

## National Committee for Demining and Rehabilitation

### National Technical Standards and Guidelines

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## i. Foreword

The National Technical Standards and Guidelines (NTSG) for Demining in Jordan are essential to enable the National Committee for Demining and Rehabilitation (NCDR) to plan and assess the demining operations within Jordan. The aim of this document is to provide demining or MRE organisations with a reference for the conduct of field operations. It has been produced using experiences gained locally and incorporates lessons and best practices learned in other theatres worldwide.

Variations in procedures and methods of operation are to be expected amongst the different organisations. Therefore, these Guidelines provide an example of practices accepted by the NCDR, and will provide the basis for the accreditation process which is required of all operators. One of the main aims of this document is to be a compact 'user friendly' tool that allows the greatest operational flexibility to clearance organisations, while introducing a minimum level of conformity. This document is not intended to replace or replicate Standard Operating Procedures (SOP) nor does it absolve demining organisations from the responsibility of producing their own SOPs. Conversely, these Guidelines and Technical Standards are intended to be used as an aid in developing SOPs, by detailing the minimum standards and accepted methods for conducting mine clearance operations in a safe and efficient manner.

All demining organisations conducting demining related activities in Jordan shall ensure that their Standing Operating Procedures (SOP) conform to the NTSG.

Finally, this document is designed to be a "living" text. The procedures and practices described will be continually reviewed in order to ensure they remain relevant to the current mine and UXO situation, and keep up with advances in technology.

M.Breikat  
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National Committee for Demining and Rehabilitation

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## ii. Terms, Definitions and Abbreviations

The term 'National Committee for Demining and Rehabilitation (NCDR)' refers to the institution in Jordan charged with the regulation, management and coordination of mine action in Jordan.

The term 'demining organisation' refers to any organisation (government, REC, NGO or commercial entity) responsible for implementing demining projects or tasks. The demining organisation may be a prime contractor, subcontractor, consultant or agent.

The term 'demining sub-unit' refers to an element of a demining organisation, however named, that is operationally accredited to conduct one or more prescribed demining activities, such as manual mine clearance, mechanical or MDD assistance to clearance operations.

The words 'shall', 'should' and 'may' are used to convey the intended degree of compliance. This use is consistent with the language used in ISO standards and guides:

'Shall' is used to indicate requirements, methods or specifications that are to be applied in order to conform to the standard.

'Should' is used to indicate the preferred requirements, methods or specifications.

'May' is used to indicate a possible method or course of action.

A similar meaning is adopted in the English version of these NS, with suitable translations adopted in the Arabic version.

A complete glossary of all the terms, definitions and abbreviations used can be found in the IMAS 04.10

### iii. Amendment Record

The management of NTSG amendments are subject to formal review on regular basis by NCDR; however this does not preclude amendments being made within these three-year periods for reasons of operational safety and efficiency or for editorial purposes.

As amendments are made to this NTSG they will be given a number, and the date and general details of the amendment shown in the table below.

As the formal reviews of NTSG are completed new editions may be issued. Amendments up to the date of the new edition will be incorporated into the new edition and the amendment record table cleared. Recording of amendments will then start again until a further review is carried out.

The most recently amended NTSG will be made available by NCDR.

Amendment No	Date	Amendment Details

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## Chapter 1: Guidelines for Registration and Accreditation

### 1.1 References

1.1.1 This document has been developed with reference to the following documents:

IMAS 07.30 Accreditation of Demining Organizations

IMAS 07.31 Accreditation of MRE Organizations

IMAS 07.40 Monitoring of Demining Organizations

IMAS 07.41 Monitoring of MRE Programmes

### 1.2 Scope

1.2.1 This chapter covers the registration and accreditation of Demining organisation in the Hashemite Kingdom of Jordan.

### 1.3 Aim

1.3.1 The aim of this chapter is to provide mine/UXO clearance organizations with an easy reference guide to accreditation and to facilitate successful completion of the process to ensure that all technical activities are of a standard that will enhance the safety and quality of all clearance operations.

### 1.4 Introduction

1.4.1 The accreditation process is essential to enable the NCDR to promote a common and consistent approach which will encourage demining organisations to develop and demonstrate a broadly similar quality of management practices and operational capabilities, regardless of their size or experience.

1.4.2 The accreditation process shall only be conducted for organisations that or registered in Jordan. The accreditation process is the procedure by which a demining organisation is recognised as competent and able to plan and manage demining activities safely, effectively and efficiently. For examples of the documents required for registration refer to Annex A.

1.4.3 This chapter will outline the requirements for accreditation. Please note that this document only refers to clearance and related operations. It does not cover the process for Accreditation for MRE.

### 1.5 Definitions

1.5.1 Accreditation is the procedure by which a demining organisation is formally recognised as competent and able to carry out particular demining activities. Each accreditation shall refer to the capabilities required to carry out a particular activity such as Survey, manual clearance, Mine Detection Dogs clearance, Community Liaison or mechanical clearance systems. The granting of such accreditation assumes that the capability will not change beyond the scope or intention of the original accreditation.

### 1.6 Concept of Accreditation Procedure.

1.6.1 All matters dealing with Accreditation will be dealt with via a body known as the Accreditation Board. The board will be made up of members of the NCDR. The Board will consist of no fewer than 3 persons.

1.6.2 The Accreditation Board will comprise of the following:

- Deputy Director NCDR.
- QMT Leader
- UNDP CTA
- Technical Expert (Sphere specific)

1.6.3 Subject to a successful application, the Accreditation Board will *approve* accreditation of a clearance organisation. The NCDR will then *issue* the clearance agency with accreditation organizational and operational accreditation.

### 1.7 Requirement for Operational Accreditation.

1.7.1 Operation Accreditation will be issued for the following clearance related activities:

- General Survey and Marking
- Non Technical Survey
- Technical Survey
- Mine clearance operations
- Bulk Demolitions

1.7.2 The NCDR will not issue a clearance organisation with a tasking order unless that organisation has been operational accredited to undertake such activities or is in the process of accreditation and is given a provisional accreditation.

### 1.8 Operational Accreditation Procedure.

1.8.1 The assessment procedure will be broken into two phases.

- Phase 1: Desk Assessment
- Phase 2: On-Site Assessment

1.8.2 Desk assessment: The aim of the “desk assessment” is to ensure that the applicant clearance organisation has experience, capacity and resources required to implement their proposed project in a safe, effective successful manner.

1.8.3 Based on documentary evidence / statements the boards will assess the following topics (thereby ensuring that the organisation can operate as intended within the theatre of operations):

- Standard Operating Procedures (SOP's)
- Programme Human Resources: Qualifications / experience; Statements from the agency as the formal qualification and experience of its staff, in particular its operational staff. Refer to chapter 2 for further details
- Quality Assurance Policy: The internal QA process.
- Insurance: Confirmation that the insurance coverage for both personal and third party liability is in compliance with the regulations approved by the NCDR
- Safety & Occupational Health (S&OH) Policy.
- Equipment Capability and Suitability. This will be limited to the following natures of equipment:

- Detection / Clearance equipment and PPE
- Medical
- Communications
- Vehicles

1.8.4 These policy / documents must demonstrate the agency has taken all necessary precautions thereby eliminating as much risk as possible from what is already an inherently dangerous activity. The agency may refer to chapters included in their SOP.

1.8.5 The checklist for this phase of the accreditation process is available upon request from NCDR.

1.8.6 On-site Assessment: The aim of the “On-Site Assessments” is to ensure that the applicant clearance organisation can practically implement their proposed project in a safe, effective successful manner. The assessment will be conducted by a NCDR QA Officer.

- The assessments in this phase of the accreditation process will be of a practical nature and concentrating all areas of field activities, with particular attention paid to the following areas:
- Ensuring that all drills taught are in compliance with the organizations own SOP
- That all deminers are familiar with their tools, drills and duties as per the organizations own SOP.
- That all personnel are familiar with extracting a casualty from a minefield and the relevant casevac procedure.
- That the logistic chain can sustain field operations.

1.8.7 Depending on the nature of the agencies proposed clearance activities there may be a requirement for more than one assessment. The board will construct a relevant assessment package in conjunction with the agencies operations office.

1.8.8 The checklist for this phase of the accreditation process is again available from NCDR. However the board will produce a purpose made check list which closely reflect the nature of the clearance agencies proposed operations. This checklist will be submitted to the agency prior to any assessments.

## 1.9 Provisional Accreditation

1.9.1 Following the successful completion of the Desk Assessment Demining organisations will be issued with a certificate of provisional accreditation (CPA).

1.9.2 A CPA may also be issued in the following instances

- Where an organisation has been operational prior to the establishment of the formal accreditation process.
- Where an organisation lacks the resources required to achieve formal operational accreditation.

### 1.10 Accreditation Confirmation

1.10.1 The Accreditation Board will submit a report of approval and letter of accreditation to the relevant agency. This will be followed by the issue of operational accreditation certificates.

1.10.2 The certificates will be valid of 12 months. Demining organisations may request that these certificates be extended after 10 months. Notwithstanding any major non-conformities or a catalogue of minor non-conformities, accreditation certificates will be issued for a further 12 months.

1.10.3 Operational accreditation certificates may be revoked due to a failure on behalf of the clearance agency to comply with their accredited SOP.

### 1.11 Annexes:

Annex A: Documents required for Registration

Annex A to Chapter 1

**Annex A: Documents required for Accreditation**

- 1.A.1. Memorandum of Understanding between the NCDR and demining organisation.
- 1.A.2. Proposed project objectives and Management structure: The organisational / management structure and proposed representation in Jordan, including the arrangements to use sub-contractors and joint ventures.
- 1.A.3. A map showing the proposed project site.
- 1.A.4. Previous organisation clearance operations: A narrative statement from the applicant organisation reflecting its past clearance experiences and any associated activities. This is to include those of implementing partners and sub-contractors. For example this may include copies of previous licenses and/or accreditation documents received by the clearance company.
- 1.A.5. Documents confirming organisations legal status and Insurance Liability
- 1.A.6. Annual report for the most recent three years
- 1.A.7. Financial reports for the most recent three years
- 1.A.8. An organization chart
- 1.A.9. Pamphlet, brochure or newspaper clipping of the organization and its previous activities

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## Chapter 2: Training and Qualifications

### 2.1 References

2.1.1 This document has been developed with reference to the following documents:  
IMAS 07.10 Guide for the Management of Demining Operations

### 2.2 Scope

2.2.1 This chapter covers the training of national personnel within Jordan.

### 2.3 Objective

2.3.1 To ensure that all training conducted in Jordan enhance the safety and quality of all clearance operations.

### 2.4 Introduction

2.4.1 A high standard of training and discipline is essential to maintain good management, sound operational procedures and safety. The NCDR does not have a national demining training facility. All demining organisations are therefore responsible for achieving the minimum training standards as outlined in this chapter, prior to conducting any actual mine/UXO clearance operations.

2.4.2 All agencies participating in demining operations are to have a Standard Operating Procedure (SOP) approved by NCDR. Their policy will incorporate all details of this document and address any additional details. The SOP will specifically contain information relating to types and schedules of training, responsibilities and resources in the training, and methods of quality assurance designed to evaluate the suitability and effectiveness of the training.

2.4.3 Frequent refresher training and updating will be provided by demining organisation with all above-mentioned details annotated in the agency's SOP.

### 2.5 Training courses

2.5.1 All personnel completing the training conducted should be able to perform at the level as required by the NTSG for Mine/UXO clearance operations. The course syllabus may be modified to include specialised training specific to that agency.

2.5.2 Training programmes must be included in the agency's SOP and will be approved by the NCDR as part of the operational accreditation process.

2.5.3 All organisations shall maintain detailed training records for their personnel. As a minimum this shall be in the form of a qualifications list.

- Survey Training Courses. The Survey Training must include basic and advanced mine/UXO clearance, map reading and land navigation, surveying techniques. Manual operation of surveying equipment will be taught even if automatic / computerised surveying equipment is used and taught.
- Team Leader Training. All future instructors and designated Team Leaders and Supervisors must receive instruction in Basic Leadership, Instruction techniques, and Supervisor roles and responsibilities. All personnel in a Team Leader or Supervisor role will attend a Basic mine/UXO clearance Course and a Basic First Aid Course.

- Mine/UXO Clearance Training. There are several types of mine/UXO clearance courses. The Basic mine/UXO clearance course must be the minimum required for all personnel involved in mine/UXO clearance activities.
- The Basic Mine/UXO Clearance Course. A basic course will involve sub-topics including: Mine Orientation and Identification, method of clearance, Marking systems and Site layout, casualty evacuation and basic First Aid.
- The Advanced Mine/UXO Clearance Course. An advanced course will reinforce all of the Basic Mine/UXO clearance sub-topics and include On-site requirements, site management and supervision, quality assurance and quality control, disposal and render-Safe Procedures, reporting and post clearance procedures.
- The Supervisor Mine/UXO Clearance Course. A supervisor's course will reinforce all Basic and Advanced Mine/UXO clearance topics and include Minefield Supervisory Techniques.
- The EOD Basic Course. The basic course syllabus shall concentrate on basic demolition procedures for the disposal of those mines and munitions, which can be disposed of easily and safely.
- Dog handler Course. A basic course aimed at enabling the MDD handler to use the MDD in identifying and marking the location of mines or UXO within a given area. The Dog handler must have successfully completed the Basic Mine/UXO clearance course prior to starting the Dog handler course.
- Medical Training Courses. Trained medical support is required on site should a medical emergency occur. Medical personnel should be registered with the appropriate health authority. Two levels of training will be used under the following terms, qualifications and training standards:
- Basic First Aid Training. Basic First Aid Training is a requirement for all field personnel. Mine/UXO clearance operators, surveyors, drivers, and any management staff involved in the field operations are all required to attend Basic First Aid Training provided by the Mine/UXO clearance organisation. This course is recommended for all staff. As a minimum, the course will provide basic life and limb saving procedures including cardiopulmonary resuscitation (CPR), management of bleeding, splitting fractures, immediate patient assessment, and patient transport techniques.
- Paramedic Training. After attending the basic first aid training course, personnel designated to be the first line medical technician (one per site) will be required to attend paramedical training. Topics taught will include advanced life and limb saving skills, triage, and long term patient management. Paramedics shall be trained to provide trauma treatment, to run a clinic, provide basic medical attention and provide medical advice on sanitation, hygiene and the prevention of diseases.

## 2.6 Change of Organisations

2.6.1 Qualifications issued by one organisation are not automatically transferable between organisations.

## 2.7 Change of SOP / Equipment

2.7.1 Organisations are to ensure that all relevant personnel receive appropriate training, and that this training is documented in the case of amendments to SOP's or equipment.

## 2.8 Life of Qualification

2.8.1 Refresher training will be required in the event that operation staff have a break of more than one month from their routine appointment.

## Chapter 3: Quality Assurance

### 3.1 References

3.1.1 This document has been developed with reference to the following documents:

- IMAS 07.30 Accreditation of Demining Organizations
- IMAS 07.40 Monitoring of Demining Organizations
- IMAS 09.10 Clearance Requirements
- IMAS 09.20 Guidelines for Post Clearance Sampling

### 3.2 Scope

3.2.1 All operational, administrative and support activities.

### 3.3 Objective

3.3.1 To outline the methodology of QA procedures employed in Jordan.

### 3.4 Introduction

3.4.1 This standard adopts a two-stage approach.

- Stage 1: Quality Assurance (QA)
- Stage 2: Quality Control (QC)

3.4.2 QA involves the accreditation and monitoring of the clearance organisation before and during the clearance process. QA is a measurement of agency compliance with agency SOP. This process is beneficial to both the demining organisations and the NCDR as it compliments the internal QA of the agency. QA will be conducted through a process of both announced and unannounced QA visits; however the emphasis will be placed on announced QA incorporated into a published QA plan.

3.4.3 QC involves the process of an inspection of cleared land before it is formally released to the beneficiary for use. QC checks will vary depending on the clearance technique such as mechanical options, manual clearance, MDD clearance and factors such as the mine/UXO threat and the soil conditions.

3.4.4 This combined application of quality assurance (before and during the clearance process) with post-clearance quality control will contribute to achieving an acceptable level of confidence that the land is safe for its intended use. The NCDR may request that agency release clearance assets to assist in the QC of their task sites.

3.4.5 It is paramount that the implementation of QA and QC is impartial and judicious. Throughout the humanitarian demining process, QA is a continuous activity accomplished through QC (inspection), training, supervision and development of procedures.

3.4.6 QA must enhance the overall mine/UXO clearance process and not slow it down unnecessarily.

### 3.5 QA Framework

3.5.1 The basic framework for meeting NTSG and determining the degree of QA is as follows:

- Adherence to approved training programme.
- Adherence to the NCDR NTSG.
- Adherence to individual SOPs accredited and approved by the / NCDR.

- Discipline in the danger area.
- Levels of supervision and the associated internal QC checks.
- The mine/UXO threat.
- The final use of the land will determine the depth of clearance

### 3.6 QA for Clearance Operations

3.6.1 Manual clearance operations fall into two categories; clearance with metal detectors and excavation. For manual clearance effective QC will provide the majority of the overall QA process.

3.6.2 For clearance by MDDs a combination of QA and QC will be conducted as it is equally important to observe the dogs working as sampling the ground upon completion.

### 3.7 Mechanical Assistance to Clearance Operations

3.7.1 QA is an integral part of mechanically clearance operations and the type / quantity of QA will be dependent on the machine's role, terrain and available assets. In support of manual clearance, mechanical clearance can be used to prepare the ground prior to deploying a manual clearance team.

### 3.8 NCDR QA Task Inspection

3.8.1 The NCDR QA team shall conduct on site inspections to ensure that the demining organisation is conducting operations in accordance with its SOP and the NTSG (National Technical Standards and Guidelines). During the visit the QA Officer shall complete a QA Evaluation report and brief the task supervisor, team leader or senior member on his findings. The Supervisor shall be asked to complete relevant sections of the form and the organisation shall be given a copy at a later date.

3.8.2 An example of a current Quality Assurance Evaluation Form can be obtained from NCDR.

### 3.9 Terminology for Level of Compliance

3.9.1 QA Assessment: Level of Compliance to Organisation SOP and NTSG

HIGH <input type="checkbox"/>	MEDIUM <input type="checkbox"/>	LOW <input type="checkbox"/>	FAIL <input type="checkbox"/>
Good	Satisfactory	Warning	STOP

Low: As a result of one or more non-compliances. A verbal warning shall be given and written in the Comments and Recommendations table. It is at the discretion of the QA Officer whether to STOP operations and/or stipulate a period of time by which the compliance must be corrected, however, any serious non-conformity shall be corrected immediately.

Fail: As a result of one or more Critical non-compliances work shall stop. The reason shall be explained by the QA Officer and written in the Comments and Recommendations table. Activities shall be suspended pending compliance and if necessary, a review by the NCDR and the organisation will take place.

### 3.10 Non-conformities

3.10.1 The definition of critical non-conformities must take into account the clearance methodology used by the demining organisation. For example, it would clearly be inappropriate to use residual metal fragments as a critical non-conformity if excavation method were to be used as part of the primary clearance technology.

### 3.11 Example of Critical Non-conformities

3.11.1 Missed mines / UXO, disregard for safety (no medic, safety vehicle or communications, not wearing PPE), failure to comply with TO, inadequate supervision or failing to comply having already receiving a warning.

### 3.12 Special Monitoring

3.12.1 It may be decided that Special Monitoring of the demining organisation by the QA Officer or additional personnel is necessary for the following reasons:

- It is concluded, after one or more QA assessments are conducted that, the organisation is not operating in compliance with their SOP and the NTSG. This may result in the organisation receiving a verbal warning or work being stopped. The QA Officer shall ensure that the cause of the non-compliance is corrected and that operations are consistent with the SOP. This may require the QA Officer conducting more frequent inspections and devoting additional time with the organisation concerned.
- Starting a task in an unfamiliar area.
- Working on a difficult or hazardous task (E.g., undulating ground, rocky, highly vegetated, residential, trip-wires, and improvised mines).
- When inexperienced or new key personnel are managing a task.
- Handover to NCDR staff as part of the capacity building process.
- Commencing operations after a lengthy period away from operations or after completing a training course.
- Introduction of new demining procedures or equipment.
- Conducting field trials with equipment and machines.
- Multiple assets working at a task.
- Commencing operations following a demining accident.

### 3.13 Sampling

3.13.1 NCDR QA teams will do the inspection of cleared land. This inspection forms part of a management process which aims to verify the quality of clearance, and to establish sufficient confidence that the demining organisation has removed and/or destroyed all mine and UXO hazards from the specified area to the specified depth, in accordance with the clearance requirements outlines in Chapter 7 – Clearance Requirements.

3.13.2 The effectiveness and validity of inspection by sampling requires the clearance process to be 'continuous and under control'. A 'continuous' process implies that each lot presented for inspection should include land, which has been cleared under similar conditions; i.e. by assets with similar capabilities, using similar operational procedures and with similar equipment.

3.13.3 The procedures and equipment used by the inspection body to inspect the samples of cleared land should be agreed with the clearance organisation as part of the contract or agreement. Any major changes to sampling or inspection procedures (such as the introduction of mechanical sampling) should be agreed between the NCDR and demining organisation prior to the start of

inspection. The NCDR and the demining organisation should agree a mutually acceptable time limit within which the sampling inspection must take place.

3.13.4 A 'lot' should be considered as 'cleared' only if all the samples in the lot are found to be free of mines or UXO down to the depth specified in the task order. Where any sample in the lot is found to contain one mine or UXO, this will constitute a 'critical non-conformity', and the lot containing that sample should be declared to have failed the inspection.

3.13.5 Cleared land may contain other indicators of potential non-conformity, such as residual metal fragments following detection by metal mine detectors, or residual traces of explosives following detection by explosives detectors. Such cases could indicate a potential critical failure of the demining process (equipment, people or procedures), and again constitute a critical non-conformity. The conditions for acceptance or non-acceptance of all categories of non-conformity should be agreed between the NCDR and the demining organisation prior to the start of clearance.

### 3.14 Corrective Action

3.14.1 The NCDR will determine the corrective action to be taken on lots that are rejected pending the findings and recommendations of an incident investigation as outlines in Chapter 9 – Mine / UXO incident investigations.

3.14.2 The demining organisation should investigate every critical non-conformity, shall provide the inspection body with reasons for each critical non-conformity, and shall provide a programme of corrective action. If a lot fails re-inspection following corrective action, the inspection body may require the lot to be cleared again using a different sub-unit, using different operational procedures and with different equipment; if these alternate methods exist. If no acceptable reason is given for a critical non-conformity, either by the clearance organisation or by the inspection body, the inspection body should require the lot to be marked and fenced until the reasons for the non-conformity can be established.

3.14.3 Lots should not be offered for re-inspection until the demining organisation has taken corrective action as agreed in accordance with the NCDR QA team. The QA team should specify whether normal or tightened inspection shall be used for re-inspection.

3.14.4 The sample plan, the methods used for inspection, and the results should be recorded by the NCDR team, including the location, depth, types of hazard and other non-conformities. Details of all corrective action shall also be recorded. All records shall be passed to the NCDR operations department.

### 3.15 Responsibilities

3.15.1 NCDR shall:

- Establish a system for the monitoring of demining organisations which complements the procedures for accreditation and post-clearance inspections
- Specify the national standards and provide guidelines for the monitoring of demining organisations;
- Monitor the work of Demining organisations,
- Ensure that the monitoring system is being applied in a fair and equitable manner,

- Ensure that monitoring does not interrupt or delay demining projects.

3.15.2 The organisation undertaking demining shall:

- Apply management practices and operational procedures which aim to clear land to the requirements specified in Task Orders (TO).
- Maintain and make available documentation, reports, records and other data on demining activities to the NCDR.
- Provide the NCDR with access to all sites, buildings and other facilities which need to be visited as part of the monitoring requirement.
- Provide clearance assets where necessary to assist in the QC of agency Task sites

## Chapter 4: Health and (Occupational) Safety

### 4.1 References

4.1.1 This document has been developed with reference to the following documents:

IMAS 10.10 S&OH General Principles

IMAS 10.20 Demining Worksite Safety

IMAS 10.30 Personal Protection Equipment -- PPE

IMAS 10.40 Medical Support to Demining Operations

IMAS 10.50 Storage, Transportation and Handling of Explosives

IMAS 10.60 Reporting and Investigation of Demining Incidents

Jordan Law of Explosive Material (1953)

TNMA 10.20 Calculation of Explosion Danger Areas

### 4.2 Scope

4.2.1 This chapter provides specifications and guidance on the development and implementation of policy and documented procedures and practices which aim to establish and maintain a safe demining worksite. This chapter broken into 3 parts:

Part 1: Personal Protective Equipment (PPE) requirements

Part 2: Work Site Requirements

Part 3: Transport and Storage of Explosives

### 4.3 Objective

4.3.1 To ensure that all clearance operations are conducted with the minimum exposure to risk and enhance the safety and quality of all clearance operations.

### 4.4 Introduction

4.4.1 The needs to manage risk and to provide a safe working environment are fundamental principles of mine action management. Risk reduction involves a combination of safe working practices and operating procedures, effective supervision and control, appropriate education and training, equipment of inherently safe design, and the provision of effective personal protective equipment and clothing.

4.4.2 Given the wide range of operational settings and mine action activities, it is not possible to provide a precise and complete set of specifications or provisions that apply to all mine action worksites. Thus, mine action organisations should develop and maintain management procedures and processes that will enable Safety and Occupational Health (S&OH) risks in the worksite to be identified, evaluated and reduced in a systematic and timely manner.

## Chapter 4, Part 1: Personal Protective Equipment (PPE)

### 4.5 General

4.5.1 This Chapter provides specifications and guidance to demining organisations on the minimum requirements of personal protective equipment (PPE), including protective clothing, for use in mine action.

4.5.2 The levels of PPE provided for use in hazardous areas shall be based on a number of factors including: the local risk(s), operational procedures and practices, and local environmental conditions.

4.5.3 Training must be provided on the proper use, maintenance and storage of the PPE in use within the demining organisation. Facilities should be provided for its proper storage and carriage. Equipment must be examined on a regular basis to ensure that it is suitable for use.

4.5.4 All employees involved in demining should be provided with comfortable and serviceable clothing and footwear appropriate to the task and Jordanian conditions.

4.5.5 As a minimum, deminers and MDD handlers must wear “combat” style boots, trousers and long sleeve shirts. Where possible these should be made of natural materials. Personnel involved in burning activities should wear flame proof clothing where possible and as a minimum must wear cotton material rather than synthetics

4.5.6 Although this standard lays down distances at which the PPE must be effective it must be emphasised that this does NOT imply to deminers that they will be safe at such distances. Distance itself is an excellent attenuator of blast effects and the further away from an undesired explosive event the better!

### 4.6 Blast / Fragmentation Protection

4.6.1 PPE should be capable of protecting against the effects of last blast and fragmentation appropriate to the activity performed in accordance with SOPs.

4.6.2 The frontal protection ensemble provided to employees, whether required to kneel, sit or squat shall be designed to cover the eyes, throat (frontal neck), chest, abdomen and genitals. Equipment provided to reduce the risk from such hazards shall include, as a minimum:

- Frontal protection, appropriate to the activity, capable of protecting against the blast effects of 240 gm of TNT at 30 cm from the closest part of the body.
- Face protection capable of retaining integrity against the blast effects of 240 gm of TNT at 60 cm, providing full frontal coverage of face and throat.
- Ballistic body armour and face protection should have a STANAG 2920 v50 rating (dry) of 450m/s for 1.102g fragments. Where such a rating has not been obtained equipment may still be approved for use subject to in country trials monitored by the NCDR.

### 4.7 Hand Tools

4.7.1 Hand tools should be constructed in such a way that their separation or fragmentation resulting from the detonation of an AP blast-mine incident is reduced to a minimum. They should be used with appropriate hand protection such as a hand-shield or gloves. Hand tools should be designed to be used at a low angle to the ground and should provide adequate stand-off from an anticipated point of detonation.

## Chapter 4, Part 2: Work Site Requirements

### 4.8 General

4.8.1 The demining worksite shall be designed to:

- Provide a clearly visible separation of hazardous areas including fragmentation and evacuation safety areas, cleared areas, uncleared areas and unknown areas of and around the worksite.
- Control the movement of deminers, MDD handlers and visitors (including members of the public) at the worksite.
- Limit the number of deminers and visitors allowed into the fragmentation and evacuation safety areas.
- During the controlled disposal of mines and UXO, take all reasonable precautions to exclude deminers, MDD handlers, visitors and members of the local population from the fragmentation and evacuation safety areas, or provide suitable protection inside buildings, bunkers or mobile structures.
- Include measures to prevent structural and environmental damage.

### 4.9 Marking Of Hazardous Areas

4.9.1 Safe and hazardous areas within the worksite shall be separated by providing clear and consistent marking. See Chapter 6 – Site Layout and Marking Systems for further information.

### 4.10 Medical

4.10.1 See Chapter 5 – Task Site requirements for further information

### 4.11 Communications

4.11.1 See Chapter 5 – Task Site requirements for further information

#### 4.12 Safety distances for the disposal of mines and UXO

Demolition minimum safety distances	
Type of munitions	(Open area – metres)
AP mine – Blast	100
AP mine – Fragmentation/bounding/directional	200
AT mine – Blast	300
AT mine - Shaped charge (A shaped charge jet can travel up to 1800m in free air.)	1,800
Off route mine	1,000
Mortar up to 82 mm	300
Shell up to 80 mm	300
Shell up to 160 mm	600
Shell above 160 mm	1,000
Rocket up to 88 mm	300
Hand and rifle grenade	200

Buried boosted charges estimated at 10 kilograms have a safety distance of 500 metres. 100 metres should be added for each additional 10 kilogram charge.  
Organisations should seek the advice of a qualified and experienced EOD operator to determine safety distances for all munitions other than those detailed above. All safety distances shall be specified in documented SOPs.  
Protective measures may be used to allow distances to be reduced.

#### 4.13 Operational Staff

4.13.1 All personnel involved in clearance operations shall:

- Take all reasonable care for their safety and that of other persons on the worksite.
- Comply with instructions given for their own conduct and safety, especially those contained in SOP.
- Comply with NTSG on conduct and safety on worksites.
- Report forthwith to their superior any situation, which they have reason to believe could present a worksite hazard, which they cannot themselves correct.

#### 4.14 Mechanical Site Safety

4.14.1 A mine clearance site that incorporates both mechanical and manual mine clearance procedures will require strict control and greater safety distances than those used for manual and MDD mine clearance.

4.14.2 When using flails and inspecting the area afterwards through clearance or visual inspection, all found mines or mine parts that include the fuse are to be destroyed in situ. Under no circumstances are these objects to be remotely moved or neutralised and recovered because of the possible unstable nature of the mine, firing train or firing train component.

4.14.3 When operating a remote controlled clearance machine the operator is to be no closer than 50 metres (AP threat) to the machine, minimum PPE requirements are visor, helmet and apron. At no time is the operator to be directly in front of or behind the machine.

4.14.4 When operating a remote controlled clearance machine from inside a protected vehicle the minimum safety distance will be determined by the level of protection provided. The manufactures guide for the vehicle should be referred to.

4.14.5 These distances maybe reduced if there is adequate protection available from blast and fragmentation and essential personnel required for supervision are wearing full PPE. The safety distance shall be increased when necessary. Any reduction in safety distances must first be authorisation by the NCDR.

#### **4.15 Demining Incidents**

4.15.1 Procedures for the response to a demining incidents and accidents shall be established and formally documented as SOPs. The SOPs should include:

- The organisation and capabilities needed to respond to a demining incident, including the procedures, training, equipment and material.
- Procedures for the investigation, analysis and corrective action to be taken following a demining incident.

4.15.2 See Chapter 9 – Investigations of Mine / UXO incidents for further information.

## Chapter 4, Part 3: Transport, Storage and Handling of Explosives

### 4.16 Reference

4.16.1 Jordanian Law of Explosive Materials (No 13 dated 17/1/1953, Paper 1131)

### 4.17 Definition

4.17.1 The term *explosive* is used throughout this NTSG to include all items of an explosive nature.

### 4.18 Certification

4.18.1 The NCDR will provide certification for certain people within demining organisations to take responsibility for the transport, storage, security and handling of explosive materials.

### 4.19 Standard Operating Procedures

4.19.1 All procedures and requirements required for the transport, storage and handling of explosives are to be fully explained in step-by-step detail in the clearance organisations SOP.

4.19.2 Internal agency QA should ensure compliance to agency SOP, which should reflect the principles of Jordan's Law for the transport, storage and handling of explosives.

### 4.20 Coordination

4.20.1 The NCDR will be the focal point for the coordination the security of explosive materials in transit and storage with the military.

### 4.21 Inspection

4.21.1 The NCDR will inspect explosive storage facilities and the use of explosives as part of the QA process.

### 4.22 Reporting

4.22.1 Agency reporting must contain details of explosive use on a monthly basis.

## Chapter 5: Task Site Requirements

### 5.1 References

5.1.1 This document has been developed with reference to the following documents:

IMAS 07.40 Monitoring of Demining Organizations

IMAS 10.20 Demining Worksite Safety

IMAS 10.40 Medical Support to Demining Operations

### 5.2 Scope

5.2.1 This chapter covers the requirement for all mine and UXO clearance operations.

### 5.3 Objective

5.3.1 To ensure that demining activities are carried out with the necessary personnel, equipment and procedures in place.

### 5.4 Introduction

5.4.1 Before work can start at any site the supervisor or person in charge must satisfy themselves that the on-site requirements are all in place. These include;

- Communications
- Medical support
- Documentation / Records

### 5.5 Communications

5.5.1 An effective communications network is essential for the safety of all clearance operations and necessary to ensure an effective and safe mine/UXO clearance operation. Mine/UXO clearance activities must not be undertaken without suitable and effective communications between the personnel on site and the support elements.

5.5.2 There are several levels of communications necessary to ensure that mine/UXO clearance, management and support personnel are able to communicate as and when required. All levels are to be defined in the agency's SOP.

5.5.3 The communications means are to be staffed during all operational activities and should also cover the travel periods to, from, and in between the sites.

5.5.4 Three communication networks may be employed in Jordan.

- National Network: This is the operational network between the NCDR, Regional Offices and all mine/UXO clearance organisations. This structure is composed of landline telephone and mobile telephone systems in conjunction with email.
- Regional Network: This network provides mine Action assets with the means to communicate with all other mine clearance organisations in the region. This structure will normally comprise of VHF / UHF radios operating either through a repeater system or on line of sight.

- **Site Network:** This network provides a link on task-sites between Team Leaders, Section Commanders, medical assistants and other radio users at task-sites. This structure will normally comprise of VHF radios operating either through a repeater system or on line of sight. Network frequencies may be duplicated in all regions as radio equipment used at this level has a limited transmission distance.

## 5.6 Licences and Frequencies

5.6.1 Most radio equipment will require a licence to import and operate. The specification of all radios must be checked with the Telecommunication Regulatory Commission (TRC) in order to determine the licensing requirement.

5.6.2 The TRC will also issue relevant frequencies upon request. If necessary this process will be facilitated by the NCDR.

## 5.7 Medical Support to Demining Operations

5.7.1 No mine/UXO clearance operations will commence without an acceptable medical support and casualty/medical evacuation plan that everyone involved fully understands, and has practised.

5.7.2 If the medical cover stipulated in this chapter is removed or unavailable, clearance will cease immediately until it has been restored.

5.7.3 Teams will exercise casualty evacuation at least weekly and upon changing worksites. Additional the proposed casevac route must be confirmed as open daily. These exercises will be recorded in the clearance task log.

5.7.4 The minimum medical requirement is as follows:

- One trained Medic with their equipment will be sited within 5 minutes walking distance of each clearance site.
- The medic must have immediate access to a serviceable evacuation vehicle and a trained driver, which, during operational hours is used for no other purpose. The vehicle must be suitable to transport a casualty quickly and safely to the nearest appropriate medical facility, identified Helicopter Landing Site (HLS) or airstrip. As a *minimum* it must be fitted with an orange warning beacon. No other markings or sirens are necessary. The vehicle must be equipped with means to communicate on the regional network. The vehicle must have enough fuel (at least ½ a tank) to reach its planned destination and no outstanding maintenance problems.
- In the case of survey teams a Medic must be within 5 minutes of the team and must have radio communication should assistance be needed.
- The Medic on site must be equipped with the medical facilities that are sufficient to stabilise expected trauma injuries at the location. The compulsory minimum medical equipment is listed at Annex A Table 1.

5.7.5 Organisations are responsible for ensuring that a casualty is transported as quickly but safely to the nearest appropriate medical facility. A list of NCDR recommended medical facilities and contact is at Annex B.

5.7.6 The objective must be to stabilise the casualty within 15 minutes from the time of injury and ensure that sufficient medical supplies, expertise and manpower are available to maintain the casualty throughout the intended evacuation period.

5.7.7 All organisations are to clearly state in their SOP the intended means of evacuation of casualties. Where this changes from different site locations, this must also be clearly shown. Where a vehicle is used it must be able to carry at least one stretcher and be equipped with communications and other equipment according to Annex A Table 3.

5.7.8 A list with the contents of the medical trauma injury kit is to be included in the organisation's SOP. The method of evacuation in the event of an accident must always be specified and understood by all and should be by the safest and expeditious method available to an appropriate medical facility.

5.7.9 Evacuation by air (if available) should be considered if the CASEVAC by road is expected to take more than 90 minutes or that the injuries may be as worsened because of road movement.

## 5.8 Documentation/Records

5.8.1 The following documentation and records will be present at each worksite and are to be maintained by the Supervisor/Team Leader:

5.8.2 Relevant SOP. Current copy, including all amendments.

5.8.3 Supervisor/Team Leader's Operations File. The Supervisor is to have an Operations File containing the following documentation. The Operations File is to be onsite during all mine clearance activities.

- Minefield Record / Survey report.
- QA Record Sheet. Record of all internal and external QA/QC checks that have been conducted on site.
- Visitors Log. Log to be completed by all visitors to worksite.
- Visitors Briefing. Copy of the site briefing given to visitors.
- Briefing Board / Map
- CASEVAC Plan. Plan drawn up for current worksite.
- Medical Information. Name list of all members' attendance including ID number and allergies.

## 5.9 Annexes

Annex A: Medical Equipment

Annex B: Recommended Medical Facilities and Contact Details

**Annex A: Medical Equipment**

Table 1: Compulsory Minimum Equipment for Trauma Care Pack

Item	QUANTITY
<b>AIRWAY EQUIPMENT</b>	
Manual ventilation bag with oxygen reservoir + mask	1
Hand held suction unit with oral catheter	1
Oral airway disposable various sizes 2,3,4	1 each
<b>CANNULATION AND INJECTION EQUIPMENT</b>	
Protective eyewear	1
Sharps disposal container	1
Intravenous Cannula size 14G,16G,18G,20G	2 each
I.V administration set	4
Medical adhesive tape 2.5 cm	1
Venous tourniquet	1
Alcohol swabs	25
Syringe 5ml	5
Syringe 10ml	5
Needle 21G	10
Water for injection or NaCl 0.9% 10ml	10
Medical gloves	10 pair
<b>TRAUMA SUPPLIES</b>	
Triangular bandages	2
Sterile dressings (10cmx10cm or 10cmx20cm)	10
Bandage 10cm	5
Bandage 15cm	5
Large multi-trauma abdomen/chest dressing	2
Burn dressings	2
Eye pads	8
Pressure dressing / field dressing	4
Antiseptic solution	100 ml
<b>SPLINTS</b>	
Upper limb splint (e.g., Sam, Kramer, cardboard)	1

Lower Limb Splint (e.g., wooden, cardboard)	1
Cervical stifneck collar set or adjustable stifneck collar	1
OTHER ITEMS	
Universal scissors (paramedic shears)	1
Dressing scissors	1
Kelly forceps	1
Dressing Forceps	1
Stethoscope	1
Blood pressure manometer.	1
Casualty triage tags (set 5)	1
Gauze Pads, medium	25
Torch (preferably penlight)	1
Adhesive medical tape	1 roll
Sterile scalpel	1
DRUGS	
Inj. Naloxon 0.4 mg/ml ( <i>if using opioid</i> )	2 x 1 ml.
Inj. Anti-emetic drug ( <i>if using opioid</i> )	2 amp.
Ringer lactate 1000ml	2
Normal saline 0.9% 500ml	2

Table 2 Recommended Additional Medical Equipment

ITEM	QUANTITY
Non-rebreathing oxygen mask with reservoir bag	2
Oxygen supply for 120 mins at 8 litre/min	
Oxygen manometer and regulator with minimum flow of 8 litres/minute	1
Laryngoscope set	1
Nasopharyngeal airways various sizes	1
Endotracheal tubes sizes 7,8 (cuffed)	1 each
ETT Guide stylette	1
Magill forceps size 8	1
Magill forceps size 9	1
Tube check	1
KY Gel tube	1
Chest decompression set	1
Convenience bag	1
Emergency blanket	2
Asherman chest dressing	1
I.V dressing	10

Table 3 Minimum Medical Equipment for Evacuation Vehicle

Minimum Medical Equipment for Evacuation Vehicle	QUANTITY
Stretcher with straps	1
Spinal Board <i>(or similar device)</i>	1
Blanket	2
Water container	25 litres
Proven communications	1
Fire Extinguisher	1
Head Block set	1

**Annex B: Recommended Medical Facilities and Contact Details**

Ser	General Location	Hospital	Telephone Number
1	Amman	Al Hussein Medical City	06 5856856
2	Al Aqaba	Prince Hiai	03 2016711 / 03 2016712
3	Al Karak	Prince Ali	03 2386374
4	Al Mafraq	Al Mafraq Hostipal	02 6231176 / 02 6231467
5	Al Ramthah	Al Ramthah	02 7384338 / 02 7384358
6	Irbid	Aidon	02 7104682 / 02 7103659
7	Irbib	King Abdullah	02 7200600

## Chapter 6: Site Layout and marking systems

### 6.1 References

6.1.1 This document has been developed with reference to the following documents:

IMAS 10.20 Demining Worksite Safety

IMAS 08.40 Marking of Hazards

IMAS 10.20 Demining Worksite Safety

### 6.2 Scope

6.2.1 This chapter covers all mine / UXO clearance operations.

### 6.3 Objective

6.3.1 To ensure that all clearance and disposals are conducted on a safe and organised site.

### 6.4 Introduction

6.4.1 The design of mine and UXO hazard marking systems should take account local materials freely available in the contaminated area and the period for which the marking system will be in place.

6.4.2 It is generally accepted that materials used in marking systems should have little, if any, value or practical use for purposes other than mine and UXO hazard area marking. If material of any value is used, then it is likely to be removed.

6.4.3 This standard will concentrate on three broad areas:

- Marking of Suspect Hazardous Areas
- Site preparation and Layout
- Marking System employed in clearance operations

### 6.5 Marking of Suspect Hazardous Areas

6.5.1 Mine/UXO area marking has been categorised into three levels, from which a variety of situations can be effectively addressed.

- Emergency marking
- Semi-permanent fencing
- Permanent fencing.

6.5.2 Emergency marking: A suspect mine/UXO area is usually marked immediately to provide a visual warning of the presence of mine/UXO. This type of marking will, whenever possible, use the existing "mine" signs that clearly indicate the danger. Several different mine signs may be used (See Annex A for details). Emergency marking should be clearly recognisable from a distance of fifty metres, and be able to endure all the elements for six months. Local type mine/UXO marking, such as crossed sticks and stone piles, will always be recognised as a form of marking, people who do not have the resources to install a formal mine-marking boundary often install it.

6.5.3 Semi-permanent fencing is a more permanent and visual barrier surrounding a mine/UXO area. These signs should be visible from a distance of fifty metres and be visible sign-to-sign in heavily vegetated or undulating ground. The barrier must be in accordance with the specifications detailed in the section marking systems employed in clearance operations outline latter in this chapter. Semi-permanent marking should endure the elements for six months to one year.

6.5.4 Permanent fencing is normally preceded by Technical Survey and is for areas where it is not possible to conduct mine/UXO clearance operations in the immediate future. Permanent marking should be a physical and visual barrier to the movement of humans and livestock. It will consist of metal pickets, barbed wire and mine warning signs. This type of marking should endure the elements for one to five years.

## 6.6 Site Preparation and Layout

6.6.1 The nature of the ground will determine the layout of any work site, however a consistent arrangement with correct marking will increase the safety of those involved in the mine clearance operation. The standardisation of all clearance marking systems is paramount; the following features are essential requirements for all mine/UXO clearance sites.

## 6.7 Designated Areas

6.7.1 Control Point: A command post from which a commander can control the operation. The control point may also act as an administration and briefing area and is the point at which all visitors shall arrive. Ideally it should be on level, well-drained land and have vehicle access and preferably some shade. The location of the control point shall be 100 metres without adequate protection.

6.7.2 Clearance Lane: This has also been known as a Working Lane and is the lane where clearance personnel are working. The clearance lane width is maintained using a base stick during clearance and shall be clearly marked along the edges with red topped posts or rocks at a minimum of 2 metres intervals and at all turning points. The clearance lane shall be a minimum of 1 meter wide and a maximum of 5 metres in length before the width is increased to a minimum of 2 metres. Therefore, the maximum distance for a 1 metre wide clearance lane shall be 5 metres. To increase safety, it is recommended that clearance lanes are widened to 2 metres as soon as possible and it is mandatory that they are widened to a minimum of 2 metres in circumstances where personnel are required to traverse rocks, undulating ground and other obstacles which may cause additional difficulties when walking, lose of balance or contribute to them stepping into an uncleared area. This must be made a priority.

6.7.3 MDD Box: is an uncleared surface, most often formed like a rectangular square, framed on four sides with manually cleared clearance lanes; the box is an area intended for operations with MDD teams. The box will have a maximum length of 50 meters and a maximum width of 10 meters.

6.7.4 Control lane: There maybe a requirement to identify a route through a clear area to the worksite or control point/admin area. White or unpainted posts or stones may be used to mark this.

6.7.5 Vehicle Park: This should be close to the Control Point and large enough to accommodate the mine/UXO clearance organisation's vehicles and visitor's vehicles. It is situated a minimum of 100 metres from any mined area. All vehicles should be positioned in the park so they do not have to manoeuvre to depart in the event of an emergency.

6.7.6 Stores and Equipment Area: Where all equipment is securely stored. Usually part of, or adjacent to, the Control Point.

6.7.7 Medical Area: A static medical point, normally close to the control point. The medical area is to be occupied at all times during mine/UXO clearance operations, by a qualified medic. The medic is to ensure that the area is properly equipped at all times. The area should be flat, dry and shaded. The area may be combined with the control point or stores area but must be easily accessible from the minefield. The location of medical area is to be within 5 minutes of the furthest point of work in the mined area.

6.7.8 Explosives Area: When not in use all explosives shall be stored in a secure and marked explosives storage area. The explosive area must be sited between the non-operational area (control point/stores area etc.) and the minefield. This area will be a minimum of 50 metres away from other areas. Exemptions from this minimum distance may be approved in cases where security is an issue; approval is to be requested from the NCDR. Explosives and accessories will be kept dry, shaded and separate from all other administration areas.

6.7.9 Rest Areas: Rest areas are to be used by deminers and MDD handlers during their breaks. Sufficient space should be allowed for resting, preparing / storing certain equipment, and other necessary reasons. The area should be dry and shaded if possible. The minimum distance from the rest area to the nearest operative in the minefield is used as the basis for the following calculations:

- Personnel in rest area not wearing PPE when demining operations underway.
- Personnel in the rest area wearing PPE when demining operations underway.
- Personnel in rest area when no demining operations underway:

Note: The distance may also be reduced when there is adequate protection from blast and fragmentation between the rest area and minefield (E.g., hill). In all circumstances, the rest area shall be located a minimum of 100 metres from uncleared areas.

6.7.10 Metal Collection Pit: This should be marked and shall be located in a safe area and at a convenient distance from working deminers. All metal removed from the mined area including inert mines/UXO should be placed within the metal collection pit. Prior to completion or suspension of the task, the contents of the metal contamination pit shall be buried and marked or removed to another area for disposal.

6.7.11 Latrine: To prevent people inadvertently straying into mined areas, and for hygiene purposes, a latrine should be designated for each clearance area. Latrines should be located in the vicinity of the rest area and should be adequate for the number of personnel on the site.

6.7.12 Demolition Area: A location cleared for the disposal, by explosive demolition, of mines and unexploded ordnance.

6.7.13 Sentry Points: Sited at mine/UXO clearance sites when required, particularly on route, road and verge clearance tasks. It will have radio communications with the senior person on site.

## 6.8 Site Reference Points

6.8.1 Reference Point: A fixed point of reference outside the hazardous area. It should be an easily recognised feature (such as a building, cross-roads or a bridge) which is used to assist in navigating to one or more benchmarks. The Reference Point description, location and the safe route to the Bench Mark should be included in the survey report.

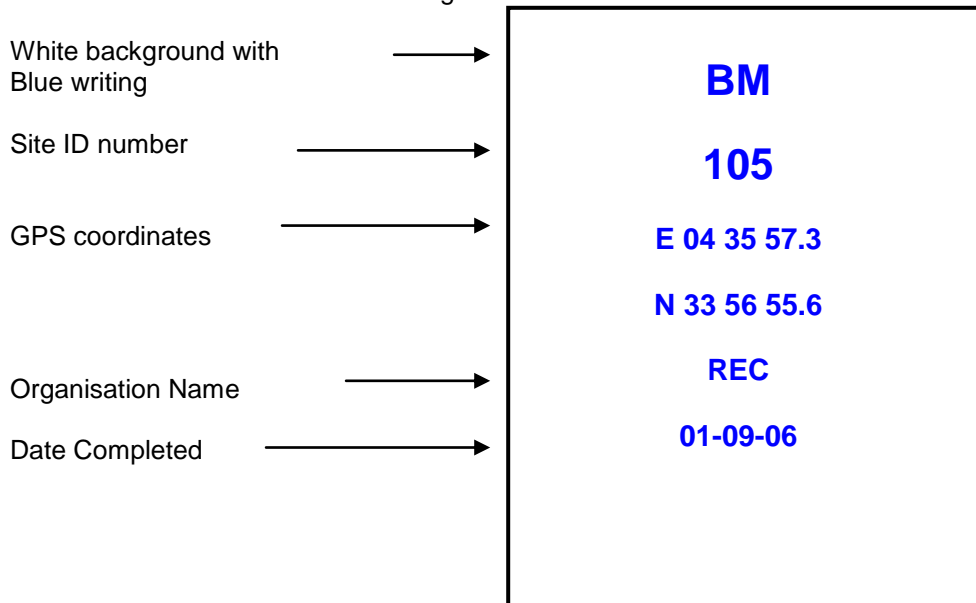
6.8.2 There maybe a requirement to identify Intermediate Points when the Reference Point is located at a vast distance from the Bench Mark, the terrain is featureless, there are a number of obstacles or multiple changes in direction along the route.

6.8.3 Benchmark: A fixed point of reference used to locate a marked and recorded hazard or hazardous area. It should normally be located a short distance outside the hazardous area.

6.8.4 Benchmark Construction: A benchmark may be a natural object or manmade and the following regulations shall apply:

- It shall be enduring and when constructed, shall extend deep enough into the ground with a solid foundation to support the weight.
- It shall be clearly visible in normal daylight at a distance of 30 metres from a safe direction of approach.
- The Bench Mark description and its direction from the Reference Point shall be recorded.
- A metal picket or similar shall be driven flush with the ground at the base of the benchmark.
- It shall be marked with a distinctive White background with the necessary information written in Blue.

Figure 1: Benchmark Information



6.8.5 Start Point: This is also known as a Datum Point, it is a clearly identifiable fixed marker and the point where clearance begins. All minefield measurements are taken from the Start Point and depending on the location of cleared mines / UXO; it may be decided to position additional Start Points for ease of mapping during or on completion of clearance. The initial Start Point should be clearly visible from the Bench Mark otherwise Intermediate Points shall be located for ease of navigation.

6.8.6 Mine/UXO: When a mine/UXO is not dealt with immediately upon being located, it shall be marked by placing a mine marker a minimum of 100 mm before it. The clearance lane will then be closed off and a new lane commenced. Before the end of the working day these mines/UXO are to be destroyed unless prior approval has been granted from the NCDR. Alternately, the mine may be dealt with in situ and clearance in this lane may then continue.

6.8.7 The table below shows minimum distances to be employed between personnel in a minefield clearance area. *Any reduction to these distances must be authorised by the NCDR.*

MINIMUM DISTANCES FOR A MINE CLEARANCE WORK SITE			
Serial	Situation	Minimum Safety Distance	Remarks
(a)	(b)	(c)	(d)
1.	Working Personnel in adjacent lanes on blast Anti personnel mines.	25 metres*	
2.	Working Personnel in adjacent lanes on Anti tank	50 metres	
3.	Explosive storage point and mined area.	50 metres	
4.	Vehicle park and mined area.	100 metres	
5.	Briefing area and dangerous area.	100 metres	
* In any instances where the risk of fragmentation is low clearance organisations may in consultation reduce this distance to 15m			

Table 1: Minimum Distance for a Mine Clearance Site

## 6.9 Demolition Safety Distance

6.9.1 Refer Chapter 4

6.9.2 Any item over 155mm diameter shall be destroyed by an EOD team

## 6.10 Marking To Be Used During Clearance Operations

6.10.1 Demining organisations shall develop and utilize a temporary marking system for use in clearance operations. Apart from the need to delineate the boundary of the hazard area as set out above, this temporary marking should allow all persons moving around the site to identify, as a minimum:

- The location of mines or UXO discovered during the clearance process, in order to help managers identify any pattern in the minefield
- Areas that have been cleared that day by deminers, in order to allow managers to monitor progress and productivity
- Areas that have been cleared that day by Mine Detection Dogs in order to allow managers to record progress and productivity

- Areas that have been quality control (QC) checked. This may include a system to differentiate between different levels of quality control such as section commander, site manager, etc.

Note: The area between the last QC marker and any accident site shall be considered uncleared for the purposes of casualty evacuation and accident investigation.

6.10.2 Where stones are used they shall be of a size and colour combination to make them stand out from the background – this is especially important for black, white and yellow painted stones.

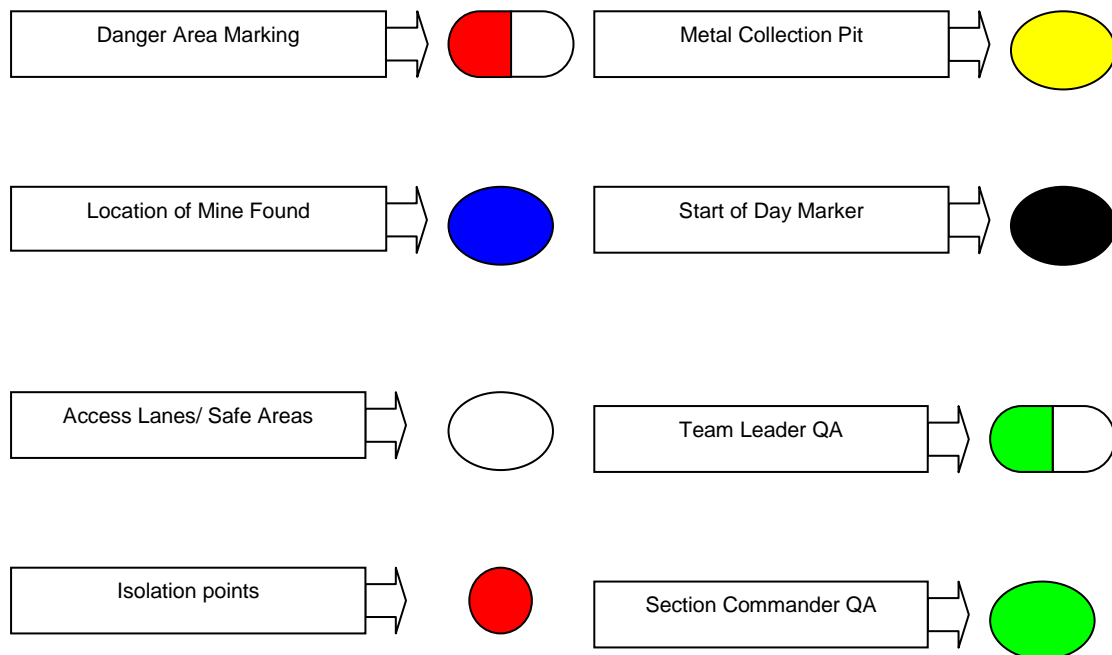


Figure 2: Marking system using coloured stones or pickets

## 6.11 Annexes

Annex A: Hazard signs - minefield and mined areas

**Annex A: Hazard signs - minefield and mined areas**

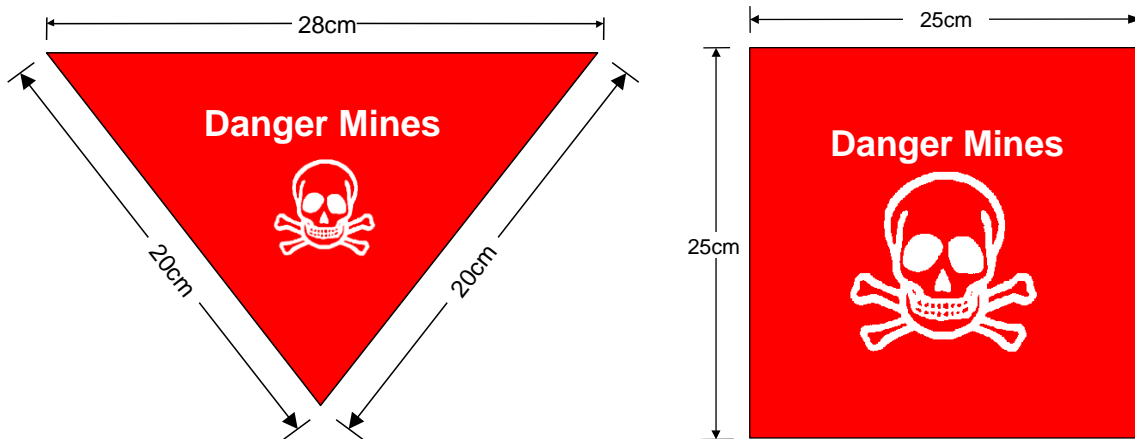


Figure 1: Hazard sign

**Notes:**

Flexibility in the design and layout of hazard signs is permissible in accordance with the direction given in the remainder of these notes.

The sign should have a red or orange background with a white symbol for danger. The universal symbol for danger is the skull and crossbones

The words 'Danger Mines' (or 'Danger UXO' depending on the predominant hazard) should appear on the sign in Arabica (and where possible English).

The rear surface of the sign should be white.

Dimensions should not be less than indicated on the diagram.

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## Chapter 7: Clearance requirements

### 7.1 References

7.1.1 This document has been developed with reference to the following documents:

IMAS 08.10 General Mine Action Assessment

IMAS 08.20 Technical Survey

IMAS 09.10 Clearance Requirements

### 7.2 Scope

7.2.1 This chapter defines 'clearance', and specifies the quality system (i.e. the organisation, procedures and responsibilities) necessary to determine that land has been cleared by the demining organisation in accordance with its contractual obligations.

### 7.3 Objective

7.3.1 The aim of humanitarian demining is the identification and removal or disposal of all mine and UXO hazards from a specified area to a specified depth. The objective is to promote a culture where the demining community seeks to achieve this target by developing and applying appropriate management procedures, by establishing and continuously improving the skills of managers and deminers, and by procuring safe, effective and efficient equipment.

### 7.4 Introduction

7.4.1 The beneficiaries of humanitarian demining programmes must be confident that cleared land is safe for their use. This requires management systems and clearance procedures which are appropriate, effective, efficient and safe.

7.4.2 Due to nature of minefields in Jordan there are no Technical Survey requirements

7.4.3 The local community should receive regular briefings and explanations during the clearance operation as this acts as a very effective confidence building measure.

### 7.5 Specification of Clearance Quality

7.5.1 Land shall be accepted as 'cleared' when the demining organisation has ensured the removal and/or disposal of all mine and UXO hazards from the specified area to the specified depth.

7.5.2 The specified area to be cleared shall be determined by a technical survey or from other reliable information which establishes the extent of the mine and/or UXO hazard area.

7.5.3 The priorities for clearance shall be determined by the impact on the individual community balanced against national infrastructure priorities.

7.5.4 The area to be cleared, the clearance depth, and the requirements for monitoring and inspection will be specified by the NCDR, in the form of a Task Order (TO).

7.5.5 Specifying clearance depths will depend on the intended land use, the perceived mine or UXO threat in the area to be cleared and other environmental factors. For example: Mines and UXO may be on the surface of the ground. In this case, the specification may call for the removal and or disposal only of surface laid mine and UXO hazards.

7.5.6 Clearance in urban areas may require the removal of many meters of rubble as part of the clearance process. Is this applicable to Jordan

7.5.7 Shifting sands in desert areas or coastal areas may require clearance to a depth of 1.0m or 2.0m to locate and destroy mines which were originally laid at a depth of no more than 10cm.

7.5.8 For buried mines and UXO this depth should normally not be less than 150mm below the original surface level.

7.5.9 In most cases the TO shall state that the depth of clearance is 200mm. If this is proved to be excessive the demining organisation may request that this depth is reduced to 150mm. This decision and the reasons for this shall be documented and only come into effect once a new or amended TO has been issued.

7.5.10 The removal and/or disposal of all mine and UXO hazards in the specified area to the specified depth shall be ensured by:

- using accredited demining organisation(s) with operationally accredited capabilities, such as manual clearance, MDD clearance and mechanical systems;
- using appropriate management practices, and applying safe and effective operational procedures;
- monitoring the demining organisation and its sub-units;
- conducting a process of post-clearance inspection of cleared land.

## 7.6 Manual Mine Clearance

7.6.1 Mine/UXO clearance techniques used during each project may differ according to vegetation, terrain, soil content and type of mine/UXO etc.

7.6.2 Currently there are 3 recognised methods of manual clearance in Jordan:

- Detector method of clearance.
- Excavation method of clearance.
- Raking method of clearance

7.6.3 It will depend on the type of soil in the minefield as to whether the detector can be used to assist the demining process. In some minefields, the metallic content may be high and therefore the use of non-ground compensating detectors will not be possible or suspect. If there is any doubt as to the mine types that are present in the minefield then he must plan for the worst case and begin the task with a non-detector clearance method. Only when the mine types in each sector of the minefield has been confirmed and the threat assessment completed, can the clearance method be changed to detectors.

## 7.7 Mine Detection Dogs Clearance

7.7.1 Clearance by MDDs should primarily be implemented in areas with High Metal contamination and low-density minefields. MDDs will not be used in areas with heavy vegetation unless mechanical ground preparation has been conducted.

7.7.2 All procedures and drills used in clearance operations are to be fully explained in step-by-step detail in the clearance organisations SOP.

## 7.8 High Metallic Areas

7.8.1 In areas where the metallic content of the soil is high, the metal detector may be ineffective. The detector procedure must then be removed from the mine clearance sequence and replaced with a complete excavation procedure or alternatively MDD clearance to ensure that all mines are located. If excavation method is preferred, the minimum depth to be excavated is 150 mm. The detector should be used to regularly check the contamination level and confirm whether the complete excavation or MDD clearance process can be replaced with the detector procedure.

## 7.9 Action on Locating a Mine

7.9.1 All mines should be destroyed on the day that they are found unless a specific safety hazard prevents this.

7.9.2 Where mines are not destroyed on the day that they are found, they are to be accurately reported in the organisations daily clearance log and destroyed as soon as possible. If they are not destroyed by the end of the working week they are to be reported to the NCDR and an explanation given.

## 7.10 Action on Locating a UXO

7.10.1 The deminer or MDD handler is to stop all mine/UXO clearance activity and notify the supervisor. The supervisor is responsible for all actions relating to the removal or disposal of the UXO. Only qualified EOD personnel should render safe, remove or destroy mines/UXO.

## 7.11 Burning Of Vegetation in Hazardous Areas

7.11.1 Uncleared areas may be burnt prior to mine/UXO clearance, at the discretion of the supervisor and in co-ordination with local authorities, to increase visibility for the deminers and safety. However, supervisors must exercise good judgement, as burning uncleared areas may cause damage to neighbouring agricultural land, or alter the stability of unexploded ordnance. A minimum wait time of one-day (24 hours) is to elapse between burning an area and manual mine/UXO clearance-taking place. In all cases, a suitable firebreak is to be constructed and /local Emergency Fire Services (if available) are to be informed of the burning operation.

Note: The NCDR must be informed prior to any burning of uncleared areas.

## 7.12 Working Hours

7.12.1 No deminer is to work for longer than 60 minutes before taking a break. The working time is subject to the Supervisors judgement in each situation but shall not exceed sixty minutes.

7.12.2 A normal working day for a deminer should not to exceed 9 hours on site. The working week shall not exceed 48hrs.

7.12.3 All employment contracts must comply with Jordanian Labour Law.

### 7.13 Mechanical Assistance to Clearance Operations

7.13.1 Mechanical assets will require a closely monitored followed-up manual clearance and quality assurance. Mechanical assets can be used for the clearance of tripwires and/or vegetation, preparation of terrain to accelerate manual clearance and facilitate clearance by MDDs.

7.13.2 As a primary means of clearance, mechanical mine clearance may not meet national standards and must be augmented by other means to ensure the cleared area is free of all mines/UXO.

7.13.3 All procedures and drills used in mechanically assisted clearance operations are to be fully explained in step-by-step detail in the clearance organisation's SOP. The SOP must include details on the recovery of disabled machines.

### 7.14 Responsibilities and Obligations

7.14.1 The NCDR, shall:

- specify the area to be cleared and depth specified in the TO;
- specify the standards and guidelines for QA and QC to be applied;
- accredit demining organisations as fit to undertake clearance; and
- monitor the demining organisation and its sub-units
- maintain a registry of cleared and uncleared land showing the clearance status for each mined area.

7.14.2 The organisation undertaking clearance shall:

- gain (from the NCDR) accreditation to operate as a clearance organisation;
- maintain and make available documentation of clearance as specified by the NCDR;
- apply management practices and operational procedures which aim to clear land to the requirements specified in the TO; and
- ensure that the mine affected community is fully cognisant of all demining activities in the area and the implications for the community.

## Chapter 8: Mine Detection Dogs (MDDs)

### 8.1 References

8.1.1 This document has been developed with reference to the following documents:

IMAS 09.40 Guide for the use of MDDs

IMAS 09.41 Operational procedures for MDDs

IMAS 09.42 Operational accreditation of mine dogs

IMAS 09.44 Guide to medical and general health care of dogs

### 8.2 Scope

8.2.1 This chapter defines the training/training facilities, test, accreditation and operational use of Mine Detection Dogs.

### 8.3 Objective

8.3.1 To provide Mine Action organisations with a clear and comprehensive guide to ensure all Mine Detection Dogs are properly trained, tested and accredited prior to operations. Furthermore to ensure that accredited MDDs are operated by qualified handlers and when engaged in field operations follow the procedures in order to meet the quality required in humanitarian mine clearance, Survey, verification and sampling.

### 8.4 Introduction

8.4.1 Mine dog detection is a system in which dogs are used as main detection tools. Dogs can detect extremely low concentrations of many substances. In fact dogs are capable of detecting concentrations that are several magnitudes lower than the detection threshold of the best technological "sniffers". This makes dogs very effective detectors if trained and used correctly. Dogs are best used when indicating individual mines or UXO rather than concentrations. As such they should be used for area reduction and delineation of minefield boundaries (Technical Survey), clearance of low-density minefields, verification behind machines and rapid sampling of cleared areas.

8.4.2 Mine Detection Dogs have been used globally within Mine Action for a number of years. In these years, there has been a lot of focus on the development of better methodologies both with regards to training and operations. The end result of this focus is simply reliable MDDs that are properly trained, tested and efficiently used in field operations with a quality end result.

8.4.3 In Jordan, MDDs can be used within four activities: Technical Survey, clearance, verification and sampling.

### 8.5 General Dog Health Care

8.5.1 Good physical and mental health are prerequisites for all types of working dogs. The combination of strength, fitness, endurance, motivation and learning ability is key for a well working mine detection dog. Dogs need to be exercised regularly to remain in top physical and mental condition. Their daily living conditions are important too as proper kennel facilities are required;

8.5.2 Kennel requirements:

- Cage minimum size 4,5 m<sup>2</sup> (3m x 1,5m)
- Clean and healthy environment

- Adequately sized shelter facilities
- Easy to clean floor that can be kept dry
- Constant access to fresh water
- Access to suitable relief and exercise areas

8.5.3 Kennel staff should have basic training in general dog health and kennel care.

8.5.4 Vaccination requirements: Proper vaccination provides immunity against many potentially dangerous viruses and bacteria. It is the responsibility of the Mine Action organisation to contact the Jordanian Ministry of Health in order to retrieve information regarding bacterial and viral threat in Jordan and establish procedures for preventive vaccination and prophylaxis. A contract outlining cooperation with a local veterinarian should also be in place.

## 8.6 Training

8.6.1 In order to achieve the necessary quality and reliability in field operations, MDDs must be trained according to the task they will be performing. The training should focus on two areas; substance detection and search pattern.

8.6.2 Substance detection: The MDDs must be trained to detect the mines and UXO found in the area they will be operating, especially, and all types found in the minefields in the country, generally.

8.6.3 Individual dogs will usually be trained for one search pattern. The search patterns of choice will be: long lead with return search, long lead and short lead.

## 8.7 Training facilities

8.7.1 In order to provide sufficient training for substance detection and search pattern, the minimum requirements must be:

- Training areas and equipment for the various search patterns
- Clean and sterile carousel room for the explosive substances imprinting process
- Sterilisation facilities and equipment for carousel
- Training and test field with a minimum of 50 boxes (10m x 10m) with buried targets (disarmed mines and UXO)

## 8.8 Test and Accreditation

8.8.1 Prior to MDDs being deployed in field operations, each individual dog must pass a test and receive accreditation together with its designated handler. The handler and dog accredited together will be called an equipage. One handler can be accredited with a maximum of 2 dogs.

8.8.2 The Mine Action organisation will request an accreditation test with the NCDR. The NCDR Accreditation Board will then decide upon a suitable time and location for the accreditation test and designate a Test Manager from the Quality Management Team who will be in charge of all

preparations and the test itself. The results from the testing shall then be forwarded to the Accreditation Board which will evaluate the test results and produce a conclusion.

8.8.3 The equipment will receive accreditation if all test targets are identified. If targets are missed, the equipment will have to be re-tested later.

8.8.4 A dog handler must pass the basic mine and UXO clearance course and the dog handler course in order to be qualified and accredited with a dog.

## 8.9 Operations

8.9.1 The Mine action organisation operating with MDDs must submit comprehensive Standard Operational Procedures (SOP) for approval from NCDR. Upon approval of the SOP, the NCDR Quality Management Team will monitor the MDD operations in the field accordingly.

8.9.2 The SOP must in detail describe the use of MDDs within the methodologies: Technical Survey, clearance, verification and sampling. Search patterns used during operations will be: long lead with return search (Technical Survey), long lead and short lead. Required clearance depth will be down to a minimum of 13 centimetres unless otherwise defined in the Task Order (TO).

8.9.3 When a dog has found a mine or UXO it shall indicate by lying down or sitting. The dog shall indicate without being in direct contact with the object. If a dog scratches on target objects during operations, training or test, it shall be taken out of service and retrained.

8.9.4 When a dog has indicated a mine or UXO, the location must be marked and registered by the handler. The equipment will proceed to work in another location while the mine or UXO is dealt with by a qualified deminer.

8.9.5 During operations, daily test boxes must be established in close proximity to the task. Each MDD must pass the daily test in order to be used in operations. The aim of the daily test is to determine whether the dog is capable of detecting the target substance at the specified depth and that it is sufficiently motivated and focused to work on mine and UXO detection. When the dog has proved to be tuned in on the target substance and is searching and behaving satisfactory, the test will be terminated and the dog can start operations.

8.9.6 Using the search patterns described in paragraph 18, MDDs can either clear safe lanes or boxes. The establishment of boxes that will be cleared by MDDs will be referred to as the boxing system. Between boxes, safe lanes with a minimum of 1 meter must be established. The safe lanes can be cleared manually or by MDDs. The corners of each box shall be clearly marked and the whole area within each box must be visible to the dog handler or the box shall be divided into smaller boxes or lanes. One box can be maximum 10 meters wide and 50 meters long. Note – for boxes longer than 25 meters, the safe lanes in the length direction must be cleared manually.

## 8.10 Methodology Requirements

8.10.1 Within Technical Survey operations, MDDs can be used either to clear safe lanes by the long lead and return search pattern, or to clear boxes using the long or short lead search. In Technical Survey, one dog search is sufficient.

8.10.2 Within clearance operations, MDDs will be used to clear boxes. For an area to be declared cleared, at least two different dogs must have searched the box.

8.10.3 Within verification operations behind machines, MDDs can be used either to clear safe lanes by the long lead and return search pattern, or to clear boxes using the long or short lead search. Prior

to verification operations a threat assessment of the area must be conducted. Based upon the results from the threat assessment, NCDR will in cooperation with the Mine Action organisation decide whether a 1 dog search or 2 dogs search is required. If there is a disagreement with regards to the required number of dogs, NCDR has the final word and will make the final decision.

8.10.4 Within sampling, pattern and method will be agreed between the NCDR Quality Management Team and the MDD Team Leader.

### 8.11 Working Hours and Weather Conditions

8.11.1 In operations, MDDs will not work for longer than 30 minutes without a break. The total length of a working day will depend on the season and temperature but a dog can work in operations for a maximum of 5 effective working hours in 1 working day.

8.11.2 Weather conditions must be considered on a daily basis. Factors like humidity, temperature and temperature differences in soil/air, wind and rainfall will affect the capabilities of the dog. A mobile weather station should be used by the Mine Action organisation. The weather station must be operated by trained and qualified personnel.

### 8.12 Responsibilities and Obligations

8.12.1 The NCDR, shall:

- Assist the Mine Action organisation with all procedures connected with the import of Mine Detection Dogs to Jordan
- Test and accredit dogs and handlers
- Specify the area to be Surveyed/cleared/verified and depth specified in the TO;
- Specify the standards and guidelines for QA and QC to be applied;
- Accredit Mine Action organisations as fit to undertake Technical Survey, clearance, verification and support to sampling by the use of Mine Detection Dogs;
- Monitor the Mine Action organisation and its sub-units;
- Maintain a registry of cleared and uncleared land showing the clearance status for each mined area.

8.12.2 The organisation undertaking operations with Mine Detection Dogs shall:

- Gain (from the NCDR) accreditation to operate with Mine Detection Dogs;
- Establish kennels, training facilities and test/training fields for Mine Detection Dogs;
- Maintain and make available documentation of Technical Survey, clearance and verification operations with Mine Detection Dogs as specified by the NCDR;
- Apply management practices and operational procedures using Mine Detection Dogs which aim to clear land to the requirements specified in the TO; and

- Ensure that the mine affected community is fully cognisant of all demining activities in the area and the implications for the community.

## Chapter 9: Disposal of Mines and UXOs

### 9.1 References

9.1.1 This document has been developed with reference to the following documents:

IMAS 09.30 Explosive Ordnance Disposal -- EOD

IMAS 10.50 Storage, Transportation and Handling of Explosives

IMAS 11.20 Open Burning and Open Detonation (OBOD) Operations

### 9.2 Scope

9.2.1 The disposal of mines and UXO is limited to those items located inside designated minefields. Items found outside of these areas are to be dealt with by an REC EOD team.

### 9.3 Objective

9.3.1 To ensure that all technical activities are of a standard that will enhance the safety and quality of all clearance operations with the minimum exposure to risk.

### 9.4 Methods of Disposal

9.4.1 There are currently three methods of disposal:

- Detonation
- Burning
- Incineration

9.4.2 The method used depends upon its type of explosive filling and design, therefore knowing the explosive filling of an item is the first step towards determining the best method for its disposal.

9.4.3 All procedures and drills used in disposal of mines / UXO are to be fully explained in step-by-step detail in the organisations SOP.

### 9.5 Definitions

9.5.1 Detonation: this method is used with high explosive (HE) filled APM. Small quantities of other natures - smoke, pyrotechnics, lachrymatory can also be destroyed by inclusion in mixed stacks during large-scale demolitions. The quantities of such items included in a mixed stack have to be kept down to a small percentage of the overall stack. Detonation is the preferred option for uxo items recovered from a minefield.

9.5.2 Burning: this is generally used with propellant (bagged or loose), smoke and pyrotechnic munitions but is suitable for certain plastic-bodied APM. It can also be used as an alternative to detonation for certain explosives, i.e. composition exploding (CE), tri nitro toluene (TNT), nitro glycerine (NG) based explosives and gun powder (GP), but detonation is the cleaner method.

9.5.3 Incineration: this is a specialised form of burning that may be authorised for certain small APM with minimal explosive content. Incineration implies high temperatures able to break down complex chemical compounds into simpler, and less polluting, combustion compounds. For example, some persistent organic poisons (POP) may be destroyed through incineration above temperatures of 1000p<sup>o</sup>c. Incineration temperatures are not normally achievable through open burning.

## 9.6 Render Safe Procedures

9.6.1 Render safe procedures are to be conducted in accordance with the clearance organisations SOPs. The organisation's SOP is to contain Render Safe Procedures for all mines that its clearance personnel are allowed to render safe.

## 9.7 Positioning of Disposal Sites

9.7.1 A disposal site is an area authorised for the disposal of munitions and explosives by detonation and burning. These in turn are referred to as demolition grounds and burning grounds and may be co-located on a disposal site.

9.7.2 Disposal sites shall be sited to ensure that the hazards associated with disposal operations are reduced to a tolerable level.

9.7.3 All sites must be pre-approved and registered with the NCDR. The NCDR is responsible for licensing disposal sites within Jordan.

## 9.8 Control of Disposal Operations

9.8.1 The disposal operations supervisor shall apply the fire making and smoking materials restrictions and advise all personnel of smoking break arrangements.

## 9.9 Sentries

9.9.1 Sentries are critical to the safety of demolitions and are to be positioned at every possible entry point of the cordon, set sufficiently clear of the demolition site and danger areas. Sentries are to be carefully briefed about their duties, in particular about warnings and stand-down instructions. They are to be equipped with communications to reach the supervisor and each other. Radios must not pose a hazard to the demolitions and are to be tested before and after the sentries are posted.

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## Chapter 10: Mine / UXO Incidents

### 10.1 References

10.1.1 This document has been developed with reference to the following documents:  
IMAS 10.60 Reporting and Investigation of Demining Incidents

### 10.2 Scope

10.2.1 The following events are classified as a mine/UXO incident:

- Death or injury to non-mine/UXO clearance organisation personnel caused by mine/UXO clearance activity, from either planned or unplanned explosions.
- Death or injury to mine/UXO clearance organisation personnel caused by mine/UXO clearance activity, from either planned or unplanned explosions.
- Damage to public or private property caused during mine/UXO clearance operations.
- All unplanned explosions on or near, current mine/UXO clearance sites.
- The location of a mine/UXO in a previously cleared and documented area.
- The theft or loss of explosives.
- All other events that have the potential to cause death, injury or damage (near miss).

### 10.3 Objective

10.3.1 To ensure that all mine / UXO incidents are reported in a timely manner in order to ensure the NCDR can provide any necessary assistance.

### 10.4 Initial Reporting of Incidents

10.4.1 All mine/UXO incidents are to be reported to the NCDR Quality Management Team. An initial report is to be made by telephone as soon as is feasible, but within one hour of the incident occurring.

10.4.2 Following the initial report the organisation is to confirm that:

- The casualty is in suitable medical care and that no further action is required.
- All other mine/UXO clearance sites where the same organisation is operating are shut down and that the scene of the accident is secure as possible, pending the arrival of a NCDR QA officer.
- That all clearance operations utilising the same method of clearance on the same type of mine have been suspended.
- Arrangement and confirmation of a date/time/place to rendezvous with the NCDR QA officer to commence an incident investigation; this is normally the following day.

## 10.5 Preliminary Written Incident Report

10.5.1 Within 48hrs of an incident a draft report is to be submitted to the NCDR operations department. The following information is to be included:

- Narrative report outlining events leading up to the accident.
- Signed statements from all witnesses to the accident, including the casualty (statements may be dictated).
- Narrative report of medical treatment and casevac procedure.
- Immediate action taken following the accident.
- Conclusions and probable cause of the accident.
- Intended follow-up action

10.5.2 Photographs of the scene of the accident, if safe to do so should be provided. If not, the necessary action to make it safe to do shall take place. Sketches and relevant measurements may also be included.

10.5.3 The report may be initially submitted in either English or Arabic, however, within 7 days a translated version must be submitted.

Note: All clearance operations utilising the same method of clearance on the same type of mine are to be suspended until the findings of the NCDR incident investigation have been released.

## 10.6 External Investigations

10.6.1 Upon notification of a mine/UXO accident, the NCDR will convene an official Board of Inquiry (BOI) to investigate the circumstances and cause of the accident and to identify and distribute any lessons learned to avoid a repeat. The BOI will normally be chaired by the NCDR QMTL and will include the following personnel:

- NCDR QA Officer
- Representative from the organisation involved.
- Such outside specialists that may be deemed necessary.

10.6.2 The aim of the BOI investigation is to establish the facts and to make deductions from them. To ascertain the cause of the accident and to make recommendations that may be implemented to prevent any similar re-occurrence.

10.6.3 The BOI report will be presented to the National Director of the NCDR for his comments. Following this it will be signed, bound and produced in two copies for distribution as follows:

- 1 x copy for NCDR Operations Department.
- 1 x copy for mine/UXO clearance organisation, in country, Programme Manager.

10.6.4 As a minimum, the BOI investigation report is to contain the following information:

- Introduction.
- Sequence Documentation and Procedures of Tasking.
- Physical Geography and Weather.
- Site Layout and Marking.
- Management, Supervision and Discipline on site.
- Quality Assurance and Quality Control.
- Communications and Reporting.
- Medical, including injuries sustained.
- Personnel, Team Number and Witness Statements.
- Equipment and Tools.
- Details of the Mine/UXO involved.
- Evidence of re-mining.
- Dress and Personal Protective Equipment.
- Use of Machines.
- Particulars of Deminers Insurance.
- Detailed account of the activities on the day of the accident.
- Summary.
- Conclusion.
- Clear recommendations to prevent reoccurrence.

10.6.5 In addition to the above information the Final Report is to contain the following Appendices:

- Appendix A: Incident Report.
- Appendix B: All relevant visual evidence.
- Appendix C: Schedule of resultant damage.
- Appendix D: All relevant documentation including statements.
- Appendix E: Medical Reports/Summary.

## 10.7 Investigation Report Findings

10.7.1 Within 72hrs of the incident the NCDR will produce a draft executive summary. This document will outline the principle cause of the incident, finding and recommendations, i.e. whether or not operations can restart.

10.7.2 Once the BOI investigation report is prepared and signed the Programme Manager of the mine/UXO clearance organisation is to be given the opportunity to read and discuss its contents. This is to be conducted in a formal environment with the following personnel in attendance:

- NCDR Operations Manager
- Mine/UXO clearance organisation Programme Manager.
- Other personnel as identified by the mine/UXO clearance organisation Programme Manager.

10.7.3 Should the mine/UXO clearance organisation Programme Manager wish to have any additional comments included in the report they will submit them in writing and they will be inserted into the report portfolio as an annex.

10.7.4 The Programme Manager of the mine/UXO clearance organisation is to ensure that all recommendations are implemented without delay.

10.7.5 The NCDR QMTL is to ensure that a summary of such lessons learned are distributed to all mine/UXO clearance organisations as soon as possible and that a consolidated and updated version is distributed every 3 months.

## Chapter 11: Post Clearance Procedure

### 11.1 References

11.1.1 This document has been developed with reference to the following documents:  
IMAS 08.30 Post-clearance Documentation

### 11.2 Scope

11.2.1 This chapter outlines the Post Clearance Procedure (PCP)

### 11.3 Objective

11.3.1 To clarify:

- the ownership of any residual risk,
- to determine the legal responsibilities and accountability of the donor, the NCDR and the demining organisation(s) following handover.

### 11.4 General

11.4.1 All post-clearance inspections should be completed and any corrective action carried out; permanent survey markers including turning points and intermediate points should be emplaced and accurately recorded for future reference; and all necessary information such as monitoring and inspection reports should be collated and made available for the formal handover. The process shall ensure that the recipient is fully cognisant of all demining activities in the area and the implications for the end user.

### 11.5 Procedure Requirements

11.5.1 Boundary Marking: The boundaries of the cleared area shall also be marked, both visually and with metal objects buried to the depth of 1 meter at the turning points of the perimeter of the clearance area. The clearance documentation shall record the marking used, and also show how the first turning point marker can be found by use of suitable benchmarks and, if necessary, intermediate markers.

11.5.2 Hazard marking: Land which has not been cleared prior to handover for whatever reason, or cannot be confirmed as cleared, should be clearly marked with permanent hazard marking systems. Ideally, such areas should use physical barriers such as robust fencing to reduce the risk of unintentional entry into the remaining hazardous area(s).

11.5.3 Audit Trail: Information should be collected and recorded in a systematic manner during the clearance operation. Whenever possible use should be made of standard information management systems and GIS, such as IMSMA (as established within the NCDR).

11.5.4 The documentation which is made available for handover must provide sufficient evidence that the clearance requirement has been met. As a minimum the following documentation (copies) will require submission in the form of a portfolio.

11.5.5 Hand over report (See Annex A)

#### 11.5.6 Post clearance documentation:

- Completion report
- Threat Assessment
- Survey report (if applicable)
- Task Order
- Accreditation certificates of assets used
- Concept of clearance operations<sup>1</sup>
- Clearance statistics
- Internal / External QA reports
- details of any incidents and accidents which occurred during clearance;
- Misc reports such as suspension etc

#### 11.6 Timings

11.6.1 It is counter-productive for all stakeholders if land that has been cleared remains out of use because of delays in the handover process. NCDR undertakes to complete the handover process within 28 days of a demining organisation making a formal completion report for a particular worksite and providing all necessary information to facilitate the handover process. In the event that NCDR is unable to complete the handover process and the demining agency has complied with all of its responsibilities in this regard, the demining organisation's obligations for the worksite shall be considered as complete and the land considered as handed over to NCDR by default.

11.6.2 The NCDR shall be custodian of all completion reports, handover certificates and supporting information; demining organisations may retain copies for their own documentation.

#### 11.7 Residual Risk and Liability

11.7.1 For humanitarian operations no residual risk should lay with the demining organisation after the NCDR has formally accepted the cleared land. The handover of the cleared land shall be the mitigation of liability point for the demining organisation.

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<sup>1</sup> A summary of the procedures and equipment used to clear the area, including details of reduced and cancelled area(s)

**Annex A: NCDR Approved handover certificate and formal declaration**

LOCATION	
Map name:	Location of Cleared Area. (Description and GRID / UTM).  (Include map and diagram of cleared area, including benchmarks and any intermediate markers)
2. Edition:	
3. Sheet Number:	
4. Scale:	
5. Series:	
6. Local name:	
7. Minefield Serial Number:	
DETAILS OF CLEARANCE OPERATIONS	
Methods and Technology Used for clearance	10. Final Disposal Method of Recovered Mines / UXO:
Clearance depth:	Number and Type of Mine / UXO Cleared
12. Is Area Metal Free?	Quality Assurance Methodology
13. Method of marking turning points and benchmarks	14. Date of completion and hand over.
HANDED OVER ON BEHALF OF DEMINING ORGANISATION	
I certify that to the best of my knowledge and belief the area specified in this Completion Certificate has been cleared of all mine and UXO hazards to the depth specified in this Completion Certificate.	I certify that the area specified in this Completion Certificate has been independently assessed by monitoring [and QC inspection] to be clear, of all mine and UXO hazards to the depth specified in this Completion Certificate (delete as applicable).
Signature of Demining Organisation Representative.	Signature of QA/QC Officer.
Name	Name
Appointment	Appointment
Date of signature	Date of signature
ACCEPTANCE BY REPRESENTATIVE OF BENEFICIARY (OR CUSTOMER)	
I accept responsibility for the area indicated above. I understand that the specified area has been cleared of mines and UXO hazards to the depth specified in this Completion Certificate.	Name Appointment Date of signature
I have been briefed on and recorded the details of any potential residual risk.	
Signature of the beneficiary/customer representative	
ACTION BY NATIONAL COMMITTEE FOR DEMINING AND REHABILITATION (NCDR)	
I certify that the details of this certificate have been registered in the national database and archives	Name Appointment Date of signature
Signature of NCDR Representative.	
QC CHECK OF DOCUMENTARY PROCESSES BY NCDR QM TEAM	
Signature of the NCDR QM Team Representative (annotate if this QC check includes a further physical check of the cleared area).	Name Appointment Date of signature

## Chapter 12: Reporting

### 12.1 References

12.1.1 This document has been developed with reference to the following documents:  
IMAS 07.40 Monitoring of Demining Organizations  
IMAS 10.60 Reporting and Investigation of Demining Incidents

### 12.2 Scope

12.2.1 All operational reports detailing intensions, progress, suspension, completion and identification of task sites.

### 12.3 Objective

12.3.1 To ensure that all reports and records are complete in an accurate and timely manner.

### 12.4 Introduction

12.4.1 Accurate and timely reporting of all mine action activities are a key feature of an effective mine action programme. All mine/UXO clearance organisations are to submit regular reports, in the correct format, to the NCDR. All reports are to be in the form of an email addressed to [operations@ncdr.org.jo](mailto:operations@ncdr.org.jo).

### 12.5 Reports

12.5.1 Weekly Intentions Plan. Mine/UXO clearance organisations are to submit weekly plans detailing their operations for the forthcoming week by close of operations every Saturday. This is to allow the NCDR to plan QA monitoring visits to all operational assets. Any amendments to this plan must be reported to the NCDR Operations department.

12.5.2 Monthly Summary Reports. Mine/UXO clearance organisations are to submit weekly summary reports to the NCDR. Organisations 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 are shown at Annex A.

12.5.3 Suspension Report. A Suspension Report is to be issued by the clearance agency to the NCDR, as a result of a management decision by the clearance organisation to suspend work on any particular worksite. This may be for many legitimate reasons, such as, for example, because of flooding at the worksite. This includes a suspension as a result of an instruction from the NCDR. Any suspension for more than 48 hours is to be reported to NCDR using the suspension report at Annex B

12.5.4 Completion Report. Demining programmes require a formal record that clearance is complete and that the hand has been correctly handed over. The handover process is covered in detail in Chapter 11 and is therefore not covered in any more detail in this Chapter. However, there is a need for a means by which demining organisations can declare themselves ready for handover. A simple report format is therefore included at Annex C.

12.5.5 Dangerous Area / UXO Reports are to be submitted when organisations identify dangerous areas or items of UXO not previously shown on minefield maps. Dangerous area reports are also useful if they can provide additional information for the records. It is important to show new dangerous areas on minefield maps as soon as possible. Organisations are to submit a written report using the IMSMA format within 72 hrs of identifying the area (See Annex D).

12.5.6 Mine/UXO Incident/Accident Reports are to be submitted in the event of an incident involving a clearance organisation. Organisations are to submit a written report within 48 hrs of the event. (See Chapter 10).

## 12.6 Timings

12.6.1 The following information is to be submitted to NCDR within the designated timelines:

Weekly Intentions Report	Weekly, by end of ops every Saturday
Monthly Summary Report	Within five working days of the end of the month
Completion/Suspension Report	Within 48 hours of task completion
Dangerous Area / UXO Report	Within 24 hours
Initial Incident/Accident Report	Within 60 minutes of the event
Internal Incident/Accident Report	Within 48 hours of the event

### Annex A: Monthly Progress Report

DEMINING MONTHLY PROGRESS REPORT			
LOCATION			
NCDR Task Number		5. Period covered by this report	
2. Implementing Agency		6. Original planned completion date (from tasking order)	
Planned Start Date:		7. Current estimated completion date	
4. Actual Start Date		Task size in M2	
Description of Activity over the period of the report (attach additional information necessary)			
Area cleared in the period of this report (M <sup>2</sup> )			
No of mines found (by type)			
No of UXO found (by type)			
Reason for any delay in this period			
STATEMENT BY DEMINING ORGANISATION		DEMINING ORGANISATION REPRESENTATIVE	
I certify that this report is a true and accurate representation of our activity over the period covered by this report.		Signature	
		Name	
		Appointment	
		Date of signature	
ACTION BY NATIONAL COMMITTEE FOR DEMINING AND REHABILITATION (NCDR)			
I certify that the details of this certificate have been registered in the national database and archives		Name	
Signature of the NCDR database officer		Appointment	
		Date of signature	
QC CHECK OF DOCUMENTARY PROCESSES BY NCDR QM TEAM		Name	
Signature of the NCDR QM team officer		Appointment	
		Date of signature	

### Annex B: Suspension/Resumption Report

DEMINING SUSPENSION/RESUMPTION REPORT			
LOCATION			
NCDR Task Number		5. Period covered by this report	
2. Implementing Agency		6. Original planned completion date (from tasking order)	
Planned Start Date		7. Current estimated completion date	
:			
4. Actual Start Date		Task size in M <sup>2</sup>	
SUSPENSION INFORMATION			
Date suspension initiated			
Reason for suspension			
Date work resumed			
Action taken to allow resumption			
STATEMENT BY DEMINING ORGANISATION		DEMINING ORGANISATION REPRESENTATIVE	
I certify that this report is a true and accurate representation of our activity over the period covered by this report.		Signature	
		Name	
		Appointment	
		Date of signature	
ACTION BY NATIONAL COMMITTEE FOR DEMINING AND REHABILITATION (NCDR)			
I certify that the details of this certificate have been registered in the national database and archives		Name	
Signature of the NCDR database officer		Appointment	
		Date of signature	
QC CHECK OF DOCUMENTARY PROCESSES BY NCDR QM TEAM		Name	
		Appointment	
		Date of signature	

### Annex C: Completion Report

DEMINING COMPLETION REPORT			
LOCATION			
NCDR Task Number		5. Original planned completion date (from tasking order)	
2. Implementing Agency		6. Actual completion date	
Planned Start Date		7. Requested handover date	
4. Actual Start Date		Task size in M <sup>2</sup>	
Description of Activity (attach additional information necessary)			
Number of mines found (by type)			
Number of UXO found (by type)			
Reason for any delay in this task			
STATEMENT BY DEMINING ORGANISATION		DEMINING ORGANISATION REPRESENTATIVE	
I certify that this report is a true and accurate representation of our activity over the period covered by this report and that.		Signature	
		Name	
		Appointment	
		Date of signature	
ACTION BY NATIONAL COMMITTEE FOR DEMINING AND REHABILITATION (NCDR)			
I certify that the details of this certificate have been registered in the national database and archives		Name	
Signature of the NCDR database officer		Appointment	
		Date of signature	
QC CHECK		Name	
I undertake to initiate handover procedures in accordance with Jordanian National Standards for Mine Action and will contact the demining organisation to arrange the handover in a timely manner		Appointment	
Signature of the NCDR QM team officer		Date of signature	

**Annex D: UXO Report**

<b>UXO REPORT</b>			
<b>LOCATION</b>			
NCDR Number (Completed by NCDR)		4. Agency making report	
2 Contact details of witness who can help locate UXO			
Name		5. Address	
Telephone			
6. Description of UXO (attach additional information if available)			
<b>DO NOT TOUCH UXO IN ORDER TO COMPLETE THIS REPORT!</b>			
<b>Category of UXO</b>		<b>Quantity</b>	
Landmine		Rocket	
Projectile		Aircraft bomb	
Mortar		Small arms	
Grenade		Unknown	
<b>STATEMENT BY REPORTING AGENCY</b>		<b>REPORTING AGENCY REPRESENTATIVE</b>	
7. Signature of person making this report.		8. Name	
		Appointment	
		Date of signature	
<b>ACTION BY NATIONAL COMMITTEE FOR DEMINING AND REHABILITATION (NCDR)</b>			
11. Tasking Action taken			
12. Signature of NCDR tasking officer		13.. Name	
		Appointment	
		Date of signature	
<b>ACTION TAKING BY DEMINING ORGANISATION</b>			
I confirm receipt of the above tasking order and confirm that my organisation will take on this task		16. Signature of demining organisation officer.	
I also confirm that we will comply with the Jordanian National Standards for Mine Action and will employ operating procedures as authorised by the NCDR.		Name	
		Appointment	
		Date of signature	
<b>NCDR Archiving</b>			
I certify that the details of this certificate have been registered in the national database and archives		21. Name	
		Appointment	
20. Signature of the NCDR database officer		Date of signature	
<b>QC CHECK OF PROCESSES BY NCDR QM TEAM</b>		25. Name	
		26. Appointment	
24. Signature of the NCDR QM team officer		27. Date of signature	

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