

LAO PDR NATIONAL UXO/MINE ACTION STANDARDS (NS)



Chapter Five Worksite Preparation

National Regulatory Authority for
the UXO/Mine Action Sector in Lao PDR

15 October 2012

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Worksite Preparation

1. Introduction

Prior to the commencement of any UXO area clearance operation, it is necessary for the worksite to be properly established so that adequate control can be maintained and clearance can proceed safely and efficiently.

The Lao PDR National Regulatory Authority (NRA) is the authority responsible for the control and regulation of UXO/mine action in Lao PDR. This responsibility includes establishing procedures for worksite preparation and ensuring compliance with these procedures.

2. Scope

This chapter details the procedures to be followed by clearance organisations in Lao PDR when preparing worksites for UXO clearance operations.

Worksite preparation should assist in the effective and efficient control of the worksite. These standards focus on preparation for the clearance of relatively static sites. In the event of rapid movement and clearance, e.g. clearance of a narrow but long survey route or road, then the principles should still be applied and it is accepted that control will need to be more mobile to remain effective.

The procedures included in this chapter do not apply to mine clearance operations. The worksite preparation requirements for mine clearance operations are included in **Chapter 12 of NS, Mine Clearance Operations**.

3. General Requirements

The layout of clearance worksites must be properly designed to ensure that adequate command and control of UXO clearance operations can be maintained. Worksite preparation includes the following:

- a. Establishing control and administration areas.
- b. Establishing clearance marking systems.
- c. Establishing liaison with local communities.

4. Establishing Control and Administration Areas

Control and administration areas are established to permit the safe and effective management of the worksite and the clearance operation. Control and administration areas may be established to support more than one clearance task provided that adequate control of the task sites can be maintained.

The following designated areas may be established for each clearance worksite as required. The distances indicated are guides except in the case of the explosive and UXO storage areas, which must be a minimum of 30 m away from areas where personnel gather to rest and smoking is permitted:

- a. Administration area. A suitable sized area about 50 m from the clearance area to allow for the preparation and maintenance of equipment and resting between work shifts. The administration area should be located central to the clearance operation to allow quick change over between shifts. Where possible, shelter should be erected in the administration area for the storage of equipment and for the comfort of personnel.

- b. Vehicle parking area. An area located adjacent to the administration area where all vehicles are to park prior to entering the site. The effects of dust on the clearance site must be considered.
- c. Access route. The pedestrian access route from the vehicle parking area to the administration area.
- d. Command Post (CP). This is normally located within the administration area.
- e. Medical treatment post. This is normally located within the administration area.
- f. Visitor briefing area. This should be located adjacent the CP so that progress maps and clearance records can be used to brief visitors.
- g. Field explosive store. If required, a field explosive store is to be sited no closer than 30 m to any other area. This store must be protected from environmental conditions and is only used for the storage of explosives during the working day. Field explosive stores must be under observation at all times. It is permissible for explosives to be stored on site in a vehicle provided the vehicle is not used for routine administrative tasks or is not the dedicated safety vehicle.
- h. UXO storage area. An area located close to the clearance area where UXOs that are safe to move are stored prior to disposal. The UXO storage area should be a minimum of 30 m from other areas and kept under observation at all times. Separate areas are to be established for the storage of White Phosphorus (WP) UXO. Further requirements for field explosive stores, including UXO storage areas, are included in **Chapter 22 of NS, Storage, Transportation and Handling of Explosives**.
- i. Metal collection point (s). These should be established close to the access routes into the clearance area to facilitate the dumping of metal during rest breaks.
- j. Stores/equipment area. Normally located within the administration area.
- k. Toilets. Toilets should be provided on each clearance worksite with numbers adequate for the number of personnel and work locations on the site. Consideration is to be given to contamination of water courses, flies and smell.
- l. Rubbish pit. Located at least 25 m away from the administration area.

Control and administration areas are to be surface cleared prior to use. Subsurface clearance is to be carried out in areas where fires are to be lit (cooking areas) or where digging is to occur (rubbish areas or toilets).

Drainage should be considered when establishing control and administration areas during the wet season.

5. Marking of Control and Administration Areas

Control and administration areas on UXO clearance operations in Lao PDR are not required to be marked.

5.1. Signs for Control and Administration Areas

The following are the minimum requirements for signs for control and administration areas:

- a. No smoking within 30 m signs are to be posted at field explosive stores and UXO storage areas.
- b. Unless the location of the CP is obvious from the vehicle parking area, signs are to be positioned at the parking area indicating directions to the CP.
- c. Signs should be positioned at key control and administration areas such as the CP, medical treatment post, rest area and toilet(s).

Signs are to be written in Lao and clearly visible from 30 m.

6. Establishing Clearance Marking Systems

Establishment of clearance marking systems is to be carried out taking into account the following factors:

- a. Type of clearance to be carried out.
- b. Required safety distance.
- c. Site conditions.
- d. Weather conditions.

For UXO clearance operations conducted in Lao PDR it is permissible for clearance personnel to enter and move around the task area prior to clearance being carried out. It is also permissible for marking to be established around the site and for vegetation to be cleared. However, this is only permissible under the following conditions:

- a. The site has been confirmed as not having any hazards that would pose a risk to personnel such as mines, tripwires or high risk UXO. This confirmation may be by survey, local knowledge, current land use or other reliable information.
- b. Personnel moving on the site are to inspect the ground in front of them when moving around to avoid disturbing any surface UXOs.
- c. No digging or driving pegs into the ground is to occur unless the area has been checked with a metal detector and confirmed as clear first.

When establishing clearance marking systems the following requirements are to be met:

- a. Lines between turning points on boundaries are to be straight.
- b. Individual boundary markers are to be visible from adjacent boundary markers.
- c. A base line is to be established along one of the boundaries of the area to be cleared. Where possible, base lines should be:
 - (1) Established on the longest side of an area to be cleared.
 - (2) Sited to avoid sunlight or the effects of the weather on the eyes of working personnel.
 - (3) Sited to avoid working down hill.

Note: A base line is a single line set out along one of the boundaries of the area to be cleared from where all clearance on the area starts. On large clearance sites more than one base line may be established covering different areas on the site.

- d. Clearance lanes are established to suit the operations being carried out and the equipment and procedures being used. Clearance lanes are to:
 - (1) Run approximately 90 degrees to the base line.
 - (2) Have sides that are parallel and straight.
- e. Clearance boxes (or similar regular shapes) are set out to suit the shape of the worksite, the operation being carried out and the equipment and procedures being used. Lines between turning points on boundaries of clearance boxes are to be straight.

When tape or string is used, sufficient tie-down points are to be used to ensure that the tape or string remains straight and fixed to the ground.

7. Mechanical Operations

When mechanical operations are going to be carried out areas must be established for the administration and maintenance of machines. These areas are to be large enough to permit any loading or unloading of machines onto transport and sited to permit good access into the clearance areas. Access routes are to be wide enough for the machines using them and should not cross any access or safety routes used for personnel.

Consideration is also to be given to the storage of fuels, oils and lubricants used by machines and the disposal of any waste products from maintenance and servicing. Further details on these aspects are covered in **Chapter 21 of NS, Environmental Management**.

If mechanical UXO clearance is to be carried out there are certain additional worksite preparation requirements that may have to be complied with. These include the preparation of:

- a. Areas for the checking of machines. Areas may have to be established adjacent exit routes out of the clearance area for machines to be checked to ensure that there are no UXO attached to the machine. These areas must be sited with consideration to safety distances and the need to dispose of any UXO that may be found.
- b. Areas for the placement of UXO contaminated material. When mechanical UXO clearance involves the pushing, raking, collection or movement of UXO contaminated material, safe areas may have to be established for the placement of this material. These areas should be easily accessible, large enough for the material to be placed in a manner where it can be checked, large enough to permit machines to manoeuvre without moving over contaminated material and located with consideration to safety distances.

If, during mechanical operations, control of the danger area cannot be maintained by the use of markings, signs, physical barriers or observation then sentries are to be used. The use of sentries for mechanical operations is to be considered during clearance worksite preparation. Details of the requirements for sentries during mechanical operations are included in **Chapter 10 of NS, Mechanical Operations**.

Note: The risks associated with putting a clearance machine into a UXO contaminated area are well understood, however that does not preclude a mechanical system, with good risk assessment and operating procedures being used in Lao PDR in the future. Therefore NS should provide for the possibility of this occurring in the future.

8. Clearing Vegetation

For UXO clearance operations carried out in Lao PDR it is permissible to clear vegetation prior to a clearance task commencing therefore consideration should be given to vegetation clearance during worksite preparation.

When clearance of vegetation is carried out the procedures in the following sections are to be applied.

8.1. Cutting Vegetation

When vegetation cutting is carried out by a UXO clearance organisation prior to an area clearance task the following procedures are to be followed:

- a. Vegetation cutting should be supervised by a qualified clearance technician.
- b. Where practicable, a surface check for any obvious UXOs is to be carried out prior to any vegetation cutting.
- c. All personnel are to be given a safety brief before cutting vegetation to include:
 - (1) Only use an upward motion in cutting.
 - (2) Do not use a hoe or digging type tools.
 - (3) Report any suspicious object found to the clearance technician.
- d. When mechanical vegetation cutting equipment is used it is only to be operated by personnel who have been trained in its use.

The age of casual staff employed by clearance organisations for the cutting of vegetation should not be less than 14 years in accordance with the requirements of Article 41 of the **Labour Law (Amended), 27 December 2006**.

8.2. Burning Vegetation

If vegetation burning is to be carried out during worksite preparation then the following procedures and control measures are to be applied:

- a. Plans for burning vegetation are to be discussed with and approved by the land owners/users and local authorities. This discussion should include a briefing on the dangers associated with a UXO detonating during burning.
- b. Consideration of the direction of the prevailing wind is to be made when determining the direction of the burn; both as a means of controlling the burn and of minimising the effect of smoke and ash on local communities.
- c. Burning is not to be carried out at night or continue into the night.
- d. All personnel involved in the burn are to be briefed on the burning plan, including any safety procedures.

- e. Wind and moisture conditions are to be considered before any burning operations commence. No burning is to be started if there is a chance that the burn may get out of control.
- f. Where possible, burning is to be carried out towards natural firebreaks such as roads, tracks etc.

8.2.1. Safety Distances for Burning

During any burning all personnel are to remain outside the assessed danger area for the hazards associated with the site. This may require the use of sentries on access routes to prevent the inadvertent entry of non-clearance personnel into the danger area.

9. Community Liaison

Unless the responsibility for liaison with local communities is managed by a separate authority, clearance organisations are to liaise with all communities affected by UXO clearance operations prior to any clearance starting. During this liaison the following should be covered:

- a. Location of work.
- b. Expected duration of work.
- c. Effects of the work on the community i.e. noise from UXO disposal, clearing of danger areas and restrictions on movement. The local communities, and particularly children, should be asked to stay away from the site.
- d. Work routines, daily and weekly.
- e. Marking systems used around the site and on site.
- f. Dangers associated with the work.
- g. Warning systems in place.
- h. Implications of ignoring warnings.
- i. Any other relevant details.

For UXO clearance operations that continue in one location for an extended period, contact with the local communities is to be maintained throughout the work with briefings held at least once a month. Briefings are to advise on progress, to notify of any changes to the operations and to discuss any problems that may arise. Records of briefings of local communities are to be maintained with the clearance worksite documentation.

For the purposes of this standard local communities are the communities who own or control the land on which UXO clearance operations are carried out or are located in the immediate vicinity of UXO clearance operations.

Community liaison as indicated above may not require meetings or briefings for the whole community. Provided the objectives of community liaison are able to be properly achieved the liaison may be carried out through authorities that represent communities for example village leaders.