

Afghanistan Mine Action Standards - AMAS 06.02

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Battle Area Clearance

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Battle Area Clearance (BAC)

1. Introduction

All areas within Afghanistan that are known to contain a mine/ERW hazard are marked and recorded as a Suspected Hazard Area (SHA) on IMSMA. A number of these SHAs will contain a mine hazard and the procedure for clearance of these areas is detailed at AMAS 06.01. However, many SHAs will not contain mines and the threat will be explosive remnants of war (ERW) and cluster munitions, unexploded Land Service Ammunition (LSA) or unexploded air delivered weapons. Battle Area Clearance (BAC) is the term used to describe the systematic search and clearance of all items of ordnance and munitions within a given area.

2. Scope

This chapter provides technical guidelines and procedure for clearing explosive remnants of war (ERW) and cluster munitions contaminated areas.

3. BAC GENERAL

BAC operations involve the location and disposal of ERW, including UXO and Abandoned Exploded Ordnance (AXO), but not mines, over specific areas, which may include battlefields, defensive positions and sites where air delivered or artillery munitions, including cluster munitions, have been fired or dropped. The BAC operations shall only be conducted by the organizations accredited in BAC operations.

Depending on the humanitarian priorities and required land use, BAC may involve surface and sub-surface clearance. The requirement for BAC can be in both urban and rural environments. BAC operations do not cover the disposal of stockpiled munitions in national storage facilities.

4. BAC Area to be Cleared

The priorities for BAC clearance in support of development/commercial projects, e.g. road construction etc, may specify an exact area to be cleared. Different depths of clearance may be specified for different areas depending on an assessment of hazard and the future land use. However, for humanitarian BAC tasks, the extent of the area to be cleared cannot always be established at the outset but can be identified as clearance progresses. As such, the priorities for clearance should be determined by the impact on the individual community based on national prioritization system.

5. Quality of Clearance

The quality requirements for BAC depend on the category of BAC conducted. The two categories of BAC are surface clearance and sub-surface clearance. A field risk assessment, factoring humanitarian concerns and clearance resources shall be performed in order to decide on concurrent or sequential surface and subsurface clearance.

- a) Surface clearance usually relies on visual search, although there may be instances where a detector may be used to aid in the investigation of areas of vegetation, earth mounds or other limited access suspect areas. Recording of searches, munitions types and locations of items found is important and may assist determining the details of any subsequent sub-surface search. Unless site-specific requirements dictate, all ERW including Small Arms Ammunition (SAA), and hazardous parts thereof, shall be removed.
- b) Sub-surface clearance can use various detection or excavation techniques. All specified ERW and hazardous components shall be removed in accordance with the terms of contract and requirements of the task order. Disposal of ERW and AXO should be carried out in accordance with AMAS 06.03 Explosive Ordnance Disposal.

A sub-surface search of 20x20 meter boxes or 10 meters on all direction from the location where ERW or cluster munitions have been found shall be conducted.

The removal and/or destruction of all or specified ERW hazards, in the specified area to the specified depth should be achieved by:

- 1) Using accredited BAC clearance organisation(s) with operationally accredited capabilities, such as manual BAC clearance, and staff with appropriate levels of EOD qualification and competence, using appropriate management practices, and applying safe and effective operational procedures;
- 2) Monitoring the clearance organisation and its sub-units (see AMAS 03.01) ; and
- 3) Conducting post-clearance inspection of cleared land.

6. Depth of Clearance

Where sub-surface clearance is required in BAC tasks, the depth of clearance shall be determined by clearance organization in consultation with DMAC regional office and should be developed through the use of non-technical and technical surveys and other reliable information which establishes the depth of the ERW hazards expected in the area and an assessment of the future intended land use. Otherwise minimum clearance depth for searching different caliber ERW items should be adjusted as below:

- a) 50 cm from the original ground surface for 82mm and below;
- b) 100 cm from the original ground surface for items between 82 and 120 mm; and
- c) More than 100 cm to several meters for heavy caliber including air dropped bombs.

The required clearance depth can be adjusted as clearance work progresses. Any change shall be agreed between with the DMAC and the clearance organisation, and shall be formally recorded. The clearance process should be repeated if there is a subsequent change to the land use which requires a greater depth of clearance.

7. Cluster Munitions

Cluster munitions are delivered by a wide variety of launch or delivery systems, such as missiles, rockets, projectiles, mortars or aircraft dispensers. Once the dispenser has been fired, launched or dropped, opening is normally determined by a time delay or proximity fuse. The sub munitions are normally dispensed in one of three ways; base ejection, nose ejection or case rupture. Since sub munitions disperse after ejection, the density of the impact footprint is dependent on the speed and altitude at which the dispenser, projectile or rocket opens.

The munitions currently found in Afghanistan are designed to detonate upon impact. The failure rate of these cluster munitions cannot be accurately determined until such time as the necessary strike data is provided. Notwithstanding this, failure rates are dependent on a number of factors such as:

- a) Design,
- b) Length and condition of storage,
- c) Drop height and velocity,
- d) Vegetation and
- e) Ground conditions at the impact area.

The method of search or clearance of cluster munitions will depend on the threat to human lives; this will initially be in built up areas, along roads, around houses and gardens, schools and public buildings. The immediate priority is to save lives and minimize the likelihood of

injuries due to the presence of cluster munitions. An equally high priority is to save livelihoods such as clearance of plantations, agricultural land and fruit orchards, this will facilitate economic productivity and minimize the risk to local people attempting to remove cluster munitions themselves.

The procedures given in this AMAS provide the foundation and framework from which each clearance organization shall base detailed clearance procedures. These procedures shall be concisely stated in the respective SOPs with clear explanations and if necessary with diagrams and sketches. For site setup of a BAC task see AMAS 07.01.

Once a cluster munitions strike area has been identified it should be entered into IMSMA and recorded as a target in the form of a SHA Report. All targets should be prioritized based on the threat to human life and livelihood, and should be cleared accordingly.

The methodology for the clearance of cluster munitions strike areas should employ a two phase approach, whereby as a means of rapidly removing the immediate and obvious cluster munitions threat which pose the greatest risk to human lives, a visual search is conducted (Phase I). The visual search is without instruments and may be non-intrusive; it is intended to identify for removing those bomb lets in the immediate vicinity of built up areas and places of highest threat.

During the visual search the site supervisor is responsible to ensure that strict control is maintained and the area is thoroughly investigated. Those items that require to be destroyed in situ shall be clearly marked and the local population warned of the threat. If required, protective work should be employed in order to minimize damage. Safe to move items should be neutralized and moved to an approved CDS. In addition to the removal of the immediate threat, the site supervisor shall determine as accurately as possible the center of the cluster strike and record the Lat/ Lang. This information should be used during the next phase of clearance which will be a systematic subsurface search using instruments (Phase II).

The purpose of the Phase II instrument search is to systematically search the entire cluster strike area (sub surface) with instruments. The information gathered during the Phase I visual search should be used to assist with the Phase II planning. The aim of this phase is to clear from the task site all bomb lets both surface and subsurface until fade out has been achieved.

The Phase II instrument search is normally subsequent to the Phase I visual search. This shall be conducted immediately after phase I and may be conducted as a combination of visual and instrument search. A site-specific clearance depth shall be agreed between the clearance organization and the DMAC and shall be formally recorded in the clearance plan for each cluster munitions site.

Close liaison with the local community and any other organizations working in the immediate vicinity shall be maintained when conducting demolitions particularly in built up areas.

The site supervisor shall identify as accurately as possible the center of the cluster strike. This will assist the site supervisor of the subsequent Phase II clearance operation to ensure the entire strike location is systematically investigated and appropriately cleared.

If at any time during the search, mines tripwires or suspicion of mines are discovered, the task shall immediately be stopped, the relevant safety precautions observed and the facts reported to the RO. The organization shall then conduct risk assessment, revise the plan as per the discovered hazard and submit it to RO for further processing and endorsement.

If during the conduct of the search an ammunition or explosive storage area or an ammunition dump which has been damaged by direct fire or a small area with high density of ERW, is located these areas shall be cordoned off and reported to the RO for the EOD team to be tasked .

8. Recording & Reporting

The location of all discovered cluster munitions and confirmed strike marks shall be recorded for future reference, which will ensure a more accurate and defined representation of the strike location and facilitate the subsequent Phase II clearance.

An important consideration for Phase II clearance is that once all visible surface cluster munitions are removed during Phase I, it then becomes very difficult to accurately determine the extent of the cluster strike unless the information is suitably recorded during this Phase I clearance. The standard IMSMA Completion Report shall be accurately filled and submitted to DMAC.

A major factor that should always be considered during the disposal of sub munitions is the danger posed by the formation of the jet from the shaped charge. Shaped charge jets have the potential to fly over 1800 meters in free air. Therefore every attempt shall be made to degrade the performance of this jet. This is usually achieved by placing the donor charge in such a position that it also attacks the integrity of the cone liner. An alternative is to place a robust barrier in front of the sub munitions to degrade the charge.

9. Render Safe Procedures (RSP)

Each organization shall establish RSP for cluster munitions. If an organization is conducting manual disarmament of the fuse then this procedure shall be clearly explained in a step-by-step manner incorporating diagrams and/or photographs. **No RSPs shall be conducted using any procedure that has not been accredited by DMAC.**