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DDAS Accident Report

Accident details

Report date: 19/05/2006	Accident number: 378
Accident time: 12:58	Accident Date: 20/05/2002
Where it occurred: M/F 149, Bal'awin, Bayt Yahun	Country: Lebanon
Primary cause: Victim inattention (?)	Secondary cause: Management/control inadequacy (?)
Class: Handling accident	Date of main report: 25/07/2002
ID original source: BOI:No003/2002	Name of source: MACC SL
Organisation: Name removed	
Mine/device: No.4 Israel AP blast / frag	Ground condition: grass/grazing area hard rocks/stones
Date record created: 22/02/2004	Date last modified: 23/03/2004
No of victims: 1	No of documents: 1

Map details

Longitude:	Latitude:
Alt. coord. system:	Coordinates fixed by:
Map east:	Map north:
Map scale: M/F 149	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

inadequate investigation (?)
visor not worn or worn raised (?)

Accident report

A summarised MACC BOI report was made available in 2003. It is reproduced below, edited for anonymity. The commercial demining company involved was asked to supply the internal report referenced in this document in March 2003.

Introduction

1. At the time of the accident [Commercial demining company] Manual Clearance Team No.5 were operational at the M/F 149 clearance site, at Bal'awin, Bayt Yahun. Manual Clearance Team No.5 had been operational on M/F 149 and the adjacent M/F 256, since the 09th May 2002. A total of 4 x breaching lanes 1 x M/F to M/F cut lane and 1 x main clearance lane had been cut into M/F 149 and M/F 256 during the previous 8 x days clearance activities, resulting in the location of the minefield mine rows, as per the M/F records
2. A [Commercial demining company] Deminer had been clearing a cut line in an uphill Northerly direction, from M/F 256 through to M/F 149. At a distance of approximately 100m from the Northern limit of M/F 256, the Deminer successfully cut into the Southern part of M/F 149, locating a total number of 9 mines.
3. At approximately 12:55 hrs, the [Commercial demining company] Deminer located the tenth Israeli No.4 Anti-Personnel (AP) mine of the day. The mine had been located in between 2 x rocks, at a depth of approximately 3cms, in an angled position of approximately 45 degrees and with the rear portion of the mine facing uppermost. The Deminer had excavated a large portion of the mine body, but not the actual mine fuze which would have been facing in a downward attitude. Following this partial excavation, he then informed the Team Leader who then ordered the Deminer to move to the rear of the lane into the safe area, whilst full excavation and manual neutralisation of the mine took place.
4. The Team Leader then adopted the kneeling position wearing his protective jacket and protective visor (down position). As the soil in and around the fuze was hard and in order to gain full access so that fuze neutralisation could take place, he chose to move the second smallest rock (farthest rock). Prior to moving the rock he probed underneath it, checking for booby-traps, he then attempted to physically move the rock, whereupon an uncontrolled detonation occurred.

Medical details

5. The Team Leader suffered traumatic amputations of both hands above the wrists, multiple facial cuts and abrasions to his face, a large fragmentation wound to his inner right thigh, primary and secondary fragmentation injuries to his groin, left thigh and left foot. The Team Medic administered medical treatment and stabilisation on-site; casualty evacuation by road to Bint Jubayl civilian hospital then took place.
6. On arrival at Bint Jubayl hospital, the Team Leader was transferred to the Emergency Department where additional trauma care was administered. As major surgery is not normally performed at Bint Jubayl hospital, the decision was then made to transfer the Team Leader to Hammoud hospital, Sidon. He then underwent a 3 ½ hour operation where upon after he was transferred to the Intensive Care Unit.

Conclusions

7. Based on the investigation, the statements and visits to the site, the BOI concluded the following:
 - There was a surface detonation of an Israeli No.4 Anti Personnel mine. Evidence shows that the crater was relatively shallow, due to the locality of the mine at the time of detonation and the hard rocky ground that it was located in. No lifting had formed around the edge of the seat of detonation.
 - The mine detonated whilst the Team Leader was attempting to gain access to the fuze, and not during the actual neutralisation of the fuze.
 - The accident occurred just before the break for lunch (12:58hrs).
 - The Team Leader was in the kneeling position at the time of the uncontrolled detonation.

- The traumatic amputation of the Team Leader's hands were due to the positive blast effects resulting from the disintegration of the Israeli No.4 mine, on the detonation of the high explosives.
- The Team Leader's other injuries were sustained from both primary and secondary fragmentation, resulting from the disintegration of the Israeli No.4 mine, on the detonation of the high explosives.
- The medical treatment and subsequent evacuation of the casualty by the Team Medic was very good
- The post-accident marking of the accident site was carried out in accordance with current SOPs.
- The passage of information in between the accident site, [Commercial demining company] base location and the MACC SL was very good, with all relevant information being passed in a timely manner.
- The BOI agrees with and accepts [Commercial demining company] Accident and IMSMA Reports.
- The protective jacket maintained its integrity following the uncontrolled detonation of an Israeli No.4 AP mine, at a distance ranging from approximately 10 cms to 40 cms.
- The protective visor did not maintain its integrity following the uncontrolled detonation of an Israeli No.4 AP mine, at a distance of approximately 40 cms, but provided sufficient protection to ensure that the Team Leader sustained no eye damage.

8. The BOI concluded that there are two possible explanations why there was an uncontrolled detonation, these being:

- Whilst attempting to move the second rock, the Team Leader either inadvertently dropped the rock onto the mine causing it to detonate, or inadvertently rolled the rock onto the mine causing it to detonate.
- Whilst attempting to move the second rock, the Team Leader would have been stretching and leaning forward (consequently being in an unbalanced state), he therefore may have lost balance and placed both hands on top of the mine.

9. The BOI also concluded that the likelihood of the mine being booby-trapped is minimal, evidence to substantiate this are:

- No booby-traps are detailed in the Israeli Minefield Report.
- Due to the hard rocky soil, the setting of a booby-trap would have been extremely difficult.
- No physical evidence of booby-trapping was found during the BOI investigation.

Recommendations

10. The following are recommendations based on the BOI conclusions:

- All armed mines that incorporate a cocked striker mechanism are to be destroyed in-situ. It is known that this accident and the previous accident (001/2002), occurred whilst Team Leaders were trying to gain access to the mine in order to neutralise the fuze. A recommendation following accident 001/2002 was that "All mines that prove difficult to excavate or neutralise are to be destroyed in-situ (by detonation only)". Either clearance personnel are not adhering to this recommendation, or are finding it difficult to distinguish between what is difficult to excavate and what is not difficult to excavate!
- The specific TSG related to this accident is to be reviewed by the MACC and recommendations made to the NDO for amendment immediately but not later than 31

July 2002. The specific TSG to be reviewed is Chapter Four: Mine Clearance Techniques.

- The MACC is to propose an amendment to the National TSGs which provides clearer guidance on manual neutralization as an authorized mine clearance technique within the theatre of operations. Should the company wish to employ a manual neutralization technique then they are to prepare their SOP and submit it in writing to the MACC QA Section for approval prior to implementing the procedure in the field. Until such time as these two issues are addressed the procedures detailed in National TSGs are to apply (Ref: NDO TSGs, Issued Mar 2002, Chapter 4, paras 4.11-4.13, 4.15-4.17).
- The current blanket restriction placed on the manual neutralization of all mines is withdrawn with effect the acceptance of this report by the NDO Representative, however, the techniques detailed in Chapter 4 of the TSGs are to apply until such time as the Company SOPs for manual neutralization are submitted and approved.
- Team Medics are to ensure that all operational personnel drink sufficient quantities of liquids, and take regular breaks during demining operations, especially during times of hot weather (every 60 minutes as per National TSGs).
- The density of the minefields in which the teams are working, the rocky and hard ground, and the working temperature on the day have all been contributing factors to this accident. It is clear from the evidence that the injured Team Leader was not in the act of physically neutralizing the mine. This has been an unfortunate accident and there can be no fault directly attributed to the Team Leader's actions.
- The conclusions detailed in this report be distributed and discussed among all [Commercial demining company] Operational Field Staff.

Signed: QA Officer, Mine Action Co-ordination Centre Southern Lebanon, July 2002

Victim Report

Victim number: 495	Name: Name removed
Age:	Gender: Male
Status: supervisory	Fit for work: no
Compensation: Not made available (insured HMT)	Time to hospital: Not recorded
Protection issued: Long visor Frontal apron	Protection used: Long visor; Frontal apron

Summary of injuries:

INJURIES

severe Face

severe Foot

severe Genitals

severe Legs

AMPUTATION/LOSS

Hand Both

COMMENT

The Victim suffered unspecified groin injury. No medical report was made available.

Analysis

The primary cause of this accident is listed as “Victim inattention” because it is likely that the Victim slipped and initiated the mine by placing both hands on top of it. The secondary cause is listed as a “Management/control inadequacy” because the Victim was a member of the site management team and appears to have been breaching a previous MAC directive that no attempt should be made to disarm mines that were difficult to expose.

The accident report is noted as “inadequate” because the “summarised” report does not include sufficient detail in critical areas. It is possible that the full report would correct these failings. The summarised report does not detail the damage to the visor and the Victim’s face – which are crucial to determining whether the visor was worn raised and whether the visor performed inadequately. The report does not specify the fuze type found on other mines in the area, so identifying which type of No.4 fuze was likely to have been involved in the accident. Further, the report “accepts” the internal investigation and IMSMA report without including them. And it does not refer to or include witness statements which can help when wanting to later assess and confirm the chain of events.

The No.4 mine (Israel) contains 188g TNT as a main charge and testing indicates that a 5mm thick polycarbonate visor would not normally shatter when more than 30cm from such an initiation. Visors have broken when presented at an offset angle to the blast event, but that breaking is usually limited so that the visor ends up in several large pieces. If a stone shattered and the visor was sprayed with large stone pieces, that would have made a well-made visor in good condition shatter. More detail in the report would have allowed an assessment of whether the visor performed adequately.