile, 37mm, HE	134	Rocket, Warhead, 2.75" HEAT
36	Missile, Copperhead, Comp	85	Projectile, 40mm, AP		
37	Missile, Dragon	86	Projectile, 40mm, HE		
38	Missile, Dragon, Comp	87	Projectile, 40mm, TP(T)		
39	Missile, Hellfire	88	Projectile, 57mm, Practice		
40	Missile, Hellfire, Comp	89	Projectile, 75mm, HE		
41	Missile, Shillelagh	90	Projectile, 76mm, APT		
42	Missile, Shillelagh, Comp	91	Projectile, 76mm, HE		
43	Missile, Stinger	92	Projectile, 76mm, TPT		
44	Missile, Stinger, Comp	93	Projectile, 76mm, WP		
45	Missile, TOW	94	Projectile, 8 Inch, HE		
46	Missile, TOW, Comp	95	Projectile, 90mm, APT		
47	Mortar, 120mm, HE	96	Projectile, 90mm, HE		
48	Mortar, 120mm, TP	97	Projectile, 90mm, TPT		
49	Mortar, 4.2", HE	98	Projectile, 90mm, TP		
		99	Projectile, AT-4		