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Explosive Ordnance Disposal

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Explosive Ordnance Disposal

1. Introduction

The safe and efficient removal and disposal of ordnance (encompassing mines and other Explosive Remnants of War “ERW”) is an integral part of mine action in Afghanistan; however, the scope of the problem is such that deminers alone cannot safely and effectively deal with the problem. As such, the Mine Action Coordination Centre of Afghanistan (MACCA), as the authority for mine action within the country, is charged with the responsibility for the identification and development of procedural, management and safety requirements for all Explosive Ordnance Disposal (EOD) tasks conducted as part of mine action.

2. Scope

This chapter describes the policies and procedures that shall be followed for all EOD operations within Afghanistan.

3. Scope of EOD

EOD operations involve the detection, identification, field evaluation, render safe, recovery and disposal of all types of ordnance from any country and from any time period. While EOD performs these tasks on all types of ordnance (including mines), it is separate and distinct from demining operations. EOD also specifically covers:

- a) The disposal of ordnance on demining worksites and away from these worksites.
- b) The disposal of stocks of Abandoned Explosive Ordnance (AXO).
- c) Stockpile destruction Open Burning and Open Demolition (OBOD) operations.

4. Authority for EOD

4.1 Levels of EOD Qualification:

There are four levels of EOD qualification within mine action in Afghanistan. Each level requires practical EOD experience before being able to be trained at the next higher level. The four levels of EOD qualification are:

- a) Level 1. A Level 1 EOD qualification enables the trained holder of the qualification to locate and expose and to destroy in situ, when possible, single items of mines and ERW on which the individual has been trained.
- b) Level 2. In addition to the skills of (EOD) level 1 qualification, a Level 2 EOD qualification enables the holder to determine when it is safe to move, transport and dispose of single or multiple items of mines and ERW on which the individual has been trained.
- c) Level 3. In addition to the skills of a Level 1 and 2 (EOD) qualification a Level 3 (EOD) qualification enables the holder to conduct render-safe procedures and final disposal of any type of explosive ordnance on which the individual has been trained

- d) Level 4. In addition to the skills of a Level 1, 2 and 3 (EOD) qualification, a Level 4 (EOD) qualification is for specialist EOD operators who have been trained and are qualified to destroy the remaining EOD hazards with specialised EOD techniques. Such specialist skills may include the render safe of liquid propellant systems, disposal of Depleted Uranium and the clearance of conventional munitions with improvised firing systems. The Level 4 (EOD) qualification shall clearly indicate the specialist training received by each individual.

Some ERW fall within the guidelines for the above qualification levels but present a specific or additional hazard. Examples are items containing White Phosphorous (WP), missiles, or the requirement for bulk demolitions. Special consideration should be given to the need for additional training, or for specific exclusion from the category of competence.

Where particular items are frequently encountered, specific training in the disposal of these items may be given to enable the operator to deal with them rather than continually refer the problem to the next higher level of expertise.

It should be noted that sub-munitions may be particularly hazardous to deal with and should only be dealt with by level 2 or above qualified personnel.

5. Demining Worksite Supervisors

Demining worksite supervisors that have graduated from an accredited Level 2 EOD course shall be authorized to undertake the in-situ destruction of single, small ERW (up to 85mm diameter), including HEAT munitions but excluding WP.

6. AXO and Stockpile Destruction Operations

AXO disposal and OBOD stockpile destruction operations shall only be undertaken with the written approval of the MACCA and under the direct supervision of a suitably qualified Level 4 EOD Technician. When AXO or OBOD stockpile destruction operations are conducted, they shall be in accordance with AMAS 06.08, Central Disposal Site.

7. Authority for Disposal of Specialized Items

Organizations shall obtain written consent of the MACCA to undertake disposal, low order or render safe operations involving items suspected or known to contain:

- a) Depleted Uranium.
- b) Liquid Propellant.
- c) Chemical Agents.
- d) Fuel Air Explosive.

These operations shall only be conducted by a suitably qualified Level 4 EOD Technician.

8. Responsibilities for Supervisors of Disposal Tasks

The supervisor of a disposal task shall ensure:

- a) The task is adequately planned.

- b) When safe to move ordnance is to be disposed of, an appropriate disposal site is selected. See AMAS 06.08, Central Disposal Site for selection criteria and site layout.
- c) Medical support is available in accordance with the requirements of AMAS 07.03, Medical Support & Casualty Evacuation.
- d) Communications shall establish and maintained in accordance with AMAS 08.03, Communications.
- e) Explosives and ordnance shall transport, stored and handled in accordance with AMAS 07.04, Storage, and Transportation & Handling of Explosives.
- f) Fire fighting equipment, appropriate to the assessed fire risk, is available on site. This may include the provisions of bulk stocks of water for fire fighting purposes.
- g) Liaison is undertaken with local communities and authorities.
- h) Protective works are used, as required.
- i) All personnel involved in the disposal operation are appropriately qualified.
- j) Accurate disposal records are maintained.
- k) The disposal site and immediate environs are inspected after the demolition, declared safe from ERW and refurbished appropriately.

9. Movement of Ordnance

In-situ disposal shall be the primary means of dealing with unsafe ordnance, unless factors such as proximity to communities, buildings, important facilities or the inability to achieve required safety distances prohibit its use. In-situ disposal negates the inherent risk to personnel during the movement of ordnance.

When it is required to move ordnance, it shall only be moved from the original location if it has been assessed and identified as safe-to-move by a qualified EOD technician, in accordance with the authority levels included in Annex A and section 4. All emplaced mines shall be removed remotely using a hook and line as a precaution against booby trapping, prior to movement.

When ordnance must be destroyed in-situ and there is a risk to property, then protective works shall be used.

10. Means of Initiation

Unless there is an electrical or Radio Frequency (RF) hazard in the disposal area, or other conditions prohibit its use, electrical initiation should be used to initiate all demolition charges due to the greater degree of control it provides.

This section does not apply to the training of EOD technicians, which necessitates the use of time fused demolitions.

11. Protective Works

Where protective works are required to ensure the protection of property or infrastructure or to prevent the contamination of work areas, the type of protective works used shall be appropriate for the task at hand. The protective works shall properly design and constructed so as to achieve the protection required.

12. Quality Assurance

Quality Assurance (QA) for EOD is essential for the conduct of safe and efficient operations throughout Afghanistan. All organizations shall conduct internal QA checks on all their teams on a regular basis preferably once a month, but no later than once every two months. MACCA QA shall routinely (typically once a month) conduct external QA evaluations of all EOD teams. QA checks are designed to diagnose any deficiencies in training or operations before they become a hazard.

13. Reporting of Ordnance

When mine action organizations have ordnance reported to them (located outside their task site) or they find these items as part of their normal operations, the details shall report to the relevant AMAC.

When reporting ordnance to the AMAC, details to be included are:

- a) Location of the item(s) by map reference or GPS reading. A sketch of the location should also be provided.
- b) Type and quantity of item(s). If known, the common name should be provided, if not a detailed description should be provided along with photographs.
- c) The proximity to populated areas and current risk.
- d) Contact details of local personnel that may assist in locating the item(s).
- e) Any marking of the item(s) or warning signs.

Annex A- Authority Levels for EOD

Category of UXO EOD Technician Level	EOD Technician Level 1	EOD Technician Level 2 and Demining Supervisor	EOD Technician Level 3	EOD Technician Level 4
In-situ Destruction of Mines	Y ^{Note 1}	Y ^{Note 1}	Y	Y
In-situ Destruction of UXO up to 84mm diameter ^{Note 2}	N	Y	Y	Y
In-situ Destruction of UXO up to 240mm diameter ^{Note 2}	N	N	Y	Y
Destruction of UXO containing WP	N	N	Y ^{Note 3}	Y
Rendering Safe of UXO up to 240mm calibre	N	N	Y ^{Note 4}	Y
Rendering Safe and Destruction of Aircraft Bombs	N	N	N	Y
Bulk Disposal of UXO, AXO and stockpile munitions.	N	N	N	Y
Rendering Safe and Destruction of items containing liquid propellants ^{Note 5}	N	N	N	N
Rendering Safe and Destruction of items containing Depleted Uranium ^{Note 5}	N	N	N	N
Rendering Safe and Destruction of chemical munitions ^{Note 5}	N	N	N	N

Notes to Table:

- Note 1 - Single item only.
- Note 2 - Excludes WP, depleted uranium, and lachrymatory and chemical munitions.
- Note 3 - Excludes aircraft bombs.
- Note 4 - Under the direction of a Level 4 EOD Technician.
- Note 5- Disposal of these items is only to be undertaken with written agreement of the MACCA.

Annex B- Minimum Safety Distances for Disposal of ERW – Single Items

Ammunition	Danger Area – Radius in Metres			Remarks
	Item on Surface Not Tamped	Item on Surface Tamped	Item in Undercut Tamped	
Fuses (all types)	100	100	100	
Grenade HE (including Rifle Grenades)	300	100	100	
BLU 61, 63, M77 and Mk118	300	100	100	Or equivalent
BLU 77B, 97 and 755	500	100	100	Or equivalent
Shell HE 85mm and below	500	100	100	Incl. HEAT
Shell HE 90mm – 125mm	800	250	200	Incl. HEAT
Shell HE 130mm – 155mm	1000	400	250	
Mortar HE 82mm and below	500	250	150	
Mortar HE 120mm	800	250	200	Incl. 4.2 inch
Rocket 88mm and below	300	150	100	Incl. HEAT
Rocket above 100mm/below 220mm	500	250	150	Incl. HEAT
Rocket 220mm and above	800	500	400	
Bomb aircraft 50kg and below	800	-	400	Note 1
Bomb aircraft above 50kg/below 250kg	1000	-	500	Note 1
Bomb aircraft 250kg to 500kg	1500	-	800	Note 1
Bomb aircraft above 500kg	2000	-	1000	Note 1
Mine AP blast	100	100	100	
Mine AP bounding fragmentation	300	250	100	
Mine AT-Blast	500	250	200	
Mine AT-Shaped Charge	1800	1000	1000	
White Phosphorous Items				
Grenade WP	100	-	-	
BLU 17	100	-	-	
Mortar WP 82mm and below	200	-	-	
Mortar WP 120mm	300	-	-	Incl. 4.2 inch
Shell WP 125mm and below	300	-	-	
Shell WP 130mm and above	400	-	-	
Rocket WP 2.75 and 3.5 inch	300	-	-	
Rocket WP 5 inch	400	-	-	
Igniters WP	300	-	-	
Pyrotechnic Items				
Grenades Smk	200	100	100	Other than WP
Mortar Illum/Smk	200	100	100	Other than WP
Shell Illum/Smk 125mm and below	200	100	100	Other than WP
Shell Illum/Smk 130mm and above	300	150	100	Other than WP
Other Pyrotechnic UXO	100	100	100	
Bomb aircraft incendiary 2kg	100	100	100	
Bomb aircraft incendiary 5kg	300	150	100	

Note 1:

To be classed 'undercut and tamped', an aircraft bomb must be buried such that it is covered by a depth of soil at least twice its diameter.