

# DDAS Accident Report

## Accident details

<b>Report date:</b> 19/05/2006	<b>Accident number:</b> 380
<b>Accident time:</b> 12:10	<b>Accident Date:</b> 20/07/2002
<b>Where it occurred:</b> Shama Village, Wadi Jalali ash Sharq	<b>Country:</b> Lebanon
<b>Primary cause:</b> Management/control inadequacy (?)	<b>Secondary cause:</b> Inadequate equipment (?)
<b>Class:</b> Demolition accident (survey)	<b>Date of main report:</b> 09/08/2002
<b>ID original source:</b> BOI:No007/2002	<b>Name of source:</b> MACC SL
<b>Organisation:</b> Name removed	
<b>Mine/device:</b> No.4 Israel AP blast / frag	<b>Ground condition:</b> grass/grazing area rocks/stones
<b>Date record created:</b> 22/02/2004	<b>Date last modified:</b> 17/03/2004
<b>No of victims:</b> 1	<b>No of documents:</b> 3

## Map details

<b>Longitude:</b>	<b>Latitude:</b>
<b>Alt. coord. system:</b> GR 36 706098 670225	<b>Coordinates fixed by:</b>
<b>Map east:</b>	<b>Map north:</b>
<b>Map scale:</b> M/F 135 and 135A	<b>Map series:</b>
<b>Map edition:</b>	<b>Map sheet:</b>
<b>Map name:</b>	

## Accident Notes

inadequate medical provision (?)  
inadequate training (?)  
inadequate metal-detector (?)  
inadequate equipment (?)  
protective equipment not worn (?)  
inadequate area marking (?)  
safety distances ignored (?)  
metal-detector not used (?)

mine/device found in "cleared" area (?)

## Accident report

A summarised MACC BOI report was made available in 2003. It is reproduced below, edited for anonymity. The full Board of Inquiry accident report is in Related papers, under the Other documents tab for this record.

### Introduction

1. On the 11.07.02 Level 1 Survey Team was tasked by [1st commercial demining group] Operations Manager to conduct a survey of minefields in OES-1, in the vicinity of Shama Village, M/F numbers 135 and 135A. The tasking information was obtained from the previously issued MACC SL OES areas minefield spread sheets. As there were access problems in both areas, 2 x Non-Accessible Minefield reports were filed and the information was passed back to the Operations Manager.
2. Based on the non accessible information received from the Level 1 Survey Team, the EOD/Survey Team Leader then decided to conduct a follow visit of the area on the 17.07.02. During this visit both M/F's were located with the help of a local guide and 13 x mines were seen on or near the surface. Following the visit a "Minefield Appreciation Performa" was completed by the Team Leader.
3. On returning from the minefield appreciation visit, a meeting was held between the Team Leader and the Operations Manager to decide what the next course of action would be. It was decided that the best solution would be to destroy the immediate threat posed by the located mines and following the destruction of the mines, erect a minefield fence. The task was categorised by [1st commercial demining group] as a "Demolition/Rapid Response Task" and was planned to be executed on the 20.07.02. As demolitions would be conducted on the 20.07.02, the Operations Manager submitted a verbal "Demolitions Notification Request" to the MACC SL Planning Officer on the 18.07.02.
4. At 08:00 hrs on the 20.07.02 [1st commercial demining group] EOD/Survey Team deployed on the pre-planned "Demolition/Rapid Response Task" to M/F 135 and 135A. The EOD/Survey Team arrived at the site at 08:40hrs, established a Command Post (CP) and conducted a communications check with [1st commercial demining group] Operations. Following a safety brief by the Team Leader the team deployed to the vicinity of M/F 135 in order to destroy the previously located mines. A Firing Point (FP) was located by the Team Leader and the Team Medic and Team Observer stayed in that location whilst the Team Leader and the Team 2i/c moved to the M/F to destroy 10 x Israeli No.4 Anti-Personnel Mines and 1 x 52mm Mortar Bomb.
5. At 10:40 hrs a demolition serial was conducted at M/F 135 and following a period of time to allow the smoke to dissipate and the debris to stop falling a demolition serial check was conducted. On the signal "all clear" the team then moved across the Wadi to the vicinity of M/F 135A location. A new FP was located and the Team Medic and the Team Observer were dropped off at the FP. The Team Leader and the Team 2i/c then proceeded to M/F 135A to destroy the previously located mines.
6. At M/F 135A a total number of 6 x Israeli No4 AP Mines were prepared for destruction (4 x mines in-situ and 2 x unfuzed mines were to be used as donor charges). The mines were located in two separate rows with 3 x mines in one row (plus 1 x donor mine) and 1 x mine in another row (plus 1 x donor mine). [A "schematic diagram detailing the approximate position of the mines and the demolition explosive set up, prior to the disposal serial in M/F 135A" has been removed because it had become corrupted in file transfer.]
7. At 11:55hrs the demolition at M/F 135A was conducted, following a short time period to allow the smoke to dissipate and the debris to stop falling, the Team Leader and the Team 2i/c moved forward to check for complete demolition. The Team 2i/c started packing the equipment at the Bench Mark (BM), whilst the Team Leader checked the disposal serial. He checked the first row of mines and was satisfied that a high order had been achieved on all

four mines. He then moved forward to check the second row when an uncontrolled detonation occurred.

### **Events directly following the Accident**

8. At approximately 12:10 hrs an uncontrolled detonation occurred in M/F 135A, following the uncontrolled detonation the Team Medic moved forward from the FP carrying his trauma pack and a metal detector. On arrival of the Team Medic at the BM, the Team 2i/c started to clear a route into and around the casualty from the BM, (the emergency marking used was orange spray paint).

9. When an area had been cleared around the casualty, medical assistance and stabilisation took place by the Team Medic. The Team 2i/c then called the Team Observer and told him to inform [1st commercial demining group] Operations and tell the Team Driver to move down from the CP to the accident site with the spine board. The Team Observer was then instructed to move to the main road in Shama village and wait for additional medical assistance that had been requested.

10. Following the on-site stabilisation, the casualty was then moved to the area of M/F 135A BM. The Team 21/c then instructed the Team Observer to move back to the accident site with water and to help with the extraction of the casualty. Prior to him moving back to the accident site, the Team Observer instructed a local person to wait for the additional medical assets and when they arrive direct them to the CP. The Team Observer then proceeded to pick up some water from the CP and move back to the accident site.

11. There was then an attempt to move the casualty up the hill, but due to the very difficult terrain, a distance of only approximately 15 meters was achieved. The Team 2i/c then again tasked the Team Observer to go and get some local assistance from Shama village. As Team Observer was making his way up the hill he saw a local at the top and told him to bring some more men to assist in the extraction.

12. After a short period of time 4 x local men arrived and the extraction of the casualty to the CP was finally achieved. At the CP the additional [1st commercial demining group] personnel then assisted in transferring the casualty into the ambulance. Due to the difficult track conditions, the casualty had to be physically removed from the ambulance in order to get the vehicle over the rough terrain. On arrival at the main road the casualty was then transferred into the Lebanese Red Cross ambulance for the journey to Jabel Amal Hospital in Tyre.

13. At 14:00hrs the casualty arrived at Jabel Amal Hospital whereupon he was transferred to the Emergency Department where additional trauma care was administered; an X-ray was also performed prior to him being transferred to Hammoud Hospital Sidon by the Lebanese Red Cross at 14:40hrs.

### **BOI Accident Investigation Follow Up Actions**

14. At 14:30 hrs [1st commercial demining group] Operations Manager arrived at the MACC SL to brief the MACC SL Planning and QA Officer on the accident. The MACC SL QA Officer was informed that Operations Manager will be heading [commercial demining group's internal inquiry] and it was decided to move to the accident scene in order to make a full appreciation on the situation.

15. On arrival at the accident scene the BOI was met by the Team 2i/c and a full and detailed briefing took place, prior to the BOI moving to the CP. On arrival at the CP, it was decided by the BOI that clearance would have to take place from the CP to the accident site, before any detailed accident investigation could take place.

16. As [1st commercial demining group]'s MDD assets were not accredited to work in low threat suspect areas and [1st commercial demining group] Manual assets were on their rest day on the 21.07.02, a request was made through the MACC SL Planning Officer to utilise [Another commercial demining group's mine-detecting dogs] and manual assets. On approval from the MACC SL Planning Officer the BOI left the accident scene.

17. On the 21.07.02, 23.07.02 and 24.07.02 clearance was conducted using both [Another commercial demining group's mine-detecting dogs] and manual assets and [1st commercial demining group] manual assets to both M/F 135 and M/F 135A (accident site). Numerous BOI follow up clearance targets were identified by the BOI and all targets were achieved during the 3 x day's clearance activities. 1 x Israeli No.4 AP mine was also located in M/F135A on the 21.07.02, in a previously cleared area.

18. All BOI follow up clearance targets and the BOI post accident clearance are shown pictorially Annex A and Annex B respectively. [Not made available.]

### Medical Details

19. The Team Leader suffered traumatic amputation of his left foot and blast/fragmentation injuries to his right leg. The Team Medic administered medical treatment and stabilisation on-site to the casualty. A very difficult extraction of the casualty then took place to the site CP whereupon the casualty was transferred to the Team ambulance for the short journey to the main road in Shama; the casualty was then transferred to a Lebanese Red Cross ambulance for the journey to Jabel Amal Hospital in Tyre.

20. On arrival at Jabel Amal Hospital in Tyre, the casualty was transferred to the Emergency Department where additional trauma care was administered; an X-ray was also performed prior to him being transferred to Hammoud Hospital Sidon by the Lebanese Red Cross.

### Conclusions

21. Based on the investigation, the statements and visits to the site, the BOI concludes the following:

- TD OES 1 # 008 was never issued to [1st commercial demining group] for clearance operations and therefore the EOD/Survey Team was tasked with the minimum of information on both the minefields and booby traps in the area, a fact that [1st commercial demining group] Operations Manager was fully aware of.
- No details of the relevant M/F or BT records were obtained from the MACC SL prior to the activities taking place on the 17.07.02.
- No Booby Trap (BT) information was detailed in the Minefield Appreciation Performa completed by the Team Leader on the 17.07.02, as the information was contained in the Task Dossier which was located at the MACC SL.
- There are discrepancies in what was stated and what was actually recorded and detailed in the "Demolitions Notification Request".
- The MACC SL Planning Officer was left without any reservation, that the "Demolitions Notification Request" was for a standard EOD task where UXO were being destroyed and not for mines being destroyed in a minefield.
- The whole task was seen by [1st commercial demining group] as a "Target Reduction" opportunity, where 2 x mined areas could be speedily cleared without any knowledge of or input from the MACC SL Planning Officer, this was an attempt to conduct the task under the masquerade of a "Demolition/Rapid Response Task".
- [1st Commercial demining group]'s EOD/Survey Teams "Demolition/Rapid Response Task" was conducted 3 x days after the initial appreciation visit.
- [1st Commercial demining group] Operations Manager displayed a lack of operational command and control of the EOD/Survey Team. There was minimal task planning and no consultation with MACC SL Planning Officer regarding a clearance operation in a known mined area. This was in total disregard to [commercial demining group]'s revised "Concept of Operations" dated 18.06.02.
- The information contained in the Weekly Summary Reports submitted by [1st commercial demining group] to the MACC SL was inaccurate.

- The Team Leader contravened the Directive signed on the 21.06.02 regarding his commitment to conduct any task in accordance with [1st commercial demining group]in-country SOPs (IMAS accredited).
- The on-site marking in both M/F 135 and M/F 135A conducted on the 17.07.02 was not in accordance with [1st commercial demining group] SOPs, National TSGs or IMAS.
- No permanent marking stores were seen by the BOI at Shama site on the 20.07.02, it is difficult to therefore understand how a permanent fence was going to be erected following the demolition serial.
- No route clearance to remove the large rocks and boulders was conducted by the EOD/Survey Team. Should this have happened then the CASEVAC of the Team Leader would have been much smoother.
- No [1<sup>st</sup> commercial demining group] clearance was conducted through the low threat suspect area (from the CP to the LAF mine signs). Nor was any clearance conducted through the high threat suspect area (from the LAF mine sign to [1<sup>st</sup> commercial demining group]'s BM's).
- No PPE was worn by any member of the EOD/Survey Team during the activities conducted in M/F 135 and M/F 135A on the 17.07.02 and 20.07.02.
- MD-8 detectors were deployed in a known mined area with the full knowledge of the problems associated with ground contamination and the detector compensator.
- Manual demining probes were used in a known mined area with the full knowledge that they are not a [1st commercial demining group] accredited demining tool.
- The clearance conducted by the EOD/Survey team was not in accordance with [1st commercial demining group] Operations Manager metal free directive dated on the 24.06.02, as metal fragments were located during the BOI investigation.
- The FP was located in an unsafe area only 73m from the demolition serial. The correct safety distance for the FP, taking into account the number of mines being destroyed and the quantity of serviceable explosives used should have been at least 200m away.
- Both the Team Leader and the Team 2i/c moved forward to check for complete detonation following the disposal serial. The task is a one man risk and the Team 2i/c was fortunate not to become a casualty himself, as he was only 15m away from the accident seat of detonation.
- There was a single uncontrolled sub-surface detonation of an Israeli No.4 AP mine. Evidence shows that the crater had blackening to the sides, was of a bulbous shape with primary metallic and plastic fragmentation lining the bottom and sides.
- The Israeli No.4 mine detonated whilst the Team Leader inadvertently stood on it whilst checking the demolition serial. This was however a genuine accident and no direct blame can be apportioned to the Team Leader.
- The traumatic amputation of the Team Leader's foot was 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 Leaders 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.
- During the demolition serial there was a partial detonation; a complete detonation of the donor mine charge actually occurred, but the second Israeli No.4 AP mine failed to detonate. Following the donor mine charge detonating, the positive blast effects would have pushed the Israeli No.4 AP mine to the edge of the crater; this would have been then subsequently covered by the spoil and debris from the donor mine charge detonating.

- The possible reasons for the partial detonation are:
  - Imprecise charge placement of the donor mine charge with the Israeli No.4 AP mine, leading to the detonating wave not being transferred.
  - The firing cable was not pegged out; therefore it may have been inadvertently moved whilst personnel were retiring to the FP, leading to the movement of the donor mine charge and no subsequent transferral of the detonating wave.
  - When the first demolition row detonated, the blast wave may have disturbed the donor mine charge, again leading again to the movement of the donor mine charge and no subsequent transferral of the detonating wave.
- The missed Israeli No.4 mine was inside the emergency area cleared by the Team 2i/c. Should someone in the extraction party unintentionally stood on the mine, then the accident would have been compounded significantly, with the possible loss of life being the outcome.
- Local civilian personnel were told to move into a high threat suspect area to assist in the extraction of the Team Leader.
- If a detector had been used to check areas of the demolition serial, then the possibility of the accident occurring would have been minimal.
- The help and assistance from [Another commercial demining group's] clearance assets was invaluable for the BOI investigation.
- During the initial stages of the investigation, [1<sup>st</sup> commercial demining group]'s Investigating Officer was not present. The BOI was only informed on the 22.07.02 that [1<sup>st</sup> commercial demining group] Investigating Officer would change.

The BOI reservedly accepts [1<sup>st</sup> commercial demining group] Accident and IMSMA Reports. The followings points should however be noted:

- The report was submitted late to the MACC SL.
- The report is not as detailed as the BOI would expect from an International Clearance Organisation, following a very serious accident involving a senior employee.
- The recommendations made however by [1<sup>st</sup> commercial demining group]'s Investigating Officer are thorough and comprehensive, all being endorsed and concurred with, by the MACC SL.
- The post accident observations made however by the Team Medic are very comprehensive and fully endorsed and concurred with, by the MACC SL.
- The passage of information in between the accident site, [1<sup>st</sup> commercial demining group] base location and MACC SL was good with all information being passed in a timely manner.
- No formal Internal or External QA had been carried out on the EOD/Survey Team since the start of operations.
- A reliable HELEVAC capacity, with winching capabilities would have assisted in the extraction of the Team Leader.

## **Recommendations**

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

- A recommendation is made to the NDO that the [1<sup>st</sup> commercial demining group] EOD/Survey and Level 1 Survey licence be withdrawn and [1<sup>st</sup> commercial demining group]reassess their Survey requirements and resubmit their plan to the MACC SL QA Section for accreditation.

- A letter of censure is raised by [1<sup>st</sup> commercial demining group] Project Director on [1<sup>st</sup> commercial demining group] Operations Manager identifying the weaknesses in the task planning and operational management of this task. The letter of censure should also identify those actions to be taken by [1<sup>st</sup> commercial demining group] Operations Manager to ensure similar occurrences do not happen again. A copy of this letter is to be forwarded to the MACC SL and placed in [1<sup>st</sup> commercial demining group]'s accreditation file.
- All future tasking be co-ordinated through MACC SL Planning Officer. All non-adherences are immediately reported to the MACC SL Programme Manager.
- All Weekly Summary Reports be verified for accuracy by the MACC SL LAF Operations Officer, any inaccuracies should be detailed and reported to the MACC SL Operations Officer.
- Organisations are to adhere to their accredited SOPs, TSGs and IMAS at all times. Any major infringements that are reported to the MACC SL QA Officer will be dealt with by means of the severest penalties available.
- Minefield numbers M/F 135 and M/F 135A be cleared as soon as practically possible by [1<sup>st</sup> commercial demining group] Mine Clearance Team No.1. This is to take place only after a task plan has been discussed and verified with MACC SL Planning Officer.
- MACC SL Operations Department draft for NDO approval, a standard "Demolitions Notification Request Form", which all clearance organisations will complete and forward (hand or fax), to MACC SL prior to any demolitions taking place. Non-conformity to the form requirements will result in no approval being given. On approval by the NDO, TSGs be amended and the form incorporated as an Annex.
- Weekly Internal and External QA is to be conducted on every accredited team operating in Southern Lebanon. All clearance organisations and [another demining group] are to forward all QA evaluation results of each accredited clearance asset to the MACC SL QA Officer on a weekly basis, this is also to include details of non evaluations and the reasons why the evaluation was not conducted.
- MACC SL Operations Department investigate the possibility of UNIFIL being able to provide HELEVAC cover (with a winching capability), for clearance operations in Southern Lebanon.

The recommendations as detailed by [1<sup>st</sup> commercial demining group]'s Investigating Officer are to fully implemented by [1<sup>st</sup> commercial demining group]. For the purpose of this report they are summarised and reiterated again below:

- All teams prior to any deployment must be in possession of an operational plan containing all the relevant information.
- Closer liaison between organisations and tasking agencies in a must for all future tasks.
- SOPs be amended to include the use of a metal detector to check demolition serials.
- Investigating Officers are to be tasked directly following any accident.
- SOPs regarding clearance is to be followed fully.
- The Mine-Lab detector is the only detector that is to be used inside a suspected or known mined area.
- A reconnaissance by the Senior Medical Officer (or nominated representative), on evacuation routes is to be carried out on all tasks.
- The number of QA staff is to be increased to ensure that QA on all operational teams is conducted on a regular basis.

The observations as detailed by [1<sup>st</sup> commercial demining group]'s EOD/Survey Medic are to be considered by [1<sup>st</sup> commercial demining group]. For the purpose of this report they are summarised and reiterated again below:

- Mutual support of medical assets is required for remote tasks.
- An effective handheld VHF system backed by vehicle borne VHF system would have been useful.
- “Box splints”, “Body splints”, “Auto-jets” and “Ex-Ox” would be beneficial assets in the medical packs.
- All personnel operating in small teams should be trained in the basics of trauma management; this training should be conducted in similar surroundings and terrain types that teams are operating in.
- The counselling of personnel directly involved in accidents to become the norm.

The conclusions and recommendations as detailed in this report be distributed and discussed among all [1<sup>st</sup> commercial demining group] Operational Field Staff.

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

**Annexes:** [Not made available.]

- A. BOI Follow up Target photograph.
- B. BOI Post Accident Clearance photograph.

### Victim Report

<b>Victim number:</b> 497	<b>Name:</b> Name removed
<b>Age:</b>	<b>Gender:</b> Male
<b>Status:</b> supervisory	<b>Fit for work:</b> not known
<b>Compensation:</b> Not made available (insured HMT)	<b>Time to hospital:</b> 1 hour 50 minutes
<b>Protection issued:</b> None	<b>Protection used:</b> none

#### Summary of injuries:

INJURIES

severe Leg

AMPUTATION/LOSS

Leg Below knee

COMMENT: No formal medical report was made available

#### Analysis

The primary cause of this accident is listed as a “Management/control inadequacy” because the investigation discovered that the group was acting in breach of agreements and conducting clearance while pretending to be engaged in Survey. The secondary cause is



listed as “inadequate equipment” because the group did not have area-markers, had inadequate detectors, lacked the means to move boulders etc (which they would have had for a clearance task) and were not equipped to carry out a Medevac without the assistance of locals who had to enter a high-risk area to do so.

The MACC Board of Inquiry found the list of inadequacies to also include inadequate handtools. The facts that PPE was not worn, the demolition was poorly laid out and unsuccessful and the surveyors were in breach of many safety SOPs is taken to imply that the individuals involved were inadequately trained, despite some of them being field supervisors.

Inadequate detectors were taken but apparently not used until after the accident, when the Victim’s second in command waited for the medic to bring a detector before moving in to rescue the victim.

## **Related papers**

What follows is the original Board of Inquiry report, edited for anonymity and with excess pictures removed.

### **REPORT FOR ACCIDENT INVESTIGATION BOARD OF INQUIRY – No007/2002**

MINE Accident that occurred in OES 1 on 20<sup>th</sup> July 2002 in which [Demining group] Team Leader [the Victim] was injured.

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

References:

- A. [Demining group] SOP’s version dated July 2002.
- B. Janes Mines Manual.
- C. [Demining group] Concept of Operations dated 18.06.02.

## **Introduction**

1. In accordance with the National Technical Standards and Guidelines (TSGs), the MACC SL Programme Manager issued a Convening Order on Saturday 20<sup>th</sup> July 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 Mine Accident that occurred on the 20<sup>th</sup> July 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 confirmed. The accident occurred at approximately 1210 hrs on 20<sup>th</sup> July 2002, in Minefield (M/F) No 135A at Shama, GR 36 706098 670225, (Seat of Detonation). Annex D details a map of the general area.



View of the mined area.

### **Events leading up to the Accident**

4. On the 11.07.02 [Demining group] Level 1 Survey Team was tasked by Operations Manager [name excised] to conduct a survey of minefields in OES-1, in the vicinity of Shama Village, M/F numbers 135 and 135A. The tasking information was obtained from the previously issued MACC SL OES areas minefield spread sheets. As there were access problems in both areas, 2 x Non-Accessible Minefield reports were filed and the information was passed back to Operations Manager [name excised]; Annex E details the Non-Accessible Minefield reports.

5. Based on the non accessible information received from the Level 1 Survey Team, Team Leader [The victim] then decided to conduct a follow visit of the area on the 17.07.02. During this visit both M/Fs were located with the help of a local guide and 13 x mines were seen on or near the surface. Following the visit a "Minefield Appreciation Performa" was completed by Team Leader [the Victim], Annex F details. {Annex F was not made available.]

6. On returning from the minefield appreciation visit, a meeting was held between [the Victim] and Operations Manager [name excised] to decide what the next course of action would be. It was decided that the best solution would be to destroy the immediate threat posed by the located mines and following the destruction of the mines, erect a minefield fence. The task was categorised as a "Demolition/Rapid Response Task" and was planned to be executed on the 20.07.02.

7. As demolitions would be conducted on the 20.07.02, Operations Manager [name excised] submitted a verbal "Demolitions Notification Request" to the MACC SL Planning Officer on the 18.07.02. The information that Operation Officer [name excised] states he passed is detailed at Appendix 6, Annex B to this report. A witness statement by the MACC SL Planning Officer is detailed at Annex G with the MACC SL Planning Officer's notes and the "Demolitions Notification Request" detailed as Appendices to the Annex. [Not made available.]

8. At 0800 hrs on the 20.07.02 [Demining group] EOD/Survey Team deployed on the pre-planned "Demolition/Rapid Response Task" to M/F 135 and 135A. The EOD/Survey Team consisted of the following personnel:

- Team Leader [the Victim]
- Team 2i/c – [name excised].
- Team Medic – [name excised].
- Team Driver – [name excised].
- Observer (Operations Officer) – [name excised].

9. The EOD/Survey Team arrived at the site at 0840hrs, established a Command Post (CP) and conducted a communications check with [Demining group] Operations. Following a safety brief by [the Victim], the Team deployed to the vicinity of M/F 135 in order to destroy the previously located mines. A Firing Point (FP) was located by [the Victim] and Team Medic [name excised] and Observer [name excised] stayed in that location whilst [the Victim] and Team 2i/c [name excised] moved to the M/F to destroy 10 x Israeli No4 Anti-Personnel Mines and 1 x 52mm Mortar Bomb.

10. At 1040 hrs a demolition serial was conducted at M/F 135 and following a period of time to allow the smoke to dissipate and the debris to stop falling a demolition serial check was conducted. On the signal "all clear" the team then moved across the Wadi to the vicinity of

M/F 135A location. A new FP was located and Team Medic [name excised] and Observer [name excised] were dropped off at the FP. [The Victim] and Team 2i/c [name excised] then proceeded to M/F 135A to destroy the previously located mines.

11. At M/F 135A a total number of 6 x Israeli No4 AP Mines were prepared for destruction (4 x mines in-situ and 2 x unfuzed mines were to be used as donor charges). The mines were located in two separate rows with 3 x mines in one row (plus 1 x donor mine) and 1 x mine in another row (plus 1 x donor mine). Detailed below is a schematic diagram detailing the approximate position of the mines and the demolition explosive set up, prior to the disposal serial in M/F 135A.

[The sketch in MS Word did not transfer adequately so is omitted.]

12. At 1155hrs the demolition at M/F 135A was conducted, following a short time period to allow the smoke to dissipate and the debris to stop falling, [the Victim] and Team 2i/c [name excised] moved forward to check for complete demolition. Team 2i/c [name excised] started packing the equipment at the Bench Mark (BM), whilst [the Victim] checked the disposal serial. He checked the first row of mines and was satisfied that a high order had been achieved on all four mines. He then moved forward to check the second row when an uncontrolled detonation occurred. Annex H details the Site Diary for the EOD/Survey Team (20.07.02).

### **Events directly following the Accident**

13. At approximately 1210 hrs an uncontrolled detonation occurred in M/F 135A, following the uncontrolled detonation Team Medic [name excised] moved forward from the FP carrying his trauma pack and a metal detector. On arrival of Team Medic [name excised] at the BM, Team 2i/c [name excised] started to clear a route into and around [the Victim] from the BM, the emergency marking used was orange spray paint.

14. When an area had been cleared around [the Victim], medical assistance and stabilisation took place by Team Medic [name excised]. Team 2i/c [name excised] then called Observer [name excised] and told him to inform [Demining group] Operations and tell Driver [name excised] to move down from the CP to the accident site with the spine board. Observer [name excised] was then instructed to move to the main road in Shama village and wait for additional medical assistance that had been requested.

15. Following the on-site stabilisation, [the Victim] was then moved to the area of M/F 135A BM. Team 2i/c [name excised] then instructed Observer [name excised] to move back to the accident site with water and to help with the extraction of the casualty. Prior to him moving back to the accident site, Observer [name excised] instructed a local to wait for the additional medical assets and when they arrive direct them to the CP. Observer [name excised] then proceeded to pick up some water from the CP and move back to the accident site.

16. There was then an attempt to move [the Victim] up the hill, but due to the very difficult terrain, a distance of only approximately 15 metres was achieved. Team 2i/c [name excised] then tasked Observer [name excised] to go and get some local assistance from Shama village. As Observer [name excised] was making his way up the hill he saw a local at the top and told him to bring some more men to assist in the extraction.

17. After a short period of time 4 x local men arrived and the extraction of [the Victim] to the CP was finally achieved. At the CP the additional [Demining group] personnel then assisted in transferring [the Victim] into the ambulance. Due to the difficult track conditions, [the Victim] had to be physically removed from the ambulance in order to get the vehicle over the rough terrain. On arrival at the main road [the Victim] was then transferred into the Lebanese Red Cross ambulance for the journey to Jabel Amal Hospital in Tyre.

18. At 1400hrs [the Victim] arrived at Jabel Amal Hospital whereupon he was transferred to the Emergency Department where additional trauma care was administered; an X-ray was also performed prior to him being transferred to Hammoud Hospital Sidon by the Lebanese Red Cross at 1440hrs.

## BOI Accident Investigation Follow Up Actions

19. At 1430 hrs Operation Manager [name excised] arrived at the MACC SL to brief the MACC SL Planning and QA Officer on the accident. The MACC SL QA Officer was informed that Operations Manager [name excised] will be heading [Demining group]'s BOI and it was decided to move to the accident scene in order to make a full appreciation on the situation.

20. On arrival at the accident scene the BOI was met by Team 2i/c [name excised] and a full and detailed briefing took place, prior to the BOI moving to the CP. On arrival at the CP, it was decided by the BOI that clearance would have to take place from the CP to the accident site, before any detailed accident investigation could take place.

21. As [Demining group] MDD assets were not accredited to work in low threat suspect areas and [Demining group] Manual assets were on their rest day on the 21.07.02, a request was made through the MACC SL Planning Officer to utilise [another Demining group's] MDD and manual assets. On approval from the MACC SL Planning Officer the BOI left the accident scene.

22. On the 21.07.02, 23.07.02 and 24.07.02 clearance was conducted using both [second demining group's] MDD and manual assets and [original Demining group] manual assets to both M/F 135 and M/F 135A (accident site). Numerous BOI follow up clearance targets were identified by the BOI and all targets were achieved during the 3 x day's clearance activities. 1 x Israeli No4 AP mine was also located in M/F135A on the 21.07.02, in a previously cleared area.

23. All BOI follow up clearance targets as detailed in the following photographs and in the "Account of Activities" to this report, are shown again pictorially at Annex I, a picture detailing the BOI post accident clearance is shown at Annex J and a schematic diagram detailing the accident site is detailed at Annex K.

Note: During the initial stages of the investigation, [the Demining group]'s Investigating Officer was not present.



[Emergency marking with spray paint. It seems that no marking was used until after the accident.]



[Demining group emergency marking on the wrong side of the missed mine – beneath the tip of the prodder.]

### **Work History of the Casualty**

24. [The Victim] is an extremely experienced EOD Operator having worked with [Demining group] for nearly 3 years on numerous contracts in various countries worldwide. Prior to his service with [Demining group] he served in the British Army for 22 years as an EOD Operator. He is considered by [Demining group] to be a competent and trustworthy employee; Annex L details [the Victim]'s CV. [Not made available.]

### **Past History of the Area**

25. The Israeli Defense Force (IDF) initially, and later, the South Lebanese Army (SLA) previously occupied temporary positions in and around Shama, with the main position being located at Al Qusayrat, 1km to the NW of Shama. The mine contaminated areas in and around Shama consist of the following:

- 2 x route denial minefields that are situated on the SE face of Wadi Jalali ash Sharq (M/F 135 and M/F 135A).
- 1 x route denial minefield that is situated on the NE face of Wadi Jalali ash Sharq (M/F 148).

26. IDF Northern Command reported the minefield details on the 12<sup>th</sup> December 2001, M/F 135A details reported were:

- Reference Point GR 36 706480 670160.
- Mine Cluster of mine type 4A.
- Mines were laid in by the IDF in June 1998.
- Minefield map is available.
- "C53" designator number.

### **Sequence, Documentation and Procedure of Tasking**

27. Task Dossier (TD) OES 1 #008 was never issued to [Demining group] and prior to the BOI investigation, was located in the MACC SL Planning Office. The TD contains full details of the 3 x minefields in and around Shama, plus details on 2 x booby traps that are also located in the vicinity of the area.

28. The initial tasking on the 11.07.02 for the Level 1 Survey Team was instigated by Operation Manager [name excised] the decision to do a follow up visit of the area on the 17.07.02 was made by [the Victim] and the decision to conduct the "Demolition/Rapid Response Task" was made by both [the Victim] and the Operation Manager [name excised].

29. Other than the demolitions notification for the above "Demolition/Rapid Response Task" the only information that the MACC SL had on [Demining group] activities in the Shama area was the information detailed in [Demining group] Weekly Summary Reports for week ending the 14.07.02 and week ending 21.07.02.

30. For the Weekly Summary Report, week ending 14.07.02, it is detailed that a Level 1 Survey had been conducted on M/F's 135 and 135A and a "Confirmation visit from Level 1 Survey expat supervisor is required". For the Weekly Summary Report, week ending 21.07.02, it states that Level 2 Survey on M/F's 135 and 135A is "Complete". This report was handed to MACC SL Operations department at approximately 0915 hrs on the day of the accident. Annex M details both Weekly Summary Reports. [Not made available.]

### **Geography and Weather**

31. The Shama site is located to the NE of the village of Shama in the Wadi Jalali ash Sharq. The Wadi runs in a SE to NW direction covering approximately 4 kms in length with a small river flowing through the Wadi bottom. The land near Shama village is used for both arable and pastoral farming, the land at the top of the Wadi and throughout the Wadi is intermixed

with rocky outcrops and moderate scrub and vegetation. At the time of the accident the weather was fine and sunny with temperatures in the region of 25 – 27 degrees Celsius.

### **Site Layout and Marking**

32. The site layout and minefield marking prior to the accident was not in accordance with National TSGs and [Demining group] SOPs. The only marking that was present, prior to the BOI clearance activities were 2 x marked Bench Marks (BMs) at M/Fs 135 and 135A and spray paint clearance marking from the BMs into the minefields.

### **Management Supervision and Discipline**

33. [Demining group] clearance operation is supervised by an International Operations Manager and an International EOD/Survey Team Leader was in overall charge of the Shama site.

34. On the 05.06.02 disciplinary action was taken against [the Victim] following procedural omissions in M/F 142 and M/F 143. The task site was actually suspended by the MACC SL Operations and Planning Officers for non-adherence to SOPs, TSGs and IMAS. Following the task site suspension [the Victim] received a verbal warning and then went on leave.

35. On [the Victim]'s return from leave a Directive was signed by [Demining group]'s Managing Director and [the Victim] committing [the Victim] to “Conduct any task in accordance with [Demining group] in-country SOPs (IMAS accredited)”, Annex N details the signed Directive. [Not made available.]

### **Quality Assurance and Quality Control**

36. [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 [Demining group] SOPs; no Internal QA has taken place on the EOD/Survey Team. External QA is carried out by the MACC SL QA Section [name excised]; no External QA has taken place on the EOD/Survey team other than the MACC SL Operations department site suspension on the 05.06.02, as previously detailed.

### **Communications and Reporting**

37. Communications in-between the Shama site and [Demining group] base location is maintained via the use of the Cell phone system. On site communications in-between team personnel is maintained via VHF handheld radios. 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 in a timely manner. Annex O details the Initial Casualty Report. [Not made available.]

### **Medical Details**

38. [The Victim] suffered traumatic amputation of his left foot and blast/fragmentation injuries to his right leg. [Demining group] EOD/Survey Team Medic James administered medical treatment and stabilisation on-site to [the Victim]. A very difficult extraction of the casualty then took place to the site CP whereupon the casualty was transferred to the Team ambulance for the short journey to the main road in Shama; the casualty was then transferred to a Lebanese Red Cross ambulance for the journey to Jabel Amal Hospital in Tyre.

39. On arrival at Jabel Amal Hospital in Tyre, [the Victim] was transferred to the Emergency Department where additional trauma care was administered; an X-ray was also performed prior to him being transferred to Hammoud Hospital Sidon by the Lebanese Red Cross. Annex P details the medical report from Hammoud Hospital in Sidon.

## **Personnel**

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

## **Dress and Personal Protective Equipment (PPE)**

41. At the time of and prior to the accident, no member of the EOD/Survey Team were wearing any form of PPE, nor was PPE worn during the activities conducted on the 17.07.02

## **Tools and Equipment**

42. At the time of the accident no tools or equipment were being used by [the Victim]. On inspection however of the EOD/Survey equipment used by the Team it was noted that MD-8 detectors and manual demining probes were present. It is known by the Investigating Officer that a decision had been previously made by the Operations Manager not to deploy the MD-8 detector in known mined areas, due to the problems associated with ground contamination and the detector compensator.

43. Likewise it is known that manual demining probes had all been withdrawn from clearance teams in favour of using an excavation trowel only. [Demining group] have a policy of not using demining probes, therefore probes are not part of the accredited clearance equipment. Reference A also refers.

## **Details of Mine Involved**

44. 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.

45. 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.

46. 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 44 – 46 inclusive extracted from Reference B)

47. 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 will therefore reduce the direct pressure required to activate the mine.

## **Account of Activities**

48. 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:

#### **20/07/02**

- 1210hrs – Uncontrolled detonation at M/F 135A.
- 1223hrs – MACC SL Planning Officer informed of accident.
- 1225hrs – MACC SL QA Officer informed of accident.
- 1230hrs – BOI Convened by MACC SL Programme Manager.
- 1305hrs – Casualty extracted to CP.
- 1323hrs – Red Cross Ambulance arrives at Shama village.
- 1331hrs – Casualty transferred to Red Cross vehicle at Shama village.
- 1347hrs – Team 2i/c secures the accident site.
- 1400hrs – Casualty arrives at Jabel Amal Hospital Tyre.
- 1430hrs – [Demining group] Operations Manager arrives at MACC SL and briefs Planning and QA Officers. MACC SL QA Officer is informed that the Operations Manager will be heading [Demining group]'s BOI.
- 1440 hrs - Casualty leaves Jabel Amal Hospital Tyre and moves to Hammoud Hospital Sidon.
- 1445 hrs – BOI and [Demining group] Operations Manager leaves MACC SL on route to Shama.
- 1515hrs – BOI and [Demining group] Operations Manager arrives at Shama and is briefed by the Team 2i/c.
- 1520hrs - Casualty arrives at Hammoud Hospital Sidon.
- 1520hrs – [Demining group] Medical support arrives at Shama.
- 1525hrs – BOI, [Demining group] Operations Manager and Team 2i/c move to area of accident.
- 1535hrs - BOI, [Demining group] Operations Manager and Team 2i/c arrive to area of accident.
  - Accident site is viewed from a known safe area (agricultural land).
  - Group discussion held regarding gaining access to the accident site on the 21.07.02:
    - [Demining group] MDD assets are not accredited for low threat/suspect area work.
    - [Demining group] Manual assets are on their rest day on the 21.07.02.
    - MACC SL QA Officer requests [Second demining group's] MDD and Manual assets through MACC SL Planning Officer.
- 1600hrs – Approval for the use of [Second demining group's] assets given by MACC SL Planning Officer.
- 1605hrs – BOI, [Demining group] Operations Manager and Team 2i/c leave the area of accident.
- 1625hrs - BOI, [Demining group] Operations Manager and Team 2i/c leave Shama.
- 1700hrs – BOI arrives at MACC SL and briefs Programme Manager and Planning Officer.
- 1800hrs – Planning telephone conversation between MACC SL QA Officer and [Second demining group's] Programme Manager, regarding the use of [Second demining group's] clearance assets on the 21.07.02.

#### **21/07/02**

- 0345hrs – [Second demining group's] MDD assets leave Ett Taibe on route to MACC SL.
- 0400hrs – [Second demining group's] Manual assets leave Bayt Yahun on route to MACC SL.
- 0500hrs – BOI and [Second demining group's] assets RV at MACC SL.
- 0510hrs – BOI and [Second demining group's] assets leave MACC SL on route to accident site.
- 0545hrs – BOI and [Second demining group's] assets arrive at Shama.



- 0550hrs - Track clearance (rocks and trees), from Shama village main road to the site Administrative Area (AA).
- 0605hrs – 0630 hrs - Site briefing, target reconnaissance and site set up.
- 0630hrs – MDD assets deploy to target No1 and 2 (LAF Mine Sign and M/F 135A BM).
- 0730hrs – [Demining group] personnel (names excised), arrive at site.
- 0850hrs – MDD verification and follow up marking completed to targets No1 and 2.
- 0900hrs – Close reconnaissance conducted by [names excised] to target No3 (M/F 135A first demolition row).
- 0905hrs – [Second demining group's] MDD assets leave site.
- 0910hrs – Manual assets deployed to target No3.
- 1030hrs – Manual assets clear up to target No3.
- 1035hrs - Close reconnaissance conducted by [names excised] to target No4 (Accident seat of detonation).
- 1045hrs – Manual assets deployed to target No4.
- 1135hrs – Mine located in a previously cleared area on route to target No4.
- 1140hrs – Demolition request to MACC SL Planning Officer, request authorised.
- 1210hrs – Demolition of mine.
- 1220hrs - Manual assets deployed to target No4.
- 1230hrs – Manual assets clear up to target No4.
- 1235hrs - Close reconnaissance conducted by [names excised] to target No5 ("Key hole clearance of the emergency marked area).
- 1240hrs - Manual assets deployed to target No5.
- 1335hrs – Manual assets clear target No5.
- 1340hrs - Close reconnaissance conducted by [names excised] to target No6 (M/F 135A firing point).
- 1345hrs - Manual assets deployed to target No6.
- 1505hrs - Manual assets clear target No6.
- 1510hrs – 1600hrs – BOI complete the day's investigation.
- 1605hrs – BOI leave accident site on route to MACC SL.
- 1700hrs – BOI arrives at MACC SL and briefs Programme Manager and Planning Officer.

#### **22/07/02**

- 0945hrs – BOI leaves MACC SL on route to [Demining group] Base Location to conduct witness interviews.
- 1000hrs – BOI arrives at [Demining group] Base Location to conduct witness interviews.
- 1250 hrs – BOI leaves [Demining group] Base Location on route to MACC SL.
- 1220 hrs – BOI arrives at MACC SL and briefs Programme Manager and Planning Officer.

#### **23/07/02**

- 0345hrs – [Second demining group's] MDD assets leave Ett Taibe on route to Shama.
- 0415hrs – [Demining group] Manual assets leave Bayt Yahun on route to Shama.
- 0430hrs – BOI RV at MACC SL.
- 0435hrs – BOI leaves MACC SL on route to accident site.
- 0500hrs – BOI arrive at Shama.
- 0515 hrs - Site briefing, target reconnaissance and site set up.
- 0610hrs – MDD assets deploy to target No7 (LAF Mine Sign).
- 0810hrs – MDD verification and follow up marking completed to target No7.
- 0820hrs – Close reconnaissance conducted by [names excised] to target No8 (M/F 135 BM).
- 0830hrs – [Second demining group's] MDD assets leave site.
- 0845hrs – Manual assets deployed to target No8.

- 1330hrs – Manual assets clear up to target No8.
- 1335hrs - Close reconnaissance conducted by [names excised] to target No9 (M/F 135).
- 1355hrs – BOI leave accident site on route to MACC SL.
- 1445hrs – BOI arrives at MACC SL and briefs Programme Manager.
- 1515hrs – Request to, and approval from [Second demining group's] for the use of MDD assets for the 24.07.02.
- 1600hrs – BOI briefs MACC SL Planning Officer.

#### **24/07/02**

- 0345hrs – [Second demining group's] MDD assets leave Ett Taibe on route to Shama.
- 0415hrs – [Demining group] Manual assets leave Bayt Yahun on route to Shama.
- 0430hrs – BOI RV at MACC SL.
- 0435hrs – BOI leaves MACC SL on route to accident site.
- 0500hrs – BOI arrive at Shama.
- 0515 hrs - Site briefing, target reconnaissance and site set up.
- 0605hrs – MDD assets deploy to target No9 (M/F 135).
- 0750hrs – MDD verification and follow up marking completed to target No9.
- 0805hrs – Close reconnaissance conducted by [names excised] to target No10 (Key hole clearance of the worked area).
- 0835hrs – [Second demining group's] MDD assets leave site.
- 0835hrs – Manual assets deployed to target No10.
- 1005hrs – Mine located in a previously uncleared area.
- 1010hrs – Demolition request to MACC SL Planning Officer, request authorised.
- 1040hrs – Demolition of mine.
- 1100hrs - Manual assets deployed to target No10.
- 1235hrs – BOI stops clearance at target No10.
- 1300hrs – BOI leaves accident site on route to Majda Zun in order to take a picture from the other side of the Wadi.
- 1400hrs – BOI leaves Majda Zun on route to MACC SL.
- 1440hrs – BOI arrive at MACC SL and briefs Programme Manager and Planning Officer.

#### **25.07.02**

- 0900hrs - BOI leaves MACC SL on route to Hammoud Hospital Sidon.
- 0955 hrs - BOI arrives at Hammoud Hospital to conduct a witness interview with [the Victim].
- 1105hrs – BOI leaves Hammoud Hospital on route to MACC SL.
- 1210hrs - BOI arrives at MACC SL.
- 1500hrs – BOI briefs MACC SL programme Manager and Planning Officer.

#### **Insurance Details**

49. [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 scale of entitlements is held at the MACC SL QA Section.

#### **Conclusions**

50. Based on the investigation, the statements and visits to the site, the BOI concludes the following:

- TD OES 1 # 008 was never issued to [Demining group] for clearance operations and therefore the EOD/Survey Team was tasked with the minimum of information on both

the minefields and booby traps in the area, a fact that [Demining group] Operations Manager was fully aware of.

- No details of the relevant M/F or BT records were obtained from the MACC SL prior to the activities taking place on the 17.07.02.
- No Booby Trap (BT) information was detailed in the Minefield Appreciation Performa completed by [the Victim] on the 17.07.02, as the information was contained in the Task Dossier which was located at the MACC SL.
- There are discrepancies in what was stated and what was actually recorded and detailed in the "Demolitions Notification Request".
- The MACC SL Planning Officer was left without any reservation, that the "Demolitions Notification Request" was for a standard EOD task where UXO were being destroyed and not for mines being destroyed in a minefield.
- The whole task was seen by [Demining group] as a "Target Reduction" opportunity, where 2 x mined areas could be speedily cleared without any knowledge of or input from the MACC SL Planning Officer, this was an attempt to conduct the task under the masquerade of a "Demolition/Rapid Response Task".
- [Demining group]'s EOD/Survey Teams "Demolition/Rapid Response Task" was conducted 3 x days after the initial appreciation visit.
- [Demining group] Operations Manager displayed a lack of operational command and control of the EOD/Survey Team. There was minimal task planning and no consultation with MACC SL Planning Officer regarding a clearance operation in a known mined area. This was in total disregard to Reference C.
- The information contained in the Weekly Summary Reports submitted by [Demining group] to the MACC SL was inaccurate.
- [The Victim] contravened the Directive signed on the 21.06.02 regarding his commitment to conduct any task in accordance with [Demining group] in-country SOPs (IMAS accredited).
- The on-site marking in both M/F 135 and M/F 135A conducted on the 17.07.02 was not in accordance with [Demining group] SOPs, National TSGs or IMAS.
- No permanent marking stores were seen by the BOI at Shama site on the 20.07.02, it is difficult to therefore understand how a permanent fence was going to be erected following the demolition serial.
- No route clearance to remove the large rocks and boulders was conducted by the EOD/Survey Team. Should this have happened then the CASEVAC of [the Victim] would have been much smoother.
- No [Demining group] clearance was conducted through the low threat suspect area (from the CP to the LAF mine signs). Nor was any clearance conducted through the high threat suspect area (from the LAF mine sign to [Demining group]'s BMs).
- No PPE was worn by any member of the EOD/Survey Team during the activities conducted in M/F 135 and M/F 135A on the 17.07.02 and 20.07.02.
- MD-8 detectors were deployed in a known mined area with the full knowledge of the problems associated with ground contamination and the detector compensator.
- Manual demining probes were used in a known mined area with the full knowledge that they are not a [Demining group] accredited demining tool.
- The clearance conducted by the EOD/Survey team was not in accordance with [Demining group] Operations Manager metal free directive dated on the 24.06.02, as metal fragments were located during the BOI investigation.
- The FP was located in an unsafe area only 73m from the demolition serial. The correct safety distance for the FP, taking into account the number of mines being destroyed and the quantity of serviceable explosives used should have been at least 200m away.
- Both [the Victim] and Team 2i/c [name excised] moved forward to check for complete detonation following the disposal serial. The task is a one man risk and Team 2i/c [name excised] was fortunate not to become a casualty himself, as he was only 15m away from the accident seat of detonation.
- There was a single uncontrolled sub-surface detonation of an Israeli No4 AP mine. Evidence shows that the crater had blackening to the sides, was of a bulbous shape with primary metallic and plastic fragmentation lining the bottom and sides.

- The Israeli No4 mine detonated whilst [the Victim] inadvertently stood on it whilst checking the demolition serial. This was however a genuine accident and no direct blame can be apportioned to [the Victim].
- The traumatic amputation of [the Victim]'s foot was due to the positive blast effects resulting from the disintegration of the Israeli No4 mine, on the detonation of the high explosives.
- [The Victim]'s other injuries were sustained from both primary and secondary fragmentation, resulting from the disintegration of the Israeli No4 mine, on the detonation of the high explosives.
- During the demolition serial there was a partial detonation; a complete detonation of the donor mine charge actually occurred, but the second Israeli No4 AP mine failed to detonate. Following the donor mine charge detonating, the positive blast effects would have pushed the Israeli No4 AP mine to the edge of the crater; this would have been then subsequently covered by the spoil and debris from the donor mine charge detonating.
- The possible reasons for the partial detonation are:
  - Imprecise charge placement of the donor mine charge with the Israeli No4 AP mine, leading to the detonating wave not being transferred.
  - The firing cable was not pegged out; therefore it may have been inadvertently moved whilst personnel were retiring to the FP, leading to the movement of the donor mine charge and no subsequent transferral of the detonating wave.
  - When the first demolition row detonated, the blast wave may have disturbed the donor mine charge, again leading again to the movement of the donor mine charge and no subsequent transferral of the detonating wave.
- The missed Israeli No4 mine was inside the emergency area cleared by Team 2i/c [name excised]. Should someone in the extraction party unintentionally stood on the mine, then the accident would have been compounded significantly, with the possible loss of life being the outcome.
- Local civilian personnel were told to move into a high threat suspect area to assist in the extraction of [the Victim].
- If a detector had been used to check areas of the demolition serial, then the possibility of the accident occurring would have been minimal.
- The help and assistance from [Second demining group's] clearance assets was invaluable for the BOI investigation.
- During the initial stages of the investigation, [Demining group]'s Investigating Officer was not present. The BOI was only informed on the 22.07.02 that [Demining group] Investigating Officer would change.
- The BOI reservedly accepts [Demining group] Accident and IMSMA Reports. The followings points should however be noted:
  - The report was submitted late to the MACC SL.
  - The report is not as detailed as the BOI would expect from an International Clearance Organisation, following a very serious accident involving a senior employee.
  - The recommendations made however by [Demining group]'s Investigating Officer are thorough and comprehensive, all being endorsed and concurred with, by the MACC SL.
  - The post accident observations made however by Medic [name excised] are very comprehensive and fully endorsed and concurred with, by the MACC SL.
- The passage of information in between the accident site, [Demining group] base location and MACC SL was good with all information being passed in a timely manner.
- No formal Internal or External QA had been carried out on the EOD/Survey Team since the start of operations.
- A reliable HELEVAC capacity, with winching capabilities would have assisted in the extraction of [the Victim].

## Recommendations

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

- A recommendation is made to the NDO that the [Demining group] EOD/Survey and Level 1 Survey licence be withdrawn and [Demining group] reassess their Survey requirements and resubmit their plan to the MACC SL QA Section for accreditation.
- A letter of censure is raised by [Demining group] Project Director on [Demining group] Operations Manager identifying the weaknesses in the task planning and operational management of this task. The letter of censure should also identify those actions to be taken by [Demining group] Operations Manager to ensure similar occurrences do not happen again. A copy of this letter is to be forwarded to the MACC SL and placed in [Demining group]'s accreditation file.
- All future tasking be co-ordinated through MACC SL Planning Officer. All non-adherences are immediately reported to the MACC SL Programme Manager.
- All Weekly Summary Reports be verified for accuracy by the MACC SL LAF Operations Officer, any inaccuracies should be detailed and reported to the MACC SL Operations Officer.
- Organisations are to adhere to their accredited SOPs, TSGs and IMAS at all times. Any major infringements that are reported to the MACC SL QA Officer will be dealt with by means of the severest penalties available.
- Minefield numbers M/F 135 and M/F 135A be cleared as soon as practically possible by [Demining group] Mine Clearance Team No1. This is to take place only after a task plan has been discussed and verified with MACC SL Planning Officer.
- MACC SL Operations Department draft for NDO approval, a standard "Demolitions Notification Request Form", which all clearance organisations will complete and forward (hand or fax), to MACC SL prior to any demolitions taking place. Non-conformity to the form requirements will result in no approval being given. On approval by the NDO, TSGs be amended and the form incorporated as an Annex.
- Weekly Internal and External QA is to be conducted on every accredited team operating in Southern Lebanon. All clearance organisations and [the commercial QA group] are to forward all QA evaluation results of each accredited clearance asset to the MACC SL QA Officer on a weekly basis, this is also to include details of non evaluations and the reasons why the evaluation was not conducted.
- MACC SL Operations Department investigate the possibility of UNIFIL being able to provide HELEVAC cover (with a winching capability), for clearance operations in Southern Lebanon.
- The recommendations as detailed by [Demining group]'s Investigating Officer are to fully implemented by [Demining group]. For the purpose of this report they are summarised and reiterated again below:
  - All teams prior to any deployment must be in possession of an operational plan containing all the relevant information.
  - Closer liaison between organisations and tasking agencies in a must for all future tasks.
  - SOPs be amended to include the use of a metal detector to check demolition serials.
  - Investigating Officers are to be tasked directly following any accident.
  - SOPs regarding clearance is to be followed fully.
  - The Mine-Lab detector is the only detector that is to be used inside a suspected or known mined area.
  - A reconnaissance by the Senior Medical Officer (or nominated representative), on evacuation routes is to be carried out on all tasks.
  - The number of QA staff is to be increased to ensure that QA on all operational teams is conducted on a regular basis.
- The observations as detailed by [Demining group]'s EOD/Survey Medic [name excised] are to be considered by [Demining group]. For the purpose of this report they are summarised and reiterated again below:
  - Mutual support of medical assets is required for remote tasks.
  - An effective handheld VHF system backed by vehicle borne VHF system would have been useful.

- “Box splints”, “Body splints”, “Auto-jets” and “Ex-Ox” would be beneficial assets in the medical packs.
  - All personnel operating in small teams should be trained in the basics of trauma management; this training should be conducted in similar surroundings and terrain types that teams are operating in.
  - The counselling of personnel directly involved in accidents to become the norm.
- The conclusions and recommendations as detailed in this report be distributed and discussed among all [Demining group] Operational Field Staff.

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. List of personnel involved with attached statements as Appendices.
- C. IMSMA Mine/UXO accident report.
- D. Map of the general area.
- E. [Demining group] Level 1 survey non-accessible report.
- F. [Demining group] Minefield appreciation performa.
- G. MACC SL Planning Officer witness statement.
- H. [Demining group] Site Diary.
- I. BOI Follow up Target photograph.
- J. BOI Post accident clearance photograph.
- K. Schematic diagram of the accident area/scene.
- L. [the Victim]’s CV.
- M. [Demining group] Weekly Summary reports – we 14.07.02 and 21.07.02.
- N. [the Victim] signed [Demining group] directive.
- O. Initial casualty report.
- P. Medical report from Hammoud Hospital.

**Comments by the MACC SL Planning Officer**

The Conclusions and Recommendations made by the MACC SL Quality Assurance Officer in The Report for Accident Investigation Board of Inquiry – No 007 / 2002 are fully concurred with. Notwithstanding the very serious breaches of [Demining group] SOPs, National TSGs and IMAS at the two minefield sites on the ground, what is of even graver concern is the blatant refusal by the [Demining group] Operations Manager to follow agreed tasking procedures.

The guise given for this refusal to follow agreed tasking procedures was explained as a “Demolition Rapid Response Task”, where because of the immediate threat to the local population it was deemed appropriate to wait three days to instigate this action. It was also stated in the [Demining group] Operations Managers statement that the site was then to be fenced using proper minefield marking. No minefield fencing was on the site on the day the accident occurred; one must then assume that the site was to be fenced at a later date. No community liaison was involved in the planning process, so one must again assume that the local community after hearing the demolitions that were conducted would have to make their own conclusions as to the final outcome of the mined Wadi in question.

To summarise, no tasking authority, no task dossier and no task co-ordination led to the deployment of a poorly informed, poorly equipped team of men on a “Demolition Rapid Response Task”, which even if successful in the destruction of the mines located would have left the site in an even more dangerous state than it was first encountered.

The accident that resulted in Mr [the Victim]’s injuries are tragic, however the missed mine located 10cm from the marked route into his accident location are a reminder that this tragic accident could have been far worse. It took 6 men (4 local personnel not involved in the “Demolition Rapid Response Task” ), 55 minutes to move 1 casualty 109 metres and this was achieved with great difficulty, a second accident caused by the narrowly missed mine

would very likely have turned evacuation of both personnel into a highly probable fatality scenario.

Signed; Planning Officer, Mine Action Co-ordination Centre Southern Lebanon.

### **Comments by the MACC SL Programme Managers**

I have read the BOI report and I concur with the conclusions and recommendations of the Board.

I note that there have been a number of procedural errors in relation to the tasking of the EOD Survey Team which I consider to have been a contributing factor to placing the team unnecessarily at risk. Clearly this was a mined area clearance task and not an EOD task. This should have been recognized at the early stages and the EOD Team should not have been deployed without the appropriate assets and they should have had all of the available information. I find it troubling that the minefield records for these particular minefields were still sitting in the task dossier held at the MACC. The information would have been released had it been requested. This point had been made clear only the week before.

The actions of the EOD Team on site clearly indicate that the Team was not working in compliance with accepted international standards, nor with the national technical and safety guidelines, or their own company SOPs. It can be concluded from the evidence that there appeared to be some haste to complete this task, however, I do not concur entirely with the justification given that this task was undertaken to prevent injury to local children. This is supported by the lack of fencing materials on site with the EOD Survey Team with which to fence off the area to prevent entry into the area after they had completed their day's work. In summary, I conclude that the task was planned and executed hastily and this fact contributed to the accident. In this regard, I will be recommending to the National Demining Office that the licences for the Company Level One and EOD Survey Teams be withdrawn, and that the Company be required to resubmit their survey plan with reconfigured assets and clear tasking procedures. The Company should submit a new plan for survey operations for accreditation and licensing as appropriate.

Given the poor procedural tasking, planning, coordination, and post accident administration of this particular task, I conclude that a degree of responsibility must rest with the Company Operations Manager. Accordingly, I support the recommendation in relation to a letter of censure in this case.

On the accident itself, and based on the evidence gathered at the site and from the witness statements, I concur with the conclusions of the Board into what has caused the mine to function causing injury. Given the circumstances at the time of the detonation, and given the nature of the ground, the environment in which the minefield had been laid, and the sensitive nature of this particular mine, I do not believe that there was at that time an error in drill on the part of the EOD operator, [the Victim]. It is unfortunate that he has suffered a traumatic injury and I do not consider his actions at that time to have been at fault.

While there were many procedural errors in the drills during the early stages of the task, it should be noted that the actions of [the Victim]'s team-mates on the occurrence of the explosion showed a high degree of cool-headedness and courage. It is not easy to witness a team-mate, especially one of [the Victim]'s calibre, fall victim to a mine. The actions taken by [names excised] were quick, effective, and in all probability life-saving. They are to be commended for maintaining their professionalism and displaying the fortitude to get [the Victim] to proper medical care as quickly as possible in difficult circumstances.

Signed: both the UN Programme Manager & NDO Representative, MACC Southern Lebanon

## Statements

The following witness statement from Team Leader [the Victim] was conducted at 1000 hrs on the 25.07.02 at Hammoud Hospital, Sidon. The statement was taken verbally by the BOI Investigating Officer.

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

A1. I went back to check the serial, stood on the edge of the crater and the detonation occurred, I did not stand inside the crater. The next thing I know was that I was lying face down and I managed to push myself up on my elbows.

Q2. Whose decision was it to go back to the area on the 20.07.02?

A2. I had a discussion with Operations Manager [name excised] and it was decided to go back and destroy the mines previously located as children had been in the area.

Q3. What were the parameters you were given for the task on the 20.07.02?

A3. To destroy the previously located mines.

Q4. Whose decision was it to conduct the activities on the 17.07.02.

A4. Operations Manager [name excised]'s decision.

Q5. What were the parameters you were given for the task on the 17.07.02?

A5. To get as much information on the minefields.

Q6. Where did you get the information on the area from?

A6. From the OES spreadsheet information.

Q7. How did you set up the demolition serial?

A7. [The Victim] detailed the set up as shown at Page 3 to the accident report.

Q8. What do you know about the Demolition Notification Request?

A8. I detailed the 2 x grid references and Operations Manager [name excised] then put it through MACC SL Operations. I do not know what the specific details were.

Q9. Why were you using the MD-8 detector?

A9. There were no spare Mine-Lab detectors, the EOD/Survey Team has always used the MD-8, and I have not been trained on Mine-Lab's.

Signed: QA Officer, MACC Southern Lebanon.