

Test and Evaluation Protocol 07.31/02/2022

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Competencies required for animal detection systems (ADS) handlers, team leaders and instructors

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Foreword

A European Centre for Standardization (CEN) Workshop agreement is a CEN document developed by a workshop, which reflects an agreement between identified individuals and organizations responsible for its contents. Test and Evaluation Protocols (T&EP) include former CEN workshop agreements for humanitarian mine action produced by CEN. They have been produced within the framework of International Mine Action Standards (IMAS) and approved by the IMAS Review Board. T&EP are included in IMAS as normative references, which gives them authority within the IMAS system.

Competency standards are intended to represent the minimum standard required for specialist practice. The IMAS Review Board has recommended that competency standards for animal detection handlers, team leaders and instructors are identified, structured and agreed in a Test and Evaluation Protocol (T&EP). The GICHD has managed the process, including creating Technical Working Group. The TWG has represented the broader opinion of global ADS stakeholders.

This T&EP has been developed outside the framework of CEN standards but the principles of the CEN process have been applied, including a transparent, open and consensual development process.

Introduction

Animal detection systems (ADS) are a tool that may be used in land release processes for technical survey (TS) and clearance. ADS is a generic term but only dogs and rats are currently in operational use. IMAS 09.40 provides principles, requirements and guidelines on ADS. IMAS 09.41 explains principal operational procedures for ADS. IMAS 07.31 explains the process of accreditation and operational testing of animal detection systems and handlers. All three IMAS focus primarily on ADS deployment and test procedures but there is no focus on the competencies of handlers, team leaders and instructors. However, ADS is well integrated in the commercial mine action sector where formal competence of all staff is a key constituent for evaluation of tenders.

Since there are no formalized skills requirements for ADS handlers and instructors, this T&EP has been developed to provide structured information about general competencies required to qualify ADS handlers, team leaders and instructors for their work.

This T&EP builds on experience within and outside the mine action sector to define a set of required skills, or competencies, that staff must possess to be considered IMAS-compliant ADS handlers and ADS instructors. Such skills can be obtained in different ways, some through formal training courses and some through work experience (training on site).

Competencies required for animal detection systems (ADS) handlers, team leaders and instructors

1 Scope

Competency is a general statement that describes the desired knowledge, skills and attitudes of people in a given setting. This T&EP provides guidance on required competencies for ADS handlers, team leaders and instructors. It identifies the required skills of staff and recognizes staff competency gained from operational ADS work.

2 Normative references

A list of normative references is given in Annex A. Normative references are important documents to which reference is made in this T&EP and which form part of the provisions of this T&EP.

3 Terms and definitions

A complete glossary of all the terms, definitions and abbreviations used in the International Mine Action Standards (IMAS) series is given in IMAS 04.10.

In the IMAS series, the words “shall”, “should” and “may” are used to indicate the intended degree of compliance:

- “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 preferred requirements, methods or specifications; and
- “may” is used to indicate a possible method or course of action.

3.1

competence

a combination of knowledge, skills and attitudes necessary to perform a task

3.2

national mine action authority

NMAA

government entity, often an inter-ministerial committee, in an EO-affected country charged with the responsibility for broad strategic, policy and regulatory decisions related to mine action.

Note to entry: In the absence of an NMAA, it may be necessary and appropriate for the UN, or some other body, to assume some or all of the responsibilities of an NMAA.

3.3

animal detection system

ADS

combination of animals, handlers, supervisors, managers, equipment, facilities, policies, procedures and other associated functions, that interact to provide a tool intended to detect explosive ordnance

3.4

animal detection system organization

ADS organization

any organization (government, non-governmental organization or commercial entity) responsible for implementing mine action projects or tasks with the use of an animal detection system

3.5**animal detection system unit****ADS unit**

any animal and its handler

3.6**animal detection system team leader****ADS team leader**

person in charge of leading several animal detection system units

3.7**animal detection system instructor****ADS instructor**

person in charge of training animal detection system units and/or animal detection system team leaders

3.8**mine detection dog****MDD**

dog specifically trained to detect the scent of explosive ordnance, usually during systematic search in boxes or panels

3.9**mine detection rat****MDR**

rat specifically trained to detect the scent of explosive ordnance, usually during systematic search in boxes or panels

3.10**technical survey dog****TSD**

dog specifically trained to detect and correctly indicate odorants from explosive ordnance, normally in the minefield environment/setting, and used with or without leash to distances greater than 10m and without any prior ground preparation

3.11**explosive ordnance****EO**

term interpreted as encompassing mine action's response to the following munitions:

- mines
- cluster munitions
- unexploded ordnance
- abandoned ordnance
- booby traps
- other devices (as defined by CCW APII)
- improvised explosive devices

Note 1 to entry: Improvised explosive devices (IEDs) meeting the definition of mines, booby-traps or other devices fall under the scope of mine action when their clearance is undertaken for humanitarian purposes and in areas where active hostilities have ceased.

4 Competency standards

4.1 Purpose

The purpose of competency standards is to define the minimum occupational competence in terms of the context(s) in which the standard needs to be applied, along with performance criteria and an explanation of the required knowledge and understanding. Individual units or modules of competencies can also be – or form part of – qualifications at different levels, provided that an assessment regime with appropriate evidence or test requirements is used.

This T&EP sets out the criteria to assess an individual's professional competence as ADS handler, team leader or instructor. Using this document enhances capacity building by providing a tool for planning and assessing the personal development of staff.

4.2 Application

This document may benefit a range of stakeholders, including:

- EO-affected communities, by providing a common level of competency for organizations and individuals involved in mine action;
- individuals, by providing internationally recognized mine action and ADS qualifications enabling the transfer of skills and professional development;
- mine action organizations, by developing internationally recognized competencies;
- national mine action authorities, by providing recognized competencies by which to measure the performance of individuals and organizations. Application of this T&EP should enhance the process of measuring national capacity development across different organizations by providing a common understanding of the competencies of staff;
- donors and contracting agencies, including the UN, by providing a framework for the development and assessment of professional capacity of individuals and organizations, either from a funding or international aid perspective; and
- the broader mine action sector, by recording and evaluating the competency of personnel and organizations to ensure effective planning and evaluation, staff development and capacity building. Additionally, using this T&EP improves the quality management process by enhancing the assessment of training and competency of staff.

The T&EP supports staff recruitment and selection by providing a recognized tool for the assessment of an individual's competence.

4.3 Use of competency standards

Competency standards define key competency levels required for staff in any given environment. They can also provide a basis for developing staff policy, formally acknowledging existing staff competence, identifying the requirement for training, detailing operational processes, developing standard operating procedures and defining contractual obligations. This T&EP focuses on competence related to working with animals and is not a measure of all competencies required within a mine action programme. The competency requirements set out in this T&EP further complements less measurable but equally personal attributes of staff to handle and train animals.

Any organization using this document as a best-practice reference needs to produce guidance and other supplementary material to define specific competency requirements for different employments as appropriate to the relevant environment.

5 Competency requirements and categories

This T&EP provides a minimum set of requirements associated with five interrelated ADS staff categories. ADS organizations may require additional competencies from their staff, for which they must be appropriately trained and qualified. Competency levels for one ADS category may require the competency level for another category. However, there is no definite requirement for incremental acquirement of competence from one category to the next. For example, an MDD handler may not require all the skills required for an MDR handler and visa-versa.

The full list of competencies for each of the groups is listed in Annex B. Five competency groups with associated competency levels have been identified:

- 1) ADS 1: MDD handler;
- 2) ADS 2: TSD handler;
- 3) ADS 3: MDR handler;
- 4) ADS 4: ADS team leader; and
- 5) ADS 5: ADS instructor.

ADS competencies have been structured into three principal topics and twelve sub-topics as follows:

- 1) broad mine action sector and context:
 - context; and
 - land release process.
- 2) animal knowledge base:
 - anatomy, physiology, and behaviour;
 - odours and olfaction;
 - preventive health care, illness and treatment;
 - animal learning and training principles;
 - training and testing fields;
 - initial training;
 - testing and accreditation; and
 - maintenance and refresher.
- 3) work site procedures:
 - operational deployment; and
 - safety.

6 Quality and audit process

Based on the selected performance criteria, appropriate assessment tools and procedures should be developed by the ADS organization. For example, this could involve the development of written tests, practical exercises, demonstrating a task, or procedures for the assessment of performance during operations.

7 Responsibilities

7.1 General

When deciding to use this protocol, the competency standards may be implemented taking into consideration the following process as guidance.

7.2 Adaptation of competency standards by the NMAA

The NMAA, or organization acting on its behalf, should:

- incorporate this protocol at a national level as part of the national mine action standards;
- apply this protocol to enable development of operational expectations; and
- develop or approve a process that enables an assessment of competence and quality management.

7.3 ADS organizations

ADS organizations should:

- Equate the specific job roles to the levels of competence specified by this protocol. If a role does not already equate to the levels of competency described in this protocol, then the relevant units of competency or operating category may be extracted to define the specific role; and
- develop a system of measuring the competency of their workforce. This assessment should be based on the performance criteria and describe what is to be accomplished to fulfil a competency unit and how that is to be accomplished according to organization or national regulations.

7.4 ADS staff training

The relevant training authority (training school, non-governmental organization, commercial company, military unit, etc.) should:

- compare the organization's procedures, training and current competency assessment processes with the national policy and standards;
- develop or adjust training plans based on this comparison;
- develop or adjust assessment procedures and material, enabling the assessment of trainees and personnel recruited from external organizations; and
- establish and maintain certification procedures so that training completion certificates explicitly list the disciplines on which the individual has been trained and has qualified as competent.

Annex A (normative)

References

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this part of the standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this T&EP are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies.

- [1] IMAS 04.10, *Glossary of mine action terms, definitions and abbreviations*
- [2] IMAS 07.31, *Accreditation and operational testing of animal detection systems and handlers*
- [3] IMAS 09.40, *Animal detection systems: principles, requirements and guidelines*
- [4] IMAS 09.41, *Operational procedures for animal detection systems*

The latest version/edition of these references should be used. GICHD holds copies of all the references used in this T&EP. A register of the latest version/edition of IMAS standards, guides and references is maintained by GICHD, and can be read on the IMAS website (<http://www.mineactionstandards.org/>). NMAA, employers and other interested bodies and organizations should obtain copies before commencing mine action programmes.

Annex B (normative)

ADS competencies

ADS competencies for ADS handlers, team leaders and instructors must be contextually relevant. The exact requirements for a competency at one level may vary at the next. Five generic competence levels have been identified and addressed in this T&EP:

- 4) ADS 1: MDD handler;
- 5) ADS 2: TSD handler;
- 6) ADS 3: MDR handler;
- 7) ADS 4: ADS team leader; and
- 8) ADS 5: ADS instructor.

MDD, TSD and MDR handler (ADS 1, 2 and 3)

Animal handler training should combine theory (anatomy, physiology and behaviour, regulations, philosophies, principles and techniques) and practical skill objectives that the handler must learn and demonstrate. The minimum number of hours of practical application under instructor supervision is:

- 200 hours for dog handlers (elements of training more complex); and
- 100 hours for rat handlers (elements of training less complex).

A total of 12 months of practical field deployment as an operational handler may be considered as an adequate substitute for formal training, provided that all handler competencies in this T&EP have been controlled and verified by a certified instructor or team leader.

Team leader (ADS 4)

Team leaders should have all the competencies required for handlers. In addition, they should be able to demonstrate quality leadership, communication skills, team spirit, organizational skills and in-depth skills in operational mine action, standards operations procedures and task planning.

Instructor (ADS 5)

Instructors should have all the relevant competencies required for team leaders and demonstrate the following:

- excellent communication skills with relevant animal species and people;
- good teaching and training skills (for people and animals: design, planning, training steps, evaluation/correction, accreditation);
- a calm, nurturing and confident attitude;
- a strong understanding of animal behaviour;
- knowledge of proper animal training methods and techniques; and
- patience when working with animals and people who may learn at different paces.

No.	Competencies	ADS 1	ADS 2	ADS 3	ADS 4	ADS 5
	Applicable to:	Dogs	Dogs	Rats	Either	Either
1	THE BROAD MINE ACTION SECTOR AND CONTEXT					
1.1	Context					
1.1.1	Broadly understand the global and national mine action context	x	x	x	x	x
1.1.2	Recognize the most relevant sector stakeholders, globally/in the country	x	x	x	x	x
1.1.3	Understand how mines/UXO are laid/distributed	x	x	x	x	x
1.1.4	Explain and categorize different types of terrain, including ADS limitations	x	x	x	x	x
1.1.5	Maintain general knowledge of EO identification processes (size, shape, colour, casing features, markings, explosive contents, operating principles)	x	x	x	x	x
1.1.6	Understand and explain the broader components of mine action				x	x
1.1.7	Be familiar with relevant national legislation				x	x
1.1.8	Understand EO regulations/restrictions in the country	x	x	x	x	x
1.1.9	Understand basic IMAS terminology				x	x
1.1.10	Understand the basic principles of quality management (QC/QA)				x	x
1.2	Land release process					
1.2.1	Understand the basic principles of land release, including NTS, TS, clearance, land classification principles and terminology	x	x	x	x	x
1.2.2	Understand the practical difference between NTS, TS and clearance	x	x	x	x	x
1.2.3	Understand how separate mine action activities are interlinked as part of a toolbox approach	x	x	x	x	x
1.2.4	Understand the role of animals in that toolbox	x	x	x	x	x

No.	Competencies	ADS 1	ADS 2	ADS 3	ADS 4	ADS 5
	Applicable to:	Dogs	Dogs	Rats	Either	Either
2	ANIMAL KNOWLEDGE BASE					
2.1	Anatomy, physiology and behaviour					
2.1.1	Understand and recognize species-specific behaviour patterns (some examples are basic animal drives, including hunt, prey, retrieve, tracking, rank, pack, play, activity, fight, guard, survival, food, reproduction, grooming, signs of pain and distress)	x	x	x	x	x
2.1.2	Understand and recognize species-specific communication especially regarding the development of aggression or other behaviour problems	x	x	x	x	x
2.1.3	Have basic knowledge about the animal anatomy and senses	x	x	x	x	x

2.1.4	Have advanced knowledge about the animal anatomy and senses				x	x
2.1.5	Understand/recognize factors that can affect the sensing system of animals	x	x	x	x	x
2.1.6	Understand how animals cope with climatic variations	x	x	x	x	x
2.1.7	Understand relevant physical capabilities and limitations of animals	x	x	x	x	x
2.2	Odours and olfaction					
2.2.1	Understand what odour is in general and what explosive odours are specifically	x	x	x	x	x
2.2.2	Recognize and identify factors that influence odour availability	x	x	x	x	x
2.2.3	Understand the principles of scent perception	x	x	x	x	x
2.2.4	Understand the environmental influences on scent detection, including the effects of rain, sun, temperature, humidity, wind, flooding, landslides, etc.	x	x	x	x	x
2.2.5	Understand the olfactory system of the relevant animal species and how it works	x	x	x	x	x
2.2.6	Understand internal and external factors that limit the sense of smell of the relevant animal species	x	x	x	x	x
2.3	Preventive health care, illnesses and treatment					
2.3.1	Understand and apply the necessary care to ensure the welfare of the specific animal species (at minimum 5 freedoms)	x	x	x	x	x
2.3.2	Understand and demonstrate observational skills in monitoring behavioural issues that may be caused by underlying medical problems	x	x	x	x	x
2.3.3	Understand the requirements when setting up permanent and temporary kennels				x	x
2.3.4	Know which vaccinations are required at what intervals				x	x
2.3.5	Understand all relevant dietary issues, including water	x	x	x	x	x
2.3.6	Fully understand and be able to apply the occupational health plan (including regular health and weight checks, checks during operations and recognition and correct action on discovery of any health issue)	x	x	x	x	x
2.3.7	Attend and graduate from basic first aid course with demonstrated ability to provide basic first aid to staff and animals	x	x	x	x	x
2.3.8	Understand and demonstrate correct casualty evacuation procedures	x	x	x	x	x
2.3.9	Know how to handle the animal during a veterinary examination	x	x	x	x	x
2.4	Animal learning and training principles					
2.4.1	Understand fundamental principles of animal learning, including habituation, sensitization, imprinting, social learning, classical and operant conditioning	x	x	x	x	x

2.4.2	Understand classical conditioning and recognize it in behaviour patterns	x	x	x	x	x
2.4.3	Understand how to apply classical conditioning in training (routines, clicker, etc.)	x	x	x	x	x
2.4.4	Understand operant conditioning principles and its four quadrants (positive and negative reinforcement, positive and negative correction)	x	x	x	x	x
2.4.5	Understand operant conditioning in practice and correctly identify stimulus, behaviour and consequence in behaviour patterns	x	x	x	x	x
2.4.6	Understand how to apply positive reinforcement to achieve successive approximation (shaping) of desired behaviour	x	x	x	x	x
2.4.7	Understand how to apply positive reinforcement (using both primary and secondary reinforcers) to maintain motivation for the learned behaviour	x	x	x	x	x
2.4.8	Understand and know how/when to apply various reward schedules	x	x	x	x	x
2.4.9	Understand the risks of the use of aversives to achieve behaviour change	x	x	x	x	x
2.4.10	Understand cuing and how to minimize/eliminate risk of it	x	x	x	x	x
2.4.11	Understand how to measure progress towards changed behaviour				x	x
2.5	Training and testing fields					
2.5.1	Understand the requirements for preparing test fields as per IMAS				x	x
2.5.2	Prepare/maintain training and test fields for ADS				x	x
2.5.3	Understand (odorants) cross-contamination issues (theory) and specialized handling required to prevent (address) the problem					x
2.5.4	Understand and comply with all principles of handling and storage of training samples including protective clothing/gloves/contact surfaces and effective cleaning				x	x
2.5.5	Demonstrate effective cleaning and handling of test equipment and test samples/items				x	x
2.5.6	Ensure efficient replacement and disposal of training and test substances				x	x
2.5.7	Prepare, manage and store records related to training/testing fields, including training aids, layout of training site, location of and content in training boxes				x	x
2.6	Initial training					
2.6.1	Carry out an effective training needs analysis (TNA)				x	x
2.6.2	Select suitable animals for training (recognize typical species-specific character traits)				x	x
2.6.3	Prepare/maintain/execute training plans for ADS with clearly defined milestones and performance indicators (including obedience)					x

2.6.4	Understand how to increase the ability of animals to generalize to different quantities of a target substance				x	x
2.6.5	Understand how to increase the ability of animals to generalize to a range of odours similar to training samples				x	x
2.6.6	Conduct training for correct indication by ADS				x	x
2.6.7	Conduct MDR string system training			x	x	x
2.6.8	Conduct MDD long-/short-leash training	x	x		x	x
2.6.9	Conduct MDD technical survey deployment training (TSD)		x		x	x
2.6.10	Conduct MDD/TSD obedience training	x	x			
2.6.11	Demonstrate the use of track-and-trace systems carried by the animal		x		x	x
2.6.12	Know the handling and marking principles and requirements in ADS accreditation following IMAS 07.31	x	x	x	x	x
2.6.13	Demonstrate the use of air/ground temperature and wind speed measurement devices	x	x	x	x	x
2.6.14	Capable of handling dog–dog and dog–human aggression with minimal injuries to dogs, self and staff	x	x		x	x
2.7	Testing and accreditation					
2.7.1	Design, prepare and implement the testing and accreditation of ADS				x	x
2.7.2	Understand and demonstrate the principles of blind testing				x	x
2.7.3	Demonstrate practical handler skills	x	x	x	x	x
2.7.4	Design, prepare a plan for the collection/analysis of training/test data				x	x
2.7.5	Design, prepare and manage periodic re-testing/accreditation as required				x	x
2.8	Maintenance and refresher					
2.8.1	Provide realistic, practical, safe and objective training advice to ADS				x	x
2.8.2	Plan and implement ongoing maintenance and remediation training as appropriate	x	x	x	x	x
2.8.3	Design, prepare and implement refresher training for ADS				x	x
2.8.4	Maintain dog obedience through training	x	x		x	x

No.	Competencies	ADS 1	ADS 2	ADS 3	ADS 4	ADS 5
	Applicable to:	Dogs	Dogs	Rats	Either	Either
3	WORK SITE PROCEDURES					
3.1	Operational deployment					
3.1.1	Graduate from a manual deminer course and be certified as deminer	x	x	x	x	
3.1.2	Graduate from a first aid course (humans/animals)	x	x	x	x	x

3.1.3	Understand and participate in ADS-supported MEDEVAC training before deployment	x	x	x	x	x
3.1.4	Demonstrate correct actions in case of accidents	x	x	x	x	x
3.1.5	Demonstrate the required leadership and management skills for preparing and managing ADS units during operations				x	x
3.1.6	Conduct the safety and operational brief of ADS units before daily deployment				x	x
3.1.7	Know how to visually survey designated boxes/lanes and tactically plan the deployment of ADS				x	x
3.1.8	Supervise all aspects of operational activity involving the use of ADS				x	
3.1.9	Fully understand all relevant SOPs and operational deployment procedures, opportunities and constraints of animal teams after training has been completed	x	x	x	x	x
3.1.10	Understand and demonstrate how to use SOPs	x	x	x	x	x
3.1.11	Understand and demonstrate all operational ADS deployment techniques	x	x	x	x	x
3.1.12	Demonstrate correct selection of baselines as a result of wind direction, the length of the box/panel side and other geographical features	x	x	x	x	x
3.1.13	Understand the important factors that lead to a decrease in performance during operations, such as reinforcement frequency, environmental circumstances and signs of distress	x	x	x	x	x
3.1.14	Understand how to mitigate decrease in performance during operations, by planning and implementing appropriate measures throughout the operational period				x	x
3.1.15	Understand when to rotate and rest ADS and provide water/food/shade	x	x	x	x	x
3.1.16	Take immediate corrective action on observation of drills and/or ADS unit performance that falls below the required standard as per the SOP				x	x
3.1.17	Demonstrate correct action on animal indication of a target	x	x	x	x	x
3.1.18	Correctly record ADS performance during and after work				x	x
3.1.19	Demonstrate how to fill the daily logbook	x	x	x	x	x
3.1.20	Demonstrate how to write daily, and periodical ADS reports				x	x
3.2	Safety					
3.2.1	Understand the worksite's layout and marking system, as per the SOP	x	x	x	x	x
3.2.2	Understand the medical evacuation system	x	x	x	x	x
3.2.3	Understand the worksite's chain of command	x	x	x	x	x
3.2.4	Understand PPE requirements/regulations. Show correct use	x	x	x	x	x
3.2.5	Know how to minimize animal risk during operations	x	x	x	x	x
3.2.6	Understand transport regulations for animals and staff				x	x

3.2.7	Enforce working-safety distances appropriate to the worksite's risk				x	x
3.2.8	Assess the risk of tripwires or other obstacles to the safe deployment of ADS				x	x
3.2.9	Understand and demonstrate the correct action on target indication	x	x	x	x	x
3.2.10	Terminate search if animals lack concentration/motivation or dogs scratch the surface during indications				x	
3.2.11	Understand how to prepare and mark access lanes	x	x	x	x	x
3.2.12	Demonstrate compliance with the safety standards of the ADS organization	x	x	x	x	x
3.2.13	Inspect and monitor ADS units (equipment, outfit, fitness for work) before and during work				x	x
3.2.14	Demonstrate the appropriate deployment of ADS units relative to different situations and scenarios				x	x
3.2.15	Understand and demonstrate applicable worksite layout and marking systems	x	x	x	x	x
3.2.16	Assess the terrain prior to deployment of ADS				x	x
3.2.17	Ensure correct QC/QA of the work of ADS units				x	x
3.2.18	Transport, handle and store explosives used for training as per the SOP	x	x	x	x	x

Amendment record

Management of T&EP

The T&EP series of protocols are subject to formal review on a three-yearly basis. 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 document, they are given a number. The date and general details of the amendment shown in the table below. The amendment is also shown on the cover page of the document by the inclusion, under the edition date, of the phrase “*incorporating amendment #.*”

As the formal reviews are completed, new editions may be issued. In this case, amendments up to the date of the new edition are incorporated into the new edition and the amendment record table cleared. Recording of amendments then starts again until a further review is carried out.

The most recently amended IMAS are posted on the IMAS website at www.mineactionstandards.org.

Number	Date	Amendment details