

# DDAS Accident Report

## Accident details

|   |  |
|---|--|
| <b>Report date:</b> 17/04/2008  | <b>Accident number:</b> 570  |
| <b>Accident time:</b> 10:04   | <b>Accident Date:</b> 29/12/2006   |
| <b>Where it occurred:</b> Wadi as Saluq, West side, Northern Bint Jbeil District, Majdal Silm | <b>Country:</b> Lebanon  |
| <b>Primary cause:</b> Management/control inadequacy (?)                                       | <b>Secondary cause:</b> Management/control inadequacy (?)                    |
| <b>Class:</b> Missed-mine accident  | <b>Date of main report:</b> 07/01/2007                                       |
| <b>ID original source:</b> None   | <b>Name of source:</b> UNMAS   |
| <b>Organisation:</b> [Name removed]   |  |
| <b>Mine/device:</b> DPICM M77 submunition   | <b>Ground condition:</b> leaf litter<br>rocks/stones<br>steep slope<br>trees |
| <b>Date record created:</b>   | <b>Date last modified:</b> 17/04/2008  |
| <b>No of victims:</b> 2   | <b>No of documents:</b> 2  |

## Map details

|  |                              |
|--|------------------------------|
| <b>Longitude:</b>                            | <b>Latitude:</b>             |
| <b>Alt. coord. system:</b> UTM 731008-679078 | <b>Coordinates fixed by:</b> |
| <b>Map east:</b>                             | <b>Map north:</b>            |
| <b>Map scale:</b>                            | <b>Map series:</b>           |
| <b>Map edition:</b>                          | <b>Map sheet:</b>            |
| <b>Map name:</b>                             |                              |

## Accident Notes

inadequate area marking (?)  
inadequate investigation (?)  
inadequate survey (?)  
no independent investigation available (?)  
protective equipment not worn (?)  
visor not worn or worn raised (?)  
metal-detector not used (?)

## **Accident report**

The report of this accident was made available in February 2008 as a collection of files and pictures. Its conversion to a DDAS file means that some of the original formatting has been lost. The substance of the report is reproduced below, edited for anonymity. The original files are held on record. Text in [ ] is editorial.

The date of the final report was taken from an IMSMA form report. The IMSMA report also states:

“Two two-man teams were sent out to determine the outer limits of the presumed footprint. One team had found the right boundary whilst the second team was “bouncing the wire” to locate the other side. One team member had apparently found some cluster bombs and shouted for his chief to join him. Whilst the team leader was getting closer the other member accidentally set off one BLU M77. The team leader was hit in the throat and chest area by shrapnel whilst the explosion injured the other’s right foot. Shrapnel in both hands too hit him.”

## **REPORT FOR ACCIDENT INVESTIGATION**

DEMINEING Accident that occurred in MAJDAL SILM, UTM 731008-679078 on the 29th December 2006 during which [Name removed] EOD Team Leader Adjut [Victim No.2] and EOD Team Member [Victim No.1] were injured.

### **Introduction**

This is a comprehensive report by the LO EOD [Name removed] into the Demining Accident that occurred on the 29 December 2006 which is based on the [Name removed] internal investigation report, visits to and photographs from the accident site.

The information provided by [Name removed] to the MAG SL QA Section in the “IMSMA Casualty Report” attached at this report is confirmed. The accident occurred at 1004 Hr on 29 December 2007 in Majdal Silm, UTM 731008-679078.

### **Story of the facts**

On 29 December 2006, [Name removed] De-mining team M2 and the EOD-teams of [Name removed] went to Majdal Silm for BAC in the valley and the on the hills. The road in the valley is often used by patrol teams of [UN group] and this valley has to be cleared for safety reasons.



[The accident site was among these trees.]

Daily routine was done before starting the work: a safety briefing was given by the EOD Team Leader before starting BAC. PPE was not worn, because not necessary and too heavy to wear; the team only did non intrusive clearance (visual clearance Phase I for the De-mining teams in the valley and trying to determine the footprint of the BLU-strikes on the hills in order to plan these clearance activities – only for EOD qualified personnel).

The external safety of the teams was guaranteed by the Force Protection of [Name removed] and the Medical support - with full equipped ambulance – was positioned in a safe place before any de-mining/EOD activity started.

The de-mining team M2 started the BAC of the valley using the range clearance method. The EOD teams were split up into binomes (teams of two EOD qualified military) to start to determine the footprint of the BLU strike. These teams followed the road in the valley and up the hill of the valley in order to try to determine the footprint of the BLU-strike. For the safety of the military personnel, this operation can only be done by EOD qualified personnel because of the terrain (hills, vegetation, rocks, underground ...)

When climbing up the hill, the EOD Team Member [Victim No.2] stepped on or against a sub-munition M77. It detonated and injured him. EOD Team Leader [Victim No.1] followed his Team Member at a distance of approximately 8 – 9 meters and was injured by the shrapnel of the detonated sub-munition.

Both could return to the safe road by themselves and were treated by the personnel of the medical element. All the other personnel stopped immediately all activities and went to the safe road. While leaving the working area, one more M77 detonated in the neighbourhood of another binome (EOD team), without any reason but nobody got injured.

The two injured military were immediately evacuated to [Name removed] hospital. (CASEVAC procedure of [Name removed] was respected)

The site was closed down for investigation and the other personnel went back to their base.

After being seen by a doctor, Team Leader [Victim No.1] was brought to Saida by helicopter for further examination and surgery was performed to extract the shrapnel. He was repatriated to Belgium on 03 January 2007.

After being seen by a doctor, Team Member [Victim No.2] was brought to the operation cell in [Name removed] hospital for further treatment and on 30 December 2006 he was repatriated to Belgium.

## Conclusions

Based on the investigation, the statements and the visits to the site, the LO EOD concludes the following:

- a) A sub-munition M77 detonated after EOD Team Member [Victim No.2] stepped on or against the cluster. EOD Team Member did not see the cluster and considered the ground as safe.
- b) EOD Team Member [Victim No.2] was walking on the ground, not digging or using any violent acts when the accident occurred. This is confirmed by the witness to the detonation, Team Leader [Victim No.1].
- c) From the evidence gathered, it can be established that EOD Team Leader [Victim No.1] and EOD Team Member [Victim No.2] were not wearing PPE. It is not necessary to wear PPE while no intrusive search is conducted. This is in accordance with TSG – Chapter 14 BAC.
- d) The CASEVAC and MEDEVAC were conducted in accordance with [Name removed] National Regulations, with the casualties given appropriate first aid and transported by [Name removed]'s ambulance to the [Name removed] hospital within one hour.
- e) From the facts and evidence gathered, there is nothing to suggest or confirm that any procedures were breached that directly caused this accident.

## Recommendations

The following recommendations are based on the Contact Team [Name removed] conclusions:

- a. Risk Reduction Analysis
  - i. It is important to notice that the first step in the framework of the “Risk Reduction” is: the evaluation of the feasibility of the operation. This evaluation is in accordance with the directives of ATP 72 – Interservice Explosive Ordnance Disposal Operations on Multinational Deployments – paragraph 0504: General Safety Principles, where the balance between “operational imperative” and “risk to personnel” is described.
  - ii. The Risk reduction and the creation of a safe working area are basic principles if the management of the activities in the domain of EOD and de-mining. Risk reduction is of a combination of safe procedures, effective supervision and control, adapted courses and training, safe equipment and adapted use of PPE.
  - iii. For further analysis, the different EOD mission areas were used to pay attention at the different phases of the EOD-process. The phases “Detection/Localization” and “Access” are the most critical phases of the daily operations.
  - iv. The different factors of Risk Reduction in this framework are explained as follows:
    - (1) Safe procedures
      - (a) In the framework of the mandate, following aspects were analyzed: “safety distances” and the “use of detectors”.
      - (b) The used procedures for BAC lead to limited safety distances between the personnel. An accidental detonation of ammunition can cause increased

collateral damage. The used method minimizes the risk of accidental working due the different operators observing simultaneously the terrain so that more visual controls are carried out before the team step forwards into the terrain. This reduces the risk for involuntary actions due to the carried out control of the neighbour. The chosen method gives also the advantage of a minimum terrain preparation and an increased Quality Assurance (QA). The collateral damage can be reduced by taking measures in the domain of the personnel protection equipment. The effect of this type of operations on the population is very great in order to win the hearts and minds.

- (c) A flexible use of detectors is foreseen while executing BAC. Depending on the results of the EOR and the moment of the operation, the use of detectors will be determined. The type of munitions (problem EMR), the accessibility of the terrain, the vegetation and the type of soil are taken in account for a decision. The decision is made by the responsible of the working site. The actual used solution reduces the risk in an optimized way.
  - (d) The personnel used are also part of the analysis. In difficult terrain, only EOD qualified personnel is used. These personnel can work independently and in this way the requests for technical assistance by the different operators are reduced. As consequence the movements within the dangerous zone are limited. This is in accordance with TM60-A-1-1-36 (EOD Procedures, Surface Range Clearance).
  - (e) The used procedure for EOR allows a flexible response. During the execution the maximum safety distances are pursued.
- (2) Supervision and control
- (f) Every operation is subject of a prior briefing (planning briefing) and a debriefing by the EOD Team Leader at planning level.
  - (g) The number of personnel to be supervised by EOD-operators is limited up to five (TM60-A-1-1-36 Paragraph 3-4). In the actual used configuration of a combined team (EOD and Combat Engineers), the supervision is distributed between three EOD-operators in order to minimize the span of control to maximum three for each EOD-operator.
  - (h) Based on the supervision, the working period is adapted. The maximum period of 50 minutes is not exceeded and can only be reduced. Between two working periods, a minimum pause of 10 minutes has to be respected.
- (3) Instruction and training
- (i) Besides the preparation of [Name removed], the [Name removed] personnel reacts quickly on new necessities. While discovering new ammunitions a serious effort is done to distribute the information and to inform the personnel in the area of operations. In this framework the information is transferred to Belgium, certainly for the developed procedures "in the field". Through a validation by DOVO this can lead to a best practice which can be distributed to other NATO and EU partners.
  - (j) The reach-back to Belgium (EODIC of DOVO) is frequently used and is considered as satisfying. The exploitation of the local information given by UNMACC SL is not enough. The numerous accidents amongst the local population, the LAF personnel and the NGO never lead to Lessons Learned

distributed to all EOD/De-mining actors in the field. This problem is a topic of action for the LO EOD.

- (k) An important point is the instruction on the available equipment. The lack of information about the ballistic protection equipment leads to an unacceptable level of knowledge about the properties and the modularity of this equipment.
- (4) Equipment
- (l) A basic principle is to provide equipment with a safe design and which gives the necessary comfort for the personnel. (IMAS 10.30 Safety and Occupational Health – Personal Protective equipment)
  - (m) Following problems needs to be studied
    - (i) The actual shoes are not adapted for working in a safe way in the terrain of Lebanon. This was already reported in the [Name removed] daily reports to Belgium. Until now, no response was given. This problem is confirmed because a lot of personnel belonging to the Force Protection and Medical Section are wearing mountain shoes (private).
    - (ii) The use of adapted communications for the key personnel can guarantee more safety. During the prospecting phase, the characteristics of the ammunition in the field have to be taken in account, because of the presence of electronic fuses (problem EMR).
    - (iii) The use of personnel protective equipment is discussed in the paragraph below
- (5) Personnel Protective Equipment
- (n) PPE is considered as the last element in “risk reduction”. PPE is used to reduce the rest risk. Zero-risk is not possible.
  - (o) Remarks concerning PPE
    - (iv) PPE protects only the person who wears PPE and does not protect the collective.
    - (v) The theoretical protection levels (in lab circumstances) are almost never reached if used in the field and the real protective degree is difficult to estimate.
    - (vi) PPE are always limiting the operator (reduced mobility, sight of view, additional weight).
  - (p) In deliberation with the personnel of [Name removed] and based on the analysis, it can be concluded that PPE can be used for further “risk reduction” during BAC. The directives concerning wearing PPE must give the necessary space for flexible response in function of the type of operation, climatologically circumstances, the field, the UXO-situation... PPE can be ballistic protection equipment, safety glasses, special shoes and helmet.
  - (q) Following elements are important for the ballistic protection equipment
    - (vii) Modularity of the equipment will be applied and will be part of a flexible response.

- (viii) In a BAC framework, the following configuration (Belgian ballistic protection) is retained: undervest, collar cover, neck cover and throat lower. The part of the throat upper is too high for the personnel that are observing the ground. Adapting this part should allow the use of it and increase the safety of the throat.
- (ix) As a general rule, this configuration is not worn during Roving tasks except if the Team Leader considers this opportune. He can decide which parts would be worn.
- (x) As a general rule, this configuration has to be worn during EOR tasks. Wearing this protection is considered opportune when the limited visibility does not allow respecting the safety distances. The Team Leader can downgrade the configuration if he considers it is opportune. For example during EOR, where the team is led by a local representative through a safe access.
- (xi) The use of the ballistic protective equipment will be observed during three weeks by the Team Leader EOD Planning. A report will be transmitted by an authority designed by COM [Name removed] to ACOS O&T for validation.
- (r) The use of the helmet is not opportune because the execution of the tasks is based on visual search. A visor leads to a distortion of the sight. The extra weight on the head is an additional load for the neck of the personnel which is observing continuously the ground. A protection could be given by wearing safety glasses. The degree of protection needs to be evaluated.
- (s) In the de-mining community adapted shoes are still a subject to discussion. The limited tests performed by the US are not convincing. The "sapper-shoes", used during de-mining, are not suitable for this kind of operations.
- (t) The Contact Team will use its contacts to collect information from other nations for the use of PPE in such missions. The important difference in working circumstances and the de-mining circumstances may not be neglected.

b. Answers to the Contact Team mandate

The following points are the most important answers to the questions of the mandate.

- v. Use of a mine detector: the actual concept of use foresees a flexible use of detectors and is coherent with the regulations.
- vi. Safety distances: the chosen concept of range clearance is coherent with the regulations. The rest risk can be reduced by using PPE. A concept of use will be tested and evaluated during the mission [Name removed].
- vii. Time of execution (observation)/ rest time: via supervision of the personnel the working time will be adapted. The maximum working time is 50 minutes and can only be reduced in function of the other parameters.
- viii. Exploitation of technical data: within [Name removed] an effort is done to distribute the information. An important local input (UNMACC SL) needs to be activated by the LO EOD [Name removed].
- ix. The use of PPE: after analysis and in deliberation with the personnel of [Name removed], it was decided to reduce the rest risk by evaluating the use of PPE.

ACOS O&T will evaluate in close collaboration with DOVO the equipment concerning its ballistic properties concerning fragmentation.

Tests and validation: the evaluation, follow up and validation of the taken measures have to be executed within three weeks. After validation and in accordance with the decisions taken by ACOS O&T, the SOP of [Name removed] needs to be finalized.



[An investigator points to the point of initiation.]



[Another M77 found in the area.]

#### **UN report [by other UNIFIL unit]**

#### **EOD-accident of 29 Dec 06 in Lebanon (Wadi As Saluq)**

1. On the 291004 Dec 06 an EOD-accident happened in Lebanon at WADI ASSALUQ.
2. Place EOD-accident:  
Wadi As Saluq (7315 – 6785)
3. Aim of the EOD-operation:  
To determine the “footprint” of a BLU-field in order to check the data of IMSMA and to employ the section M2 in the valley.
4. Description of the applied working procedure:
  - a. The M2, assisted by the EOD qualified personnel, performed a systematic sweep of the valley in accordance with the working procedure as described in TM60A-1-1-36 Par 12 point (3). This working method was agreed by all the EOD Team Leaders and was the best solution.

- b. To determine the limits of the “footprint” of the BLU-field, a minimum of personnel has to be exposed of the danger. The team worked in groups of two persons (ONE Team Leader EOD and ONE B2/B4 EOD). The aim was to determine the outer limits of the BLU-field from different directions with the aim to conduct a systematic and fully clearance.
  - c. During the movement in the with munitions polluted area, 1SC [Victim No.2] has stepped on or against a BLU, probably type M77. This BLU detonated by this positive action. The fragmentation wounded 1SC [Victim No.2] at his right foot and his hands. The Team Leader, Adjty [Victim No.1], stood at a certain distance behind 1SC [Victim No.2]. He is wounded by the fragmentation at breast and throat.
  - d. The BLU was not observed by 1SC [Victim No.2]. This is NOT because of inattention, but because of the terrain conditions.
  - e. During the execution of the operation, both were wearing working gloves. PPE was not worn because the personnel were not working intrusive. It is not necessary to wear PPE during visual clearance activities (See TSG Chapter 14). No positive action was carried out on the munitions (RSP) at the moment of the explosion.
  - f. To determine the “footprint” of the BLU-field, the area is first visual checked; working with a metal detector is physically not possible because of the limited access of the terrain (style hills, woods and the ground is full of metal contamination).
5. Conclusion:
- g. The EOD personnel did not made any professional mistakes.
  - h. The higher described working method is the only safe working method in this terrain. All safety measures were taken and respected.

## Victim Report

|   |                                     |
|---|-------------------------------------|
| <b>Victim number:</b> 744               | <b>Name:</b> [Name removed]         |
| <b>Age:</b> 37                          | <b>Gender:</b> Male                 |
| <b>Status:</b> surveyor                 | <b>Fit for work:</b> not known      |
| <b>Compensation:</b> Not made available | <b>Time to hospital:</b> 28 minutes |
| <b>Protection issued:</b> None          | <b>Protection used:</b> None        |

### Summary of injuries:

severe Chest

severe Hand

severe Neck

COMMENT: See Medical report.

### Medical report

An IMSMA report gives the Victim date of birth as 4th March 1968 and records that it took 28 minutes to reach the first hospital (military hospital at Tibnin).

Sketches record "loss of" right "hand/finger" and "other injuries" to "head/neck" and "chest". It is presumed that the IMSMA record is wrong and no "loss" of body parts occurred.

## Victim Report

|   |                                     |
|---|-------------------------------------|
| <b>Victim number:</b> 745               | <b>Name:</b> [Name removed]         |
| <b>Age:</b> 42                          | <b>Gender:</b> Male                 |
| <b>Status:</b> surveyor                 | <b>Fit for work:</b> not known      |
| <b>Compensation:</b> Not made available | <b>Time to hospital:</b> 28 minutes |
| <b>Protection issued:</b> None          | <b>Protection used:</b> None        |

### Summary of injuries:

severe Foot

severe Hands

COMMENT: See Medical report.

### Medical report

An IMSMA report gives the Victim date of birth as 21st March 1964 and records that it took 28 minutes to reach the first hospital (military hospital at Tibnin).

Sketches record "loss of" right and left "hand/finger" and right "foot/toes". It is presumed that the IMSMA record is wrong and no "loss" of body parts occurred.

## **Statements**

### **DECLARATIONS OF THE MILITARY AND CIVILIAN WITNESSES**

#### **Statement 1**

[Name removed]

Rank and ID number: 1 Sdt, 13

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. I was observing the de-miners who were searching the field. I heard an explosion and then I heard some crying for medical support and on my turn I passed the message towards the medical support team. I went to the spot and moved towards one of the victims and I applied a pressure bandage to [Victim No.1]. At that moment the medical support team was ready to intervene.

#### **Statement 2**

[Name removed]

Rank and ID number : 1 MC, 57

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. On the 29 December 2006 a sweep with one section de-miners and carried out and a search for the footprint by the EOD teams would be carried in Majdal Silm.

The responsible EOD for the de-miners was 1MC [Name removed], who would supervise in case of finding ammunition. The other EOD members were divided in groups of two to start to search the footprints on the flanks of the hill. Because we were un-pair the team of [Victim No.1] consisted of three members, 1SC [Victim No.2] and me. The EOD teams were spread out over the hill at great distance of each other. Once every team came in its sector, everyone took individually a direction, but stay in the sight of view of its partner. My sector was at the border of flank, just before the bushes. The sector of [Victim No.1] and 1SC [Victim No.2] was higher up in the bushes and the flank of the hill. [Victim No.1] called me to come higher up because they found the border of a footprint. At that moment [Victim No.1] and 1SC [Victim No.2] were standing a few meters from each other. It was difficult to see them because of the vegetation and the trees. When I moved in that direction at 30 meters I heard an explosion. I called "What happened" and 1SC [Victim No.2] answered "My foot". 1MS [Name removed], who heard the explosion and worked at a distance of 100 meters, ran into my direction. [Victim No.1] and 1SC [Victim No.2] came at own force down hill and 1MC [Name removed] and me receipted them at the border of the bushes. [Victim No.1] bleed heavily at breast and 1SC [Victim No.2] had an injury at foot and finger. We helped them to the road where the people of the force protection already alerted the ambulance. The ambulance came very soon and the first aid was give. Afterwards the injured were brought to TIBNIN.

#### **Statement 3**

[Name removed]

Rank and ID number : 1MC, 45

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. That day the aim was to determine the footprints as recorded in IMSMA. Because the data from the UNMACC database were several times unreliable or incomplete the following working method was applied. The section de-mining M2 had to search systematically the valley, while two EOD teams would search the flanks of the hill in order to determine both limits. These teams consist of two man. [Victim No.1] and 1SC [Victim No.2] were one team. I had the lead over the section which has to conduct a visual search of the flat parts, when we heard at around 1000 Hr an explosion. I stopped immediately the working activities and send the team back to the vehicles. Together with one soldier of the Force Protection I ran towards the place where the explosion occurred. 1MC [Name removed] and some other soldiers of the Force Protection were already on the spot. The two injured people came at own force at that moment from the bushes towards the road.

[Victim No.1] asked me to have a look at him because he was covered with blood. Blood came from under its buff and when I took it away I saw a shrapnel wound in his throat. The soldier of the Force Protection, beside me, gave me his pressure bandage and I placed it on the wound. At the same time the ambulance arrived. During further examination, we found two more shrapnel wounds in the right breast and in the right arm. [Victim No.1] said he had a strange feeling in his left arm. A second examination did not give any result. No extra injuries were found. Sometimes I looked to 1SC [Victim No.2] and when they put off his shoes I saw he was injured at his right foot. 1MC [Name removed] occupied itself about him and I continued to talk to [Victim No.1] while the nurses did their job.

Both were very soon evacuated to the military hospital of TIBNIN.

Once everybody was gathered together and the equipment was collected the full team drove back to the compound.

#### **Statement 4**

[Name removed]

Rank and ID number: Cpl, 52

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. On the 29 December 2006 the ambulance team MED 3 consisting of 1CC [Name removed], Cpl [Name removed] and 1Sdt [Name removed] went to "Majdal Silm" with the Force Protection and the vehicles of the EOD and the engineers. Arrived at the spot the EOD controlled the parking area and then we parked our vehicles. A briefing was given by the responsible of the EOD telling us clearly that we were in a heavy ammunition polluted area and that we have to stay with our vehicles in the safe area and that they would work in different zones and in case of an accident that the EOD qualified personnel would bring the injured personnel to route, which is a safe route. One hour or one hour and a half after the safety briefing we heard an explosion and we realized that this was not a normal situation. We started our ambulance and moved in the direction of the road towards the de-miners who gave us signs. Arrived at the spot there were two injuries accompanied by the EOD, as was told during the briefing. We immediately started to stabilize the patients and took them on board of the ambulance. At the same time the de-mining personnel transmitted the information by radio to the operations officer.

Once the two patients were stabilized and took on board we drove in the shortest time to the Role 2 hospital (with sirens and blue lights). We changed frequency to get connected to the

duty room and kept them informed about our progression and our estimated time of arrival. During the trajectory the patients kept conscious and their parameters were stable. Arrived at the hospital the medical team of the role 2 took over the patients.

## Statement 5

[Name removed]

Rank and ID number : Captain, 42

Q. What can you tell about the accident that occurred at the 29 December 2006 ?

A. At the 29 December 2006 I went together with 1SgtMaj [Name removed] in a Jeep ILITS to Majdal Silm to visit the people, who were working there. We arrived around 0945 Hr and we parked our Jeep at the Vehicle parking place. 1SgtMaj [Name removed] stayed there with the personnel of the medical support element and I walked over the road in the direction where the EOD team and the Combat Engineers were working. First I met 1MC [Name removed] who was sweeping along the road together with the Section De-mining and 1Sdt [Name removed] was in the neighbourhood as Force Protection.

1Sdt [Name removed] told me that a little bit further (approximately 150 meters) other people of the Force Protection were standing and I walked further on the road until I met 1Sdt [Name removed] and 1Sdt [Name removed]. Adj1 [Name removed] was busy with his colleagues Adj1 [Victim No.1] and 1SC [Victim No.2], both at the other side of the road on the hill in the vegetation. The last two were out of sight, but within the reach of hearing them. From my place, as long as I remember, I had not a direct view at the place where 1MC [Name removed] was working and not at the parking place. At the moment I arrived, Adj1 [Name removed] was explaining to 1Sdt [Name removed] and 1Sdt [Name removed] the dangers about cluster munitions, which are laying on the road.

I started to talk to 1Sdt [Name removed] and 1Sdt [Name removed] and a few minutes later I heard someone crying that they found a lot of things and then Adj1 v started to move in that direction to help his colleagues. At the moment Adj1 [Name removed] passed the road, where 1Sdt [Name removed] and 1Sdt [Name removed] and myself were standing, we heard an explosion at maximum 100 meters (estimation) from the direction where Adj1 [Victim No.1] and 1SC [Victim No.2] were working.

Adj1 [Name removed] called his colleagues and both answered almost immediately, I heard "everything OK". I told 1Sdt [Name removed] that he had to call the ambulance and he did so by handheld. We immediately understood that both came down and a few seconds later we saw them coming from the bush border. Adj1 [Victim No.1] had his hand in his neck and 1SC [Victim No.2] was limping on one foot and I saw that a part of his right shoe was damaged. At that moment came Adj1 [Name removed] running in my direction and he immediately ran towards Adj1 [Victim No.1], Adj1 [Name removed] helped 1SC [Victim No.2]. 1Sdt [Name removed], who came together with 1MC [Name removed] and putted a pressure bandage on the throat of Adj1 [Victim No.1]. At that moment the ambulance arrived.

The Medical team occupied itself immediately with the injured personnel. The wounds of 1SC [Victim No.2] were very soon bandaged and he was put on a bran card. Adj1 [Victim No.1] became dizzy and oxygen was given to him. Both stayed conscious. At the moment the situation was under control, I ran to the parking area and inform the others what happened. I told 1SgtMaj [Name removed] that I would drive in front of the ambulance in the direction of the compound. I told 1Sgt [Name removed] that she had to prepare everything to join the compound with the Force Protection as soon as the ambulance quitted the place.

I ran back to the place of the accident, where they were busy to put Adj1 [Victim No.1] on the bran card. At the moment the medical team started the preparation to leave the place I ran back to the parking area. 1SgtMaj [Name removed] was ready to drive away with the Jeep. At the moment that I saw the ambulance coming, I heard a second explosion, at approximately 100 meters on the hill near the parking area. A second EOD team came from the hill. I asked 1SgtMaj [Name removed] to check with the medical team if we could wait for a few more minutes. Maybe during the second explosion even more heavy injured people could be involved. After control of the injuries, they said me that we could not wait any longer. Before departure I told to contact me if there were any serious problems. At the way back I did not receive anything. By arrival in the compound, I got the confirmation that there were no more injuries.

### **Statement 6**

[Name removed]

Rank and ID number: 1CC, 54

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. On the 29 December 2006 the ambulance team MED 3 consisting of 1CC PONLOT, Cpl ROUSSAUX and 1Sdt CELIS went to "Majdal Silm" with the Force Protection and the vehicles of the EOD and the engineers. Arrived at the spot the EOD controlled the parking area and then we parked our vehicles. A briefing was given by the responsible of the EOD telling us clearly that we were in a heavy ammunition polluted area and that we have to stay with our vehicles in the safe area and that they would work in different zones and in case of an accident that the EOD qualified personnel would bring the injured personnel to route, which is a safe route. One hour or one hour and a half after the safety briefing we heard an explosion and we realized that this was not a normal situation. We started our ambulance and moved in the direction of the road towards the de-miners who gave us signs. Arrived at the spot there were two injuries accompanied by the EOD, as was told during the briefing. We immediately started to stabilize the patients and took them on board of the ambulance. At the same time the de-mining personnel transmitted the information by radio to the operations officer. (Procedure METHANE)

Once the two patients were stabilized and took on board we drove in the shortest time to the Role 2 hospital (with sirens and blue lights). We changed frequency to get connected to the duty room and kept them informed about our progression and our estimated time of arrival. During the trajectory the patients kept conscious and their parameters were stable. Arrived at the hospital the medical team of the role 2 took over the patients.

### **Statement 7**

[Name removed]

Rank and ID number: 1Sdt, 50

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. I stood together with 1Sdt [Name removed] on the road to guarantee the safety of the EOD. On the right hand side of the road there were two EOD persons searching for sub-munitions and at near our position on the road stood 1MC [Name removed] and Capt [Name removed].

The explosion occurred and Adj1 [Victim No.1] and 1SC [Victim No.2] ran to the road. They were both injured. Adj1 [Victim No.1] bleed at his throat and 1SC [Victim No.2] injured at his foot, a part of the shoe was gone. I called the Medical Support Team, which threatened both and drove back to the compound. During the treatment 1Sdt [Name removed] and I guaranteed the all-round defence and the information exchange with the operations room.

### **Statement 8**

[Name removed]

Rank and ID number: 1Sdt, 79

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. On the 29 December 2006 the ambulance team MED 3 consisting of 1CC [Name removed], Cpl [Name removed] and 1Sdt [Name removed] went to "Majdal Silm" with the Force Protection and the vehicles of the EOD and the engineers. Arrived at the spot the EOD controlled the parking area and then we parked our vehicles. A briefing was given by the responsible of the EOD telling us clearly that we were in a heavy ammunition polluted area and that we have to stay with our vehicles in the safe area and that they would work in different zones and in case of an accident that the EOD qualified personnel would bring the injured personnel to route, which is a safe route. One hour or one hour and a half after the safety briefing we heard an explosion and we realized that this was not a normal situation. We started our ambulance and moved in the direction of the road towards the de-miners who gave us signs. Arrived at the spot there were two injuries accompanied by the EOD, as was told during the briefing. We immediately started to stabilize the patients and took them on board of the ambulance. At the same time the de-mining personnel transmitted the information by radio to the operations officer.

Once the two patients were stabilized and took on board we drove in the shortest time to the Role 2 hospital (with sirens and blue lights). We changed frequency to get connected to the duty room and kept them informed about our progression and our estimated time of arrival. During the trajectory the patients kept conscious and their parameters were stable. Arrived at the hospital the medical team of the role 2 took over the patients.

### **Statement 9**

[Name removed]

Rank and ID number: 1Sdt, 61

Q. What can you tell about the accident that occurred at the 29 December 2006?

A. I stood together with 1Sdt [Name removed] on the road to guarantee the safety of the EOD. On the right hand side of the road there were two EOD persons searching for sub-munitions and at near our position on the road stood 1MC [Name removed] and Capt [Name removed]. The explosion occurred and Adj1 [Victim No.1] and 1SC [Victim No.2] ran to the road. They were both injured. Adj1 [Victim No.1] bleed at his throat and 1SC [Victim No.2] injured at his foot, a part of the shoe was gone. 1Sdt [Name removed] called the Medical Support Team, which threatened both and drove back to the compound. During the treatment 1Sdt [Name removed] and I guaranteed the all-round defence and the information exchange with the operations room.

## Analysis

This accident is classed as a “Missed mine” accident because Victim No.2 failed to see the mine and stepped on it. The clearance method – visual – was obviously inadequate when working in leaf-litter and vegetation.

Despite the internal investigator’s insistence that no errors were made, a very clear error was made in the pre-task risk analysis. The team knew that they were looking for M77 strike footprint amongst trees. They could have predicted that there would be leaf-litter on the ground and that surface M77s would not necessarily be visible. Despite this, they chose not to wear PPE or use a sub-surface search. This error was compounded by the accident investigators also failing to wear PPE when they re-entered an area known to be high risk and then photographed each other from a range that proved that they did not adhere to safety distances appropriate for a fragmentation threat.

The primary and secondary causes of this accident are listed as a “*Management control inadequacy*” because those in command did not make use of the available metal-detectors, did not require the use of PPE, and did not impose appropriate safety distances. If this had been done, a maximum of one could have been injured. Victim No.2 stood on the M77 while Victim No.1 took fragmentation to the chest and throat that could have been avoided if he had been wearing PPE. Victim No.2 would have been unlikely to have trodden on the M77 if he had been using a metal-detector in an approved manner.

This accident report illustrates the failings of an internal investigation when investigators are reluctant to criticise others (who may be superiors). In this case, the failure to recognise that an error had been made when making the risk assessment put others at risk later.