LMAC

LEBANON MINE ACTION CENTER

NMAS 09.10
Clearance Requirements

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Edition 2.1

Lebanon Mine Action Center-LMAC

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Warning

This document has been released on the date shown on the cover page. The National Mine Action Standards (NMAS) of Lebanon are subject to regular review and update, so users are advised to consult the most recent version. To ensure that you have access to the current version, contact the Lebanon Mine Action Center (LMAC) through the www.lebmac.org website or by sending an email to info@lebmac.org.

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Foreword

The National Mine Action Standards (NMAS) of Lebanon were first developed in the form of Technical Standards and Guidelines (TSG). These TSG were edited into the first edition of the NMAS in 2010 and were written to comply with the first edition of the International Mine Action Standards (IMAS). Since then, the scope of the IMAS has been expanded to include more components of mine action and amended to mirror the most recent changes to standards as required in today's operations. These changes, as well as changes in the local context of Lebanon, have necessitated a review and update of the NMAS.

As detailed in the National Mine Action Policy of 2007, the Lebanon Mine Action Center (LMAC) has the responsibility to execute and coordinate the Lebanon Mine Action Program (LMAP) on behalf of the Lebanon Mine Action Authority (LMAA), including the development and amendment of standards. Such standards shall be developed in a participatory approach that shall involve international, governmental, and nongovernmental organizations.

The NMAS shall be reviewed as needed to reflect amendments in the IMAS as well as incorporate changes to international obligations and local requirements. Such revisions shall be made available on the LMAC's website www.lebmac.org or can be obtained through contacting the LMAC via the email info@lebmac.org.

Acronyms

CASEVAC	Casualty Evacuation
CHA	Confirmed Hazard Area
EOD	Explosive Ordnance Disposal
ER	Engineering Regiment
ERW	Explosive Remnants of War
HTHA	High Threat Hazardous Area
IA	Implementing Agency
IMAS	International Mine Action Standards
LA	Local Authority
LAF	Lebanese Armed Forces
LMAA	Lebanon Mine Action Authority
LMAC	Lebanon Mine Action Center
LMAP	Lebanon Mine Action Program
MCT	Mine Clearance Team
MDD	Mine Detection Dogs
NMAS	National Mine Action Standards
NTS	Non-Technical Survey
PPE	Personal Protective Equipment
QA	Quality Assurance
QC	Quality Control
QM	Quality Management
RSP	Render Safe Procedure
SHA	Suspected Hazard Area
SOPs	Standard Operating Procedures
TS	Technical Survey
TSG	Technical Standards and Guidelines
UXO	Unexploded Ordnance

Introduction

The systematic clearing of all EO hazards from areas of land is referred to as 'clearance' or 'area clearance'. Clearance is a core activity in the land release process and is conducted when there is direct evidence confirming contamination. Whereas Non-Technical Surveys (NTS) and/or Technical Surveys (TS) are used in Suspected Hazard Areas (SHA), area search and clearance is required in a Confirmed Hazard Areas (CHA). However, the efficient use of resources in a QM system requires that a pragmatic degree of flexibility be applied to the designation of land as SHA or CHA. The designation of an area or parts of an area should change when new information about the EO hazards present is gathered while work is being conducted. Land may still be 'reduced' during area search and clearance when that is agreed with the LMAC. Similarly, it may be necessary to extend the boundaries of the task when evidence indicating a need is discovered during clearance.

Clearance requires demining teams working in Lebanon to effectively search for, identify and remove/destroy all EO hazards from an identified area to a specified depth. In addition to clearance requirements set by the LMAC, it is an obligation for all IAs operating in Lebanon to support the collective goal of the community having confidence in the safety of released land. To meet national needs, this NMAS is designed to provide general requirements for clearance that shall be applied in Lebanon.

Within this context, community confidence in land release is supported by the adoption of a Quality Management (QM) system that provides assurance with QA and QC processes. Quality Assurance (QA) focuses on the processes involved in land release. It involves the accreditation of approved IAs before operations, then monitoring their operations thereafter to ensure that their procedures and assets are applied appropriately. Quality Control (QC) focuses on the inspection of the final product, the land declared ready for release, before it is formally handed over to its owner(s).

Some land is released without clearance being needed. This NMAS focuses on the reliable and comprehensible clearance requirements to be applied to land released after clearance is conducted.

Clearance Requirements

1. Scope

This NMAS provides standards and guidelines explaining the requirements for clearance as applicable in Lebanon to ensure that the land release process is completed with confidence. All Implementing Agencies (IAs) and their demining teams operating in Lebanon shall comply with the provisions of this NMAS.

2. References

A list of normative and informative references is provided in Annex A.

Normative references provide cross-referencing to other standards referred to in this NMAS, and which form an integral part of the provisions of this standard.

Informative references provide a list of documents that may be consulted for a clearer understanding of this standard.

3. Key Terms and Definitions

The following key terms and definitions are used in this NMAS:

- *Battle Area Clearance (BAC):* the planned and systematic search, detection, identification, field evaluation, and final disposal of UXO contained in an area where the presence of UXO other than mines has led to contamination.
- *Clearance plan:* a plan detailing the search & clearance procedures and assets that will be used in an area. A clearance plan is required for each clearance site and is used to facilitate an effective response to the EO contamination present. A clearance plan should be revised when additional relevant information is gained during search and clearance activities.
- *Cleared land:* adopting the definition in IMAS 09.10, land shall be accepted as 'cleared' after systematic search and clearance actions have ensured the removal and/or destruction of all mine and EO hazards from the specified area to the specified depth.
- Confidence: the state of being sure that the required level of search and clearance has been achieved after ensuring that all reasonable effort has been exerted.
- *Confirmed Hazardous Area (CHA)*: an area where the presence of a contamination hazard has been confirmed based on direct evidence, such as an accident or incident or the reliable sighting of visible indications of EO hazards.
- *Deminer/Searcher:* a person responsible for conducting demining operations as directed by the relevant Demining Organization. The word “deminer” is used interchangeably with “searcher”. The tasks of a deminer primarily focus on searching for and detecting

hazards in accordance with the NMAS and the demining organization's LMAC approved Standard Operating Procedures (SOPs).

- *Demining organization:* an organization, national or international, accredited by the LMAC to conduct humanitarian demining activities in Lebanon. Demining organizations may also be referred to as *Employers* or *Implementing Agencies* (IAs).
- *Demining team:* a team of professionals approved and accredited to conduct one or more demining activities, such as technical survey, non-technical survey, area clearance operations, BAC and EOD spot tasks.
- *High Threat Hazardous Area (HTHA):* an area with a confirmed presence of an EO contamination hazard. All areas contained within minefield fencing are generally deemed to be HTHAs. In minefields where the positions and pattern of mine-lines can be confidently identified, the area inside the fencing of the minefield may be divided into HTHA (location of mines) and LTHA.
- *Land Release*: the process that is applied to release land to the community for socio-economic utilization through NTS, TS, or area Clearance. Data gathered and recorded during the Land Release process shall demonstrate that 'all reasonable effort' has been applied. 'All reasonable effort' requires the ability to demonstrate that all predictable information has been identified, gathered and accurately analyzed to support logical and evidence-based decision making.
- *Low Threat Haz*ardous Area (LTHA): an area of land suspected to contain explosive hazards and requiring non-technical survey (NTS) or technical survey (TS).
- *Safety distance:* the acceptable and minimum distances between staff and equipment and a deliberate demolition/detonation. Safety distances need not be the same as Working distances.
- *Site Supervisor:* a suitably qualified/experienced senior person who is responsible for managing a demining site and the operations being conducted.
- *Team Leader:* a suitably qualified/experienced person who is responsible for managing a group of deminers/ searchers working within the boundaries of a worksite. The team leader reports to the *Site Supervisor*.
- *Working distances:* the acceptable and minimum distances between people and between people and equipment at a demining worksite. Because no deliberate detonations will occur, working distances may be less than safety distances.

In addition to the above terms, NMAS 04.10 provides a glossary of terms and definitions used across all standards.

As in the IMAS, the terms 'shall', 'should' and 'may' are used across all standards to indicate

the required degree of compliance. For any organization working in Lebanon, the use of 'shall' indicates a compulsory requirement. The term 'should' indicates the national preference which may be varied with LMAC approval. The term 'may' indicates a suggestion that is not obligatory.

4. Clearance Requirements

4.1 General Provisions

Area clearance is a vital activity within the land release process: it is required in any area for which there is credible evidence that there is contamination with EO hazards.

To maintain high confidence, land shall only be released and handed over to its owner(s) after search and clearance when the clearance process has been appropriately and confidently assessed using LMAC approved quality management procedures that are based on a well-documented evidence-base. Accordingly, land shall only be accepted as "cleared" when the demining organization has ensured the removal and/or destruction of all EO hazards from the specified area to a specified depth.

Clearance requirements may differ between tasks depending on the assets available for use, the terrain and the type of hazard(s) anticipated. The IA's requirements from its staff shall primarily focus on safety rather than speed: speed of clearance shall never be allowed to compromise safety for the end-users of the land or for the demining organization's staff.

4.2 Demining Organization (Implementing Agency, IA)

The demining organization (Implementing Agency) shall:

- have applied for and been granted accreditation to conduct the activities required for its work in Lebanon by LMAC;
- have submitted SOPs for the demining activities to be conducted to the LMAC and have had those SOPs approved as suitable for use;
- be appropriately equipped with the assets necessary for the type of terrain and the type of contamination anticipated;
- have a sufficiently trained and experienced staff capacity to conduct its work safely and effectively; and
- adhere to the health and safety regulations laid out in NMAS 10.20, 10.20, 10.30 an 10.40.

Demining organizations shall comply with all the requirements laid out in the NMAS in Lebanon.

4.3 Risk Assessment

Before starting any clearance operations, IAs shall conduct a task risk assessment in order to manage the safety of demining teams and third parties. Demining shall only be conducted when risk assessments determine that the level of risk of severe injury to staff or the public is tolerably low and that all reasonable risk mitigation measures have been taken. See NMAS 07.14 Risk Management.

Risk assessments shall take into consideration:

- the type and condition of hazards likely to be found at the worksite;
- the environmental conditions and the topography of the site;
- the protection that staff are afforded by Personal Protective Equipment (PPE) or other means;
- the likelihood of unintended detonations as well as the likelihood of serious injury resulting from unintended detonation during each procedure that will be used; and
- any other risk contributing factor.

The task risk assessment shall be reviewed and adapted as work progresses and unanticipated hazards or environmental conditions are encountered. Risk management may require an increase in working distances without reference to LMAC but any reduction in approved working distances shall be authorization by the LMAC before being implemented.

For further, detailed information on working distances and other safety requirements please refer to NMAS 10.20, 10.20, 10.30 an 10.40..

4.4 Clearance Depth

The minimum depth when searching for mines is 15 cm below the ground surface unless otherwise specified in the task dossier. Any reduction in the search depth must be authorized by the LMAC and included in the Clearance Plan outlined under 4.7 below. The depth shall be increased when required by the LMAC and should occur when evidence suggests that mines may be buried at a greater depth than 15 cm.

The search depth required by LMAC when searching for cluster munitions and other EO may vary on a task by task basis.

4.5 Clearance Boundaries

The LMAC shall set clearance priorities and allocate search and clearance tasks. The specified area to be searched and cleared should be supplied to the IA by the LMAC with clear geographical boundaries that have been determined after a Non-Technical Survey (NTS) or Technical Survey (TS).

When defined boundaries are uncertain or prove inaccurate, the IA should apply to the

LMAC with evidence to justify a revision of the boundaries. Boundaries of tasked search and clearance areas may be varied by contraction (reducing land) or expansion (extending the task boundary), or both. Any variation of the original task boundaries shall only occur with the LMAC's approval.

4.6 Task Dossier

The task dossier provided by the LMAC to the IA should include:

- any additional activities required of the IA, such as marking;
- a specification of the approved demining assets and procedures to be used;
- an estimated duration of the work requested; and
- requirements for Quality Assurance (QA) and Quality Control (QC) and any additional task requirements.

4.7 Clearance Plan

A Clearance Plan is required for each clearance task. The Clearance Plan shall indicate the assets and procedures to be used and an appropriate risk assessment for the task based on the anticipated hazard(s). A preliminary Clearance Plan should be prepared with the LMAC Operations Officer after conducting a site visit with a representative of the IA that will conduct the task. Together they should conduct a ground appreciation and assessment of the EO contamination. The final Clearance Plan shall be prepared by the IA and be submitted for LMAC approval before any clearance operations are conducted at the site. Any subsequent amendments to the Clearance Plan should be approved by the LMAC Operations Office before they are implemented.

When appropriate, the Clearance Plan should include:

- LMAC authorization for the controlled burning of un-cleared areas;
- history of the task area, its location and the field number;
- specified search and clearance depths;
- assets to be used during search and clearance;
- estimate of deminer/searcher working days required;
- team identifier and team composition;
- any search depth requirements and/or variations as authorized by the LMAC;
- any amendments to fade-out distance in the case of BAC operations and the clearance of sub-munitions as authorized by the LMAC;
- working distances and PPE requirements during work;
- medical evacuation plan; and
- an internal IA Quality Management monitoring plan.

All shall be approved by the LMAC before work is conducted at the Task site.

4.8 Monitoring

Monitoring shall be conducted internally by the accredited IA and externally by the LMAC's QA/QC Section. For further information on external monitoring please refer to NMAS 07.11 Monitoring Mine Action Organizations and Operations, which aims to ensure that accredited IAs apply their approved management processes and SOPs in a manner that will result in the safe, effective, and efficient release of the land.

Formal internal monitoring shall be continually conducted by the IA. Its internal QA and QC monitoring shall comply with the organization's LMAC approved SOPs. Internal monitoring may involve dedicated QA staff whose primary role is to conduct on-site inspections. Results of such monitoring shall be efficiently recorded, documented, and made available to the LMAC QA/QC section as required.

Further details of Quality Assurance evaluation can be found in NMAS 07.40 Monitoring Mine Action Organizations and Operations.

4.9 Reporting

Before any field operations start, a pre-clearance review should be conducted by the IA assigned an area search and clearance task. The aim of the pre-clearance review is to provide a 'before' picture of the land's former use. This provides base data against which the socio-economic impact of post-clearance can be measured.

Clearance operations, completion, and handover shall be recorded and documented as required in a timely manner. The management of this information shall abide by the standards provided in NMAS 05.10 on Information Management.

The documentation required includes, but is not limited to, the following:

a. Daily Report: IAs shall submit a daily report to the LMAC on areas cleared, items found and their use of explosives and ancillaries.

b. Weekly/Monthly Summary Reports: IAs shall submit weekly/monthly summary reports to the LMAC. IAs will not be credited with clearance figures stated in the Weekly Reports until the Completion Report has been received and verified. Examples of these reports can be provided by the LMAC on request.

c. Weekly Intentions Plan: In addition to the Weekly Summary Report, IAs should submit weekly plans detailing their planned activities during the forthcoming week by close of operations every Saturday. This allows the LMAC to plan QA monitoring visits. A template for the Weekly Intentions Plan can be provided by the LMAC on request.

d. Demining Incident/Accident Reports and Initial Casualty Reports shall be submitted by the IA following any accident/incident during demining activities. See NMAS 10.60

Reporting and Investigation of Demining Incidents.

Upon completion or suspension of any clearance operation, the required completion or suspension report shall be submitted to the LMAC.

5. Clearance Assets

Clearance assets used in Lebanon include manual equipment, machines, and MDD. An appropriate SOP for all assets to be used shall be submitted to the LMAC for authorization and may not be used until authorization has been received.

5.1 Vegetation

5.1.1 Manual Vegetation Removal

When it is required to cut vegetation to aid the search and clearance process, the procedure shall be conducted using a safe, controlled method that avoids any disturbance to vegetation outside the immediate area to be cut. The deminer/searcher shall ensure that he/she carefully examines the vegetation for any signs of hazards or suspicious objects prior to cutting the vegetation. When instrumented search for sub-munitions is required, the locator shall be used to search the vegetation before it is cut. Upon seeing or detecting any suspicious object, the deminer shall follow the procedures in the IA's SOPs that have been approved by the LMAC.

Vegetation should be cut up to a maximum distance of 50 cm forward from the front of the clearance lane (e.g. base stick) and across the complete width of the lane, incorporating the overlap to the sides.

5.1.2 Mechanical Vegetation removal

An approved flail or rotary cutter may be used to cut vegetation and/or prepare the ground for manual or MDD assets at some tasks.

When conducting vegetation cutting using the Mini MINEWOLF, the flail should have all the flail hammers removed from its chains and no more than 9-chain links on each flail chain to ensure that it is used purely for vegetation cutting and not flailing the ground. After it has cut vegetation, if the machine has disturbed the soil, MDD assets shall not be used to search the area until at suitable wait-time has elapsed. The LMAC shall define the amount of wait-time prior to allowing MDD clearance in these areas on a site-by-site basis.

Mechanical vegetation cutting shall only be permitted by machines after an in-country test and evaluation has been conducted and the machine has gained the approval of the LMAC. Approved mechanical assets shall then be accredited and licensed to operate by the LMAC.

5.1.3 Burning of Vegetation in Un-Cleared Areas

Burning of specific areas may be conducted in order to remove vegetation to facilitate clearance operations. Before burning, the IA concerned shall notify LMAC of its plans and

obtain authorization for the burning. Caution shall be exercised to ensure that the burning presents no risk to the local population and that effective measures are in place to prevent the uncontrolled spread of fire. The possible effects of burning on the anticipated hazards shall be considered in the task risk assessment.

Burning activities shall be controlled by a suitably qualified and experienced person. The burning procedure, including the method of starting the fire, shall be detailed in the demining organization's SOPs that must have prior LMAC approval before being used.

Any IA conducting burning of task areas shall ensure that the following precautions are taken.

Before burning:

- gain authorization for burning from the LMAC. Burning shall be included in the Clearance Plan;
- ensure that the landowner agrees in writing to the burning;
- if possible, notify LAs and the local emergency fire services;
- where necessary, construct a firebreak to prevent the fire from spreading;
- ensure that adequate precautions are taken to extinguish any small fires in cleared areas (e.g., fire extinguishers, sand, and water);
- when appropriate, coordinate activities with other IAs; and
- calculate any fragmentation hazard zone (safety distance) depending on the threat and post sentries accordingly.

During burning:

- monitor the burning procedure from a safe distance;
- record any detonations and other relevant occurrences; and
- use sentries to keep the fragmentation hazard zone clear of people and livestock during the burn.

After the burning is completed:

- inform the LMAC and relevant authorities on completion of burning;
- ensure that the burning has entirely ceased before leaving the Site; and
- allow a minimum 48-hour soak time after the last signs of smoke before conducting demining operations in the burned area.

Note: The minimum wait time between burning an area and using MDD in the area shall be documented in the IA's MDD SOPS that must have prior approval from the LMAC before being used.

6. Roles and Responsibilities

6.1 Role of the LMAC

The LMAC shall:

- accredit IAs and approve their relevant SOPs before assigning any tasks to them;
- allocate clearance tasks to IAs, specifying the boundaries of the area to be cleared and the minimum clearance depth;
- notify the IA of the minimum required internal QA and QC to be applied;
- support the IAs to develop appropriate Clearance Plans and approve them;
- assist with the revision of Clearance Plans when necessary;
- monitor the work of IAs to assure quality operations; and
- record all data and information related to clearance operations securely in a system that allows retrieval and analysis.

6.2 Role of IAs

In their capacity as demining organizations, IAs shall:

- acquire accreditation to conduct clearance operations in Lebanon;
- submit appropriate SOPs for their clearance activities and receive LMAC approval of those SOPs before starting work;
- comply with the national standards related to clearance and ensure appropriate and timely data gathering, documentation, and reporting;
- develop, maintain and revise, as appropriate, Clearance Plans;
- perform internal QA/ QC on tasks allocated to them; and
- maintain an appropriately detailed internal reporting system and report on their tasked clearance operations in the format required by the LMAC.

The documents listed below constitute normative references which form an integral part of the provisions of this standard.

- Current LMAC and IMSMA reporting formats (request copies from the LMAC);
- NMAS Series 8 on Clearance;
- NMAS Series 10 on Safety and Occupational Health;
- NMAS 12.10 Mine Victim Assistance; and
- NMAS 14.10 Glossary of Mine Action: Second Edition of the NMAS: Terms, definitions & abbreviations.

In addition to the normative references listed above, the following informative references may be consulted:

- Lebanon National Mine Action Policy;
- IMAS 01.10 Guide for the Application of International Mine Action Standards (IMAS);
- Convention on Cluster Munitions;
- Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to be Excessively injurious or to Have Indiscriminate Effects;
- The 1997 Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on Their Destruction, which is often abbreviated to the Anti-Personnel Mine Ban Treaty or the Ottawa Convention.

NMAS 09.10, Edition 2.1: Amendment Record

The NMAS are subject to a comprehensive or partial review by the Review Board periodically. Changes in the context as well as safety requirements and efficiency considerations may necessitate amendments to individual NMAS standards more frequently. If this occurs, such amendments shall be given a number, dated, and detailed in the table below. The amendment should also be indicated on the header under the NMAS edition number.

Whenever the formal review of the NMAS is completed, a new edition shall be issued. Amendments that have taken place before the review date shall be incorporated in the new edition and the amendment record table cleared. Consequently, the recording of amendments shall start again until the next review.

The most recent revisions of the NMAS shall be posted on the Lebanon Mine Action Center (LMAC) website on www.lebmac.org.

Number	Date	Amendment Details
1	March 2020	Minor revisions throughout.