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DDAS Accident Report

Accident details

Report date: 02/03/2004	Accident number: 392
Accident time: 08:45	Accident Date: 21/10/2002
Where it occurred: MF 358A, Hadadthah, Al Mutall	Country: Lebanon
Primary cause: Field control inadequacy (?)	Secondary cause: Inadequate training (?)
Class: Missed-mine accident	Date of main report: 06/01/2003
ID original source: 011/2002: MH	Name of source: MACC SL
Organisation: Name removed	
Mine/device: No.4 Israel AP blast/frag	Ground condition: soft, rocky, grass/grazing area
Date record created: 23/02/2004	Date last modified: 02/03/2004
No of victims: 1	No of documents: 3

Map details

Longitude:	Latitude:
Alt. coord. system: GR 36 724525 671475	Coordinates fixed by:
Map east:	Map north:
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

inadequate training (?)
mechanical follow-up (?)
inadequate investigation (?)
inadequate area marking (?)

Accident report

What follows is the original Board of Inquiry report, edited for anonymity and with excess pictures removed. The report was not released until 6th January 2003.

REPORT FOR ACCIDENT INVESTIGATION BOARD OF INQUIRY – No011/2002

DEMING Accident that occurred in OES 2 on 21st October 2002 in which [Demining group] Deminer [the Victim] was injured.

Map Reference: UNIFIL Genimap 1:50,000 Sheet A (Tibnin).

References: A: Janes Mines Manual.

Introduction

1. In accordance with the National Technical Standards and Guidelines (TSGs), the MACC SL Programme Manager issued a Convening Order on Monday 21st October 2002, for an accident investigation Board of Inquiry. Annex A details the Convening Order.
2. This is a comprehensive report by the Board of Inquiry into the Demining Accident that occurred on the 21st October 2002. Based on the investigation, [Demining group]'s internal report, the statements from [Demining group] personnel involved in the accident (see Annex B); visits to the accident site and the photos from the accident site, this accident is considered preventable.
3. The information provided by [Demining group] to the MACC SL QA Section in the "IMSMA Accident Report", attached as Annex C is accepted. The accident occurred at approximately 0845 hrs on 21st October 2002, in Minefield (M/F) No 358A at Hadadthah, Al Mutall. M/F No 358A is located South-East of Hadadthah at GR 36 724525 671475, (Seat of Detonation).

Events leading up to the Accident

4. At the time of the accident [Demining group] Mine Clearance Team No1B were operational on M/F 358A clearance site at Hadadthah under the supervision of [name excised]. The Clearance Team No 1B had been operational on MF 358 A since 16th October 2002; a part of the area was previous flailed, in accordance with MACC SL Clearance Plan (Annex F) and the flail detonated one mine. Before the two access lanes were put in place by the manual clearance team the area was flailed again a three further times.

Minefield 358A [is shown below]. Showing the second access lane, previous flailed area and accident marking.



5. A total of 2 x access lane's and 2 x Safe lane's had been cut into M/F 358A during the previous 4 x days clearance activities, resulting in the location of one minefield mine rows. The mine row was found in the second working lane where the accident occurred, see Annex G Schematic diagram of the general working area. [The victim] had previously cleared up to

the row where the 4 x No 4 mines were demolished on the 19th October. Due to the time window for demolition 2 x No 4 mines were outside the cleared base lane, (see Annex G) these were therefore left to be demolished on the 21st October.

6. On the 21st October at 07:30 hrs, before starting the clearance work and whilst standing at the start point, [the victim] were briefed by Team Leader [name excised] to conduct manual clearance up to a visual No 4 mine. After 45 minutes working he was ordered by the Team Leader to take a 15 minutes break. [The deminer] extended the two red strings between his Base Stick and the starting point and left the working area for his break.

7. During this break Team Leader [name excised] conducted a Quality Assurance (QA) check on the cleared lane. No metal pieces were found. During the QA check the Team Leader found a second mine in front of the right side of the Base Stick, he excavated this mine. The Team Leader then turned the lane 90° South to establish and ascertain the mine row, then cleared approximately 2.35 m. Along the lane he excavated and found 2 x No 4 mines on the left side of this lane. The Team Leader also had one indication on the left side, in front of the Base Stick's final position, that he excavated with negative result.

8. The Medic [name excised] at the Control Point contacted the Team Leader by radio between 0830 hrs and 0835 hrs and told him that [another demining group] QA-Officer [name excised] wanted to visit the work site, but he did not want the deminers to stop working.

9. At 0835 hrs the Team Leader re-deployed the Deminers. He briefed [the] Deminer on the conducted QA of his lane, he also told him that he had found and excavated one more mine on the right side of the base stick, that he had change direction and conducted clearance on the right side of [the] Deminer's lane and found and excavated another two mines.

10. At 0840 hrs the Medic contacted the Team Leader and told him that [Demining group] Operations Officer [name excised] had arrived and wanted to come down to his site, he was also told to stop work. The Team Leader told [the victim] Deminer to mark up the cleared area to the Base Stick position and not to go further than that position, then walk return to the rest area. The Team Leader was then going to report the found mines to the Supervisor.

11. According to [the victim]'s statement there were 4 x red pickets in Team Leader's cleared lane. He did not re-check the area before he started to mark it. The lane was not straight; it was pointing more to the right with the base stick in the end of the lane. When he started to mark the cleared area he found that the pickets were loosely set in to the ground, he then started to knock in the pickets with a lump hammer.

12. According to facts from Team Leader [name excised]'s statement and interview, the cleared lane was pointing more to the left, following the row with the 3 excavated mines. He did not mark the area before he handing it over to [the victim].

13. The Team Leader started to walk out to the rest area and [the victim] started to mark the cleared area by knocking in red pickets. After approx 12 m, (when Team Leader was facing the access lane in a Northern direction), an uncontrolled detonation occurred. The Team Leader turned towards [the victim], who was standing in the lane, and saw that he was injured.

Events following the Accident

14. At approximately 0845 hrs an uncontrolled detonation occurred in the clearance lane. Following the uncontrolled detonation, [the victim] managed to start to walk out of the lane. The Team Leader went up to [the Victim] and by walking behind, holding under his arms he supported him out to the rest area. Deminer [name excised], in working lane No 1, rushed up and assisted the team leader. Approximately 30 m from the rest area QA-Officer [name excised] assisted by lifting [the Victim]'s legs and with the Team Leader and Deminer [name excised] lifting each one shoulder they carried him out to the rest area. Medic [name excised] arrived at the same time from the Control Point and started to give first aid. With help from [unexplained "other" demining group name] QA Officer, [Demining group] Operations Officer, [name excised] who had arrived from BT-91N and [Demining group] Team 6's Medic [name excised] he stabilised the casualty.

15. Approximately 0855 hrs the ambulance left M/F 358 A and transported [the Victim] to Bint Jubayl Hospital. The ambulance arrived 0905 hrs and was met by the [Demining group] Medical Coordinator Mr B.M Stirling. After further stabilisation [the Victim] was transferred to Hammoud Hospital, Saida, at 1035 hrs, arriving there at 1210 hrs.

16. The accident scene was secured and marked as per [Demining group] current SOPs and National TSGs by the Site Supervisor.

VIEW OF THE ACCIDENT SCENE FROM THE BASE LANE



[The accident scene following the accident. Marking is at best “confusing”. The seat of initiation is marked with a red arrow. Several other pictures of the site add little value and their overlay of explanatory lines became confused in file transfer, so they are omitted.]

Work History of the Casualty

17. [The victim] commenced his employment with [Demining group] on the 8th May 2002, whereupon he completed the [Demining group] Southern Lebanon in-country 2 x week demining course, prior to operational deployment at Hadathah. He has previously worked on a demining operation in Zimbabwe, from 18th January 1999 to 23 December 2000. He is considered by [Demining group] to be a competent and trustworthy employee; disciplinary action had never had to be taken against him.

Past History of the Area

18. The Israeli Force (IF) occupied the Hadadthah position. The mine-contaminated areas consist of the following:

4 x Defensive minefields around former IF Hadadthah position.

2 x route denial minefields in dead ground on the Northern flank leading to IF Hadadthah position.

19. The MACC SL designated the minefield above as M/F 358. MACC SL Operations Officer reported the minefield details on the 29th May 2000, the minefield details reported were:

- Reference Point GR 36 72456 / 67165.
- Quantity of mines: 49 mines of 4A (fragmentation) type.
- Quantity of mine rows: Placed in 5 beams.
- Date mines were laid: July 1998.
- Minefield map is available.

Sequence, Documentation and Procedure of Tasking

20. Task Dossier (TD) OES 2 #010 was issued to [Demining group] on the 22 August 2002; the TD contains details of the known and identified 6 x minefields in and around Hadadthah position. The clearance operation commenced at M/F 358 A on the 16 October 2002. Up to the time of the accident a total area of approximately 11,967 sq.m (flailed and manually) had been cleared at M/F 358 A resulting in the disposal of a total number of 10 mines (It should be noted that the sq.m for the days clearance activities prior to the accident, are not included in the above total as they were not available at the time of writing this report).

21. [Demining group]'s Mechanical BOZENA assets have conducted clearance work in M/F 358 A, on the 11, 12, 14, 15 16 of October 2002. Approximately 11,870 sq.m of ground was prepared and resulting in the detonation of 1 x mine.

Geography and Weather

22. M/F No 358A is located South-East of Hadadthah, Al Mutall. The area is in open countryside, with scrub and light vegetation. The nearest forested area is to the SE and NE of the position. The area is on a natural hill position (905m), with an open valley to the North. It is located off the main Bint Jabayl/ Hadadthah road, access is via a dirt track.

The weather at the time of the accident was cloudy, windy, no rain and with a temperature of approximately 18 to 20 degrees Celsius.

Site Layout and Marking

23. The site layout and minefield marking prior to the accident was in accordance with National TSGs and [Demining group] SOPs; as was the post accident marking.

Management Supervision and Discipline

24. [Demining group] clearance operation is supervised by an International Operations Manager and an International Site Supervisor was in overall charge of Hadadthah, Al Mutall. task site. 1 x International Team Leader commands Manual Clearance Team No1B. There are no reports of disciplinary action being taken against [Demining group] personnel on the Hadadthah task.

Quality Assurance and Quality Control

25. [Demining group] Internal Quality Assurance (QA) is achieved through a system of on-site checks by an International QA Team to ensure adherence to National TSGs and [third demining group's] SOPs. [The presence of the wrong demining group names in this report is a result of having produced this report by editing an earlier one.] The last Internal QA Evaluation was conducted on the 12th October 2002 where one "Mechanical Clearance" was evaluated, no major problems being identified. External QA is carried out by the MACC SL QA Section ([2nd demining group]). The last External QA Evaluations was conducted on the 14th October 2002 where two "Mechanical Clearance" and one "Command & Control" were evaluated; the evaluations results were all good.

Communications and Reporting

26. Communications in-between the M/F No 358A Hadadthah, Al Mutall and [Demining group] base location is maintained via the use of the Cell phone system. On site communications in-between teams is maintained via VHF handheld radios.

27. On the day of the accident, the site had proper and appropriate communications and managed to pass all relevant accident information back to [Demining group] base location, which in turn passed the information to the MACC SL. Annex F details the Initial Casualty Report.

Medical Details

28. Following the accident [the victim] suffered the following injuries:

- Near total amputation of the left thumb (non viable) with open Thenar eminence and exposed metacarpal.
- Multiple shrapnel entries/burns over the palm of left hand, volar fingers and the forearm.
- Soft Tissue defect over the volar wrist 6 x 4 cm.
- Loss of the distal phalanx of the third digit of the left hand with preserved but macerated skin and soft tissues.
- Multiple burns/shrapnel entries over the dorsum of the distal fingers and palm of the right hand.
- Compound comminuted segment fractures of the Ulna and Radius in the left hand.
- Compartment syndrome of the left forearm.

29. [Demining group] Team No1B Medic[name excised] administered medical treatment and stabilisation on-site to [the victim]; casualty evacuation by road to Bint Jubayl civilian hospital then took place.

31. On arrival at Bint Jubayl hospital, [the victim] was transferred to the Emergency Department where additional trauma care and medical treatment was administered. Annex I details the medical report from Bint Jubayl Hospital.

Personnel

32. A list of all personnel and their duties is detailed at Annex D. Written statements from [Demining group] personnel involved in the accident and [Demining group] internal report form part of the Appendices to the Annex.

Dress and Personal Protective Equipment (PPE)

33. At the time of the accident, [the victim] was wearing his protective apron and protective visor. On inspection of the protective apron, the following points were noted:

- The outer cover was ripped in several places.
- The blast debris and damage was concentrated on the left hand side.
- The polycarbonate chest plate was fractured in various places

[The victim's] PROTECTIVE JACKET



[The apron worn by the victim has a cotton cover (for comfort) and this is usually damaged in any accident. The ballistic aramid inner is not Kevlar. To raise the protection offered in “vital areas” the apron has a small, optional polycarbonate insert in the chest area. In this case the insert was in place. It is shown below along with some of the 3mm square fragments of steel recovered from inside the armour. No fragments fully penetrated the armour or the visor.]



34. On inspection of the protective visor, the following points were noted:

- A large proportion of the blast effects were concentrated on the left face of the visor.
- The visor had maintained its integrity.
- The visor securing bolts did not maintained their integrity.

[The victim's] PROTECTIVE VISOR



Tools and Equipment

35. At the time of the accident, a standard [Demining group] Lump hammer was used by [the Victim]. No other equipments were used.

Details of Mine Involved

36. The Israeli No4 AP blast mine consists of a plastic box with a hinged lid that overlaps the sides. The main charge is 188g of cast TNT, housed in an internal plastic compartment, which occupies just over half of the volume of the box at the hinged end. The wall of this compartment is threaded to accept the fuze assembly; the remainder of the box is empty.

37. The metal fuze assembly, which incorporates a lead-shear arming delay, is fitted through a hole in the end of the mine and screwed into the wall of the charge compartment and sealed with a rubber O-ring. The arming pin protrudes through the end of the mine opposite the hinge. The arming pin is attached to a pull ring, which is looped over the fuze body and

retained by a plastic cap during transit for additional safety. The striker is retained and secured by a square shaped slotted plate on which the open end of the box rests.

38. The mine is designed purely for direct pressure operation. To arm the mine, the plastic cap on the end of the fuze is removed to release the pull ring; the arming pin is then removed. The spring-loaded striker is retained until it has sheared through a lead wire, which runs through holes in the end of the fuze. The arming process normally takes several hours. Once armed, the striker is retained only by the slotted plate; pressure on the lid (in excess of 8kgs), simply pushes the slotted plate out which in turn releases the spring loaded central striker. The striker then impacts with the integral fuze detonator, which then passes the detonating wave to the main TNT charge causing the mine to disintegrate. (Paragraphs 35 – 37 inclusive extracted from Reference A)

39. There have been instances reported where foreign bodies have embedded themselves in between the recess in the striker mechanism and the slotted striker retaining plate, therefore allowing the partial downward release of the plate. The spring-loaded striker is now therefore only being held by the foreign body. Accumulated pressure over a period of time (especially in heavy soil conditions), can also slowly release the slotted striker retaining plate. This therefore reduces the direct pressure required to activate the mine.

40. The No 4 mine found in Mine Field 358 A is modified with a pre-cut fragmented metal plate that measures 7 cm x 6 cm x 4 mm. There is no information from IF why these particular No 4 Mines were enhanced with a metal plate. Upon detonation the metal plate fragments into small shrapnel approx 3 mm x 3 mm. All mines previously located in Mine field 358 A were of this model.

ISRAELI NO4 AP BLAST [and frag] MINE



[This No.4 has a metal plate screwed to the lid – and behind the plate is a matrix of pre-cut fragments that turn the blast mine into a fragmentation mine.]

Account of Activities

41. The following is a description of the events before and after the accident. The information from the investigation forms the basis of the description of events:

21/10/02

- 0845 hrs Accident occurs.
- 0904 hrs Initial Casualty Report to MACC SL.
- 0905 hrs BOI convened by MACC SL Programme Manager.
- 0905 hrs BOI collect information from IMSMA .
- 0910 hrs BOI leave MACC to MF 358 A.
- 1020 hrs BOI arrive MF 358 A.
- 1020-1130 BOI on accident site to conduct initial investigation.
- 1130-215 BOI visit Bint Jabayl hospital.
- 1220 hrs BOI arrived MF 358 A to check mine detector No: 63035.
- 1310 hrs BOI leave MF 358 A.

1410 hrs BOI arrived [Demining group] HQ to conduct interviews.
1445 hrs BOI leave [Demining group] HQ.
1500 hrs BOI arrive MACC SL to brief Programme Manager.

22/10/02

0500 hrs BOI leave MACC SL to MF 358 A.
0600 hrs BOI arrived MF 358 A to conduct interviews on accident site.
0600-1445 BOI location to conduct witness interviews and collects task information.
1445 hrs BOI leave MF 358 A.
1545 hrs BOI arrive MACC SL

23/10/02

0930 hrs BOI and [Demining group]'s Operations Officer leave MACC SL to Hammoud Hospital.
1015 hrs BOI and [Demining group]'s Operations Officer arrive Hammoud Hospital, Saida.
1015-hrs BOI interview and takes statement from [the victim] at Saida Hospital.
1100 hrs BOI leave Hammoud Hospital, Saida to [Demining group] HQ.
1145 hrs BOI arrive [Demining group] HQ.
1145 hrs BOI interview Team Leader [name excised] at [Demining group] HQ.
1230 hrs BOI leave [demining group] HQ.
1245 hrs BOI arrive MACC SL.

24/10/02

1145 hrs BOI leave MACC SL to Hammoud Hospital, Saida.
1230 hrs BOI visit [the victim] at Saida Hospital.
1315 hrs BOI leave Hammoud Hospital, Saida to MACC SL.
1400 hrs BOI arrive MACC SL.

Insurance Details

42. [The victim] is covered by the standard [Demining group] insurance for all International personnel in mine/UXO clearance activities in Lebanon. All insurance policies for [Demining group] are through HMT Insurers of London. A copy of the policy is hold at the MACC SL.

Conclusions

43. Based on the investigation, the BOI concludes the following:

- A. The uncontrolled detonation occurred when the Deminer marked a lane by knocking a red marking picket on top of the mine.
- B. There was a sub-surface detonation of an Israeli No4 enhanced Fragmentation Anti Personnel mine. The excavated craters radius was 90 cm and the depth 26 cm.
- C. At the time of the uncontrolled detonation, the mine would have been directly below the location of the marking picket; the deformation of the marking picket and [the victim]'s injuries substantiates this.

- D. There are 3 x possible reasons why the deminer put the red marking picket on top of the mine:
- i. The deminer during the marking of the cleared lane, unintentionally moved the Base Stick approximately 15 cm into un cleared area on the right side.
 - ii. The deminer during the marking, stretch up the red sting on the base stick and unintentionally moved it forward into an un-cleared area.
 - iii. The Team Leader during his clearance was concentrating on the mine row on the left hand side and missed the mine on his right hand side.
- E. The Team Leader did not mark his cleared lane.
- F. The Deminer did not check the Team Leader's previously cleared lane before marking that lane.
- G. The Team Leader did not follow the clearance plan given by MACC SL Planning Officer.
- H. The Team Leader did not follow the clearance plan instructions given by the Site Supervisor.
- I. The MACC SL planning Officer updated (08 October 2002) clearance plan was not present in supervisor's task dossier. [Demining group] Operations Officer had the clearance plan with him for handover when he arrived at MF 358A on the day of the accident.
- J. Team Leader had excavated more than necessary to be able place a charge to destroy the mines.
- K. [The victim]'s injuries were sustained from both primary and secondary fragmentation, resulting from the disintegration of the Israeli No4 enhanced fragmentation mine, on the detonation of the high explosives.
- L. The medical treatment and subsequent evacuation of the casualty by Team No 1B Medic was very good.
- M. The post-accident marking of the accident site was carried out in accordance with current TSGs and [Demining group] SOPs.
- N. The passage of information in between the accident site and [Demining group] base location was good with all information being passed in a timely manner.
- O. The passage of Initial Casualty Report in between [Demining group] base location and MACC SL was good with all information being passed in a timely manner.
- P. The protective jacket maintained its integrity following the uncontrolled detonation of an Israeli No4 enhanced Fragmentation AP mine.
- Q. The protective visor maintained its integrity following the uncontrolled detonation of an Israeli No4 enhanced Fragmentation AP mine.

- R. The BOI reservedly agrees with and accepts [Demining group]'s Accident and IMSMA Reports, it should be noted however that there are some slight discrepancies regarding the reported times and possible causes leading up to the accident. The following points should be noted:
- i. The IMSMA Accident and Casualty Report although technically correct was poorly hand written and could be better presented (i.e. typed), The standard of this report is not expected from an International Demining Organisation.
 - ii. To aid clarification of the [Demining group] Report, Appendixes to the witness statement Annexes would be useful.
 - iii. Any Accident / Incident Report that is submitted to the BOI require, a signature block, date and the signature of the Investigating Officer.

Recommendations

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

- A. The Clearance Team is suspended for a period of 7 x working days for refresher training.
- B. Marking picket should only be inserted in areas that have been previously cleared.
- C. All demining lanes should be marked in accordance with current SOPs by the deminer who clears that lane.
- D. Team Leaders are not to clear mines but to concentrate on leading and supervising team deminers.
- E. The amount of excavation against mines should only be sufficient in order to place an explosive charge against the mine rear half.
- F. MACC SL Clearance plans should be followed verbatim. Any suggestion amendments must be agreed with the MACC SL Planning Officer before changes are implemented on the ground.
- G. Clearance plans should be issued to Site Supervisors from Organisations HQ's as soon as practically possible.
- H. Disciplinary actions is taken against the Team Leader, for the major infringement of and non-adherence to SOP.
- I. For future Accident / Incident Reports [Demining group] are to ensure the following:
 - All IMSMA Reports are typed (the electronic copy of TSGs issued to [Demining group] details the report in the Annexes).
 - Reports are to be set out in a logical sequence, with Annexes and Appendixes used where applicable.
 - Reports are signed and dated.

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

Annexes: [most not made available]

- A. MACC SL convening order for accident investigation Board of Inquiry.
- B. [Demining group] Internal Accident Report.
- C. IMSMA Mine/UXO Accident Report
- D. List of personnel involved with attached statements as Appendices.
- E. Map of the general area.
- F. MACC SL Clearance Plan MF 358
- G. Schematic diagrams of the general working area and accident area/scene.
- H. Initial Casualty Report
- I. Medical reports from Bayt Yahun Hospital.

[See "Statements" for the Victim's statement.]

Comments by the MACC SL Operations Officer

I concur with the BOI conclusions and recommendations of their reports.

It is evident that the Team Leader did not adhere to [demining group] SOPs and must be held accountable for his actions relating to this accident occurring.

The manual clearance team is to be suspended immediately for a period of seven working days and undergo refresher training prior to being reassessed by the MACC QA Officer. This team is not to start operational clearance until this assessment has been conducted.

MF 358A is to be manually cleared as per the agreed MACC clearance plan.

Signed: Operations Officer, Mine Action Co-ordination Centre Southern Lebanon

Comments by the MACC SL UN Programme Manager

I have read the BOI Report and the BACTEC International Investigation Report. I concur with the conclusions and recommendations of the BOI Report and the BACTEC International Report.

It is clear from the evidence at the site and the statements made by those directly involved that incorrect procedures have been the major contributing factor to this accident. As noted by the company and the BOI in their respective reports the injured deminer cannot be held fully responsible given the events and circumstances leading up to the accidental detonation

The recommendations from the BOI, paragraphs 44 d, f, and g are strongly made by the MACC. Variations to the agreed clearance plan must be coordinated with the MACC Plans Officer. I fully concur with and reiterate the recommendation that Team Leaders are not to clear mines when they are responsible for a team on site.

The completion of this BOI Report has been delayed by the UN Programme Manager due to leave and other commitments.

All actions to clear the site to the required standard and the stand-down of the clearance team and its subsequent re-training an assessment were carried out as recommended immediately following the accident.

Signed: UN Programme Manager, MACC Southern Lebanon, 06 Jan 2003

Victim Report

Victim number: 507	Name: Name removed
Age:	Gender: Male
Status: deminer	Fit for work: not known
Compensation: not made available	Time to hospital: 3 hours 15 minutes
Protection issued: Frontal apron Long visor	Protection used: frontal apron, Long visor

Summary of injuries:

INJURIES

severe Arms

severe Hands

AMPUTATION/LOSS

Fingers

COMMENT

See medical report.

Medical report

Following the accident [the victim] suffered the following injuries:

- Near total amputation of the left thumb (non viable) with open Thenar eminence and exposed metacarpal.
- Multiple shrapnel entries/burns over the palm of left hand, volar fingers and the forearm.
- Soft Tissue defect over the volar wrist 6 x 4 cm.
- Loss of the distal phalanx of the third digit of the left hand with preserved but macerated skin and soft tissues.
- Multiple burns/shrapnel entries over the dorsum of the distal fingers and palm of the right hand.
- Compound comminuted segment fractures of the Ulna and Radius in the left hand.
- Compartment syndrome of the left forearm.

Pictures of the victim's injuries allow some further assessment to be made.





Arm



Analysis

The primary cause of this incident is listed as a “*Field control inadequacy*” because the field supervisor was directly responsible for failing to mark the area he cleared appropriately, or for missing a mine within that area. The secondary cause is listed as “*Inadequate training*” because it seems likely that the Team Leader did not realise the errors he was making. The fact that he felt in appropriate to continue the deminer’s work during his rest period may imply that there was pressure to get the work done quickly.

The accident report is listed as inadequate because it was clearly “edited” from an earlier report. The “editor” mistakenly left in names from the earlier report, and copied whole sections verbatim.

Related papers

MINE ACTION COORDINATION CENTRE SOUTHERN LEBANON

INTER OFFICE MEMORANDUM

To See Distribution.

Fm: MACC SL QA Officer.

Ref: QA-3

Date: 25th October 2002.

SUBJECT: INTERIM ACCIDENT REPORT (011/2002).

1. Please find attached the Interim Accident Report (011/2002), the information contained in the report will be disseminated by myself at this Saturdays MACC SL Operational Co-ordination Meeting.
2. If you have any more questions or queries, please do hesitate in contacting me.

Signed: QA Officer MDD, MACC Southern Lebanon

Distribution:

NDO Representative

MACC SL Operations Officer

MACC SL Planning Officer

Attachments:

Interim Accident Report (011/2002).

INTERIM ACCIDENT REPORT (011/2002).

ACCIDENT DTG	21.10.02 0850 Hrs.
CLEARANCE ORGANISATION	[Demining group].
LOCATION OF ACCIDENT	M/F 358A Haddathah.
BRIEF DESCRIPTION OF ACCIDENT.	The accident occurred whilst a Deminer was marking a clearance lane.
DESCRIPTION OF INJURIES SUSTAINED	Part amputation of the left hand thumb. Multiple fragmentation injuries to hands and arms. Compound fractures of the left hand. Compound fracture of the left forearm.
EQUIPMENT FAILURE DETAILS.	N/A.
IMMEDIATE ACTION TAKEN.	Casualty was initially transferred to Bint Jubayl Hospital and after stabilisation transferred to Hammoud Hospital Sidon. The Accident Site was closed pending the arrival of the BOI Team.
INTENDED FOLLOW UP ACTION	Team suspended for a 7 working day period to conduct refresher training.
BOI FINDINGS	BOI Report will be completed in full by the 28.10.02 with the BOI Summary Report being ready for distributed on the 02.11.02

Statements

The following witness statement from [the victim] was conducted on the 23.10.02 and 24.10.02 at Hammoud Hospital, Saida. Due to the seriousness of [the victim's] hand injury, the statement was taken verbally by the BOI Investigating Officer.

Q1. Explain what you remember happened before the accident occurred?

A1. In the morning on the 21st of October the team and I arrived to MF 358 A. After our morning briefing the Team Leader took me down to the working lane. I was briefed by Team Leader to conduct manual clearance from the starting point up to a visual mine. I tested my detector before I started the clearance work. After 45 minutes work, I had reached the visual mine and the Team Leader ordered me to take a 15 minutes break.

During my break the Team Leader conducted QA on the lane I have cleared. After my break I went up to the Team Leader and he briefed me that he had conducted QA on my lane and it was ok. He also briefed me that he had found one (1) more mine that he had excavated on the right side of my base stick and that he then had changed direction and conducted clearance on the right side. In this lane he had found and excavated another two (2) mines.

During this time the Team Leader got a radio call from our Medic at the Control Point that [Other demining group] QA Officer had arrived and that he wanted to see the days clearance progress. The Team leader continued to brief me on my clearance work and then he had a second radio call. This time the medic said that [demining group] Operation Officer had arrived and that all work at the site should stop.

The team Leader then told me to mark up the cleared area with mine tape and then walk down to the rest area. When I started to put up the mine tape I found that the pickets stood loosely in the ground. I took the hammer and started to fix the pickets into the ground. That is when the detonation occurred.

Q2. Did you do any excavating of the visual mine?

A2. No, I did not the mine was visual.

Q3. Did you mark the lane you cleared?

A3. No, I only stretched the red string on my base stick.

Q4. Could you see the first mine that your Team Leader found?

A4. No, the first time I could see the mines was after my break.

Q5. After your break, what were the Team Leader's instructions?

A5. He told me to mark the cleared area with mine tape, not go further than the base stick and that he (Team Leader) was going to tell the supervisor about the found mines.

Q6. How many red painted marking pickets was in the Team Leader's cleared lane?

A6. Four (4)

Q7. Were the marking pickets loosely or fixed in the ground?

A7. They were loosely in the ground and had fell down if I had tied the mine tape on them.

Q8. After your break, what was the base sticks position?

A8. It was in the end of the Team Leaders cleared lane.

Q9. What was the direction of the Team Leader's cleared lane?

A9. It was not straight, it was pointing more to the right.

Q10. Where was your equipment?

A10. In the safe area behind the starting point.

Q11. Did you clear any area after the Team Leader?

A11. No, I did not, this because the Team Leader said he had cleared the lane.

Q12. What do you remember from the time after the detonation?

A12. I told the Team Leader that I was hurt. I walked out and fell down close to the end of the access lane.

NOTE: Statement is not signed due to [the victim]'s hand injuries.