

DDAS Accident Report

Accident details

Report date: 17/04/2008	Accident number: 571
Accident time: 09:30	Accident Date: 31/01/2007
Where it occurred: Nr Aytarun, Nr Aynata, Bint Jbeil Southern District, Nabatiyah Province	Country: Lebanon
Primary cause: Management/control inadequacy (?)	Secondary cause: Field control inadequacy (?)
Class: Missed-mine accident	Date of main report: 01/02/2007
ID original source: None	Name of source: UNMAS
Organisation: [Name removed]	
Mine/device: DPICM M77 submunition	Ground condition: grass/grazing area metal fragments rocks/stones steep slope
Date record created:	Date last modified: 17/04/2008
No of victims: 2	No of documents: 2

Map details

Longitude:	Latitude:
Alt. coord. system: UTM: 731767-670335	Coordinates fixed by: GPS
Map east: 730540	Map north: 670297
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

inadequate communications (?)
inadequate training (?)
mine/device found in "cleared" area (?)
no independent investigation available (?)
protective equipment not worn (?)
safety distances ignored (?)
visor not worn or worn raised (?)

Accident report

The undated 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.

Report on [Name removed] BAC ACCIDENT that occurred on the 29th January 2007 in which [Name removed] BAC members were injured.

EOD – Technical report, written by Cdt [Name removed] and 1MC [Name removed].

Object: EOD accident on the 29 Jan 07 at AYTARUN (UTM 730540 670297)

1. Aim

This report has to give the necessary elements to ACOS Ops & Trg in order to get an idea concerning the circumstances of the accident.

2. Problem

Ref: CR [Name removed] Bijl Gn van 29 Jan 07; TSG – Chapter 14: BAC; SOP [Name removed] N° 10: BAC

Since a few weeks, the full EOD/De-mining effort is focused on the site of AYTARUN. It concerns the clearance of tobacco fields and the accesses to these. Because many clusters are partly or completely sunken in the ground, only instrumental clearance working is allowed (with mine detector) and this in accordance with the SOP (See Ref).

1MC [Victim No.1] started the handing over of the site to 1MC [Victim No.2] (EOD Team Leader [Name removed] 2). They went to the top of the hill in order to get an overview of the site and to get an idea of the workload. It was not an EOD activity.

The terrain was already cleared with the use of mine detectors and was clearly limited with red painted rocks and stones. Around 09.30 Hr 1MC [Victim No.1] stepped on a cluster M77, which caused the explosion, following the investigation of the crater the cluster, was lying subsurface. He got injured at the heel of the right foot. 1MC [Victim No.2] got a shrapnel in the right under arm. 1MC [Victim No.2] went off immediately to get assistance down in the valley, where the ambulance was positioned. In the meanwhile 1MC [Victim No.1] tried to get downwards. He entered, probably disorientated, in uncleared area.

On the trajectory of the medical team, the doctor found four more M77, clearly visible at the surface in the cleared area. These were immediately neutralized by the EOD personnel.

To know the reasons why cluster munitions could be located in the cleared area, we decided to start a detailed investigation of the site and started to perform tests with the metal detector (mine detector).

3. Exposition

Description of the terrain

The terrain is hilly with sharp hills. The hills are covered with some low vegetation and are covered with rocks and stones.

The place of the accident is a plateau at the top of the hill.

During the clearance activities it was warm and dry weather. The ground was very hard. During the weekend, before the accident occurred, it rained cats and dogs. Because of these weather conditions, the ground got soft and slippery and it is easy to sink in the ground.

Scheme and photo of the zone: see figure 1 and 2

Description of the applied working method and the used procedures

The applied work method is this as written in Ref 2 and 3.

The flanks and the top of the hill were divided into different working zones, in order to allow the deployment of different teams at the same site at maximum safety distances from each other. The safety distances are more than 25 meters, the minimum safety distances to apply.

To avoid to clear lanes from the valley till the top of the hill, but parallel with the altitude lines, access lines were cleared for each zone. For each zone, first access lines on the left and the right side were cleared in order to create safe lines with a width of 3 meters from the valley to the top of the hill and this following the procedure written below. After this a systematic search between the limits is carried out from the left to the right side and from the right to the left side. The clearance direction is from down to up.

In each zone, lines are drawn where the detection team works. These lines are drawn with the use of pickets and red/white tape or by red painting of rocks and stones, where pickets cannot be used. The detection with mine detector is done by a de-miner or EOD, under the supervision of a qualified EOD. In this way they progress between the detection lines (more or less 1 meter width). When the de-miner pick up a signal, the second de-miner starts to excavate following the trained methods and bear lays the ammunition. The qualified EOD supervises the work and gives additional directives if necessary. Once the ammunition is bear lies, the two deminers go back and the EOD Team Leader or EOD Team Member neutralizes the cluster ammunition and brings it to a central place, at the site. This place is designated by the EOD Team Leader. After the removal of the cluster ammunition, the place is detected again by the deminer and progress restarts. This procedure is repeated until the end of the detection line. The detection is moved and the detection restarts in the opposite direction until the start point is reached. Using this method, the complete zone is systematically cleared upwards. On the difficult areas, the EOD personnel are working alone applying the same procedures.

After the clearance of a full zone, QC (Quality Control) is executed to certify that all munitions are removed and that the zone is ammunition free (internal QC). This is done by sample detection. The external QC is done by UNMACC and NDO, after the completion report is handed over and before the formal hand over of the terrain at the local authorities or landowners.

During the operations QA (Quality Assurance) is done. The internal QA is done by the EOD Team Member or Team Leader during the detection of the zone by using metal detectors; because they are positioned within hear distance of the detection personnel. The team deminers control each other in the same way. This is also the case when excavating ammunition. The external QA is done by a QA Offr of UNMACC, who is performing regular QA visits during the operations. The formal hand over of TD AYTARUN is foreseen for the 31 Jan 07 or the 01 Feb 07. The external QA will be done from on this date. Only accredited organizations or organizations in the accreditation progress get a TD (Task Dossier) and QA control.

Analyses of the crater

The place of the crater was in the cleared zone at 11.5 meters from the nearest marked rock, which marks the right limit of the cleared zone.

Dimensions: the crater has a diameter of 22 cm and a maximum depth of 16 cm.

The circular traces of the detonated explosives are 4 cm in with and were located at a depth between 8 and 12 cm in the crater.

We can conclude that the cluster was located at a depth of minimum 8 cm.

Analyses of the shoe

The shock wave and the fragmentation have cracked and ruptured the heel of the shoe of the victim.

Only the outer sole of the shoe is damaged. The inner soles are intact. We can suppose that the heel of the right foot was broken by the blast.

The nature of the injuries and the damage of the shoe suppose that the jet formed during the detonation of the M77, was directed to the underside and the detonation of the M77 was caused by the pressure of the heel of the right foot on the striker.

Analyses of the use of the metal detector

In the same terrain, a cluster was placed at the same depth and measurements were executed with the metal detector.

Experiences:

- a. All mine detectors were checked and are operational.
- b. The terrain is very contaminated with shrapnel of different dimensions; these give a lot of false signals. During the BAC operations phase II (Instrumental Search), all clusters until a depth of 20 cm have to be cleared. Metal fragments don't have to be cleared. (See TSG Chap 14 en SOP 10).
- c. The distinguish a low subsurface cluster and a little fragment can be heard by a trained searcher in a little contaminated area.
- d. The signal of a deep subsurface cluster and a fragment is difficult to distinguish because the detector gives a lot of signals. The chance that a cluster is taken for a shrapnel increases.
- e. Increasing the sensitivity of the detector to isolate a cluster in a contaminated area is not an option.
- f. Because the zone is covered with rocks and stones, it is not possible to detect every square centimeter with the metal detector and it can be used very close to the ground, as it is foreseen.
- g. The chance is real that a sunken cluster was not threatened.

Analyses of the clusters found by the medical personnel

1. In the cleared area, using metal detectors, two places with two clusters were found. These clusters were easy visible lay down in the neighborhood of red painted rocks. These clusters were seen by the medical personnel during the CASEVAC operation. These clusters were found in the area which was cleared ten days before and this area was not entered anymore by the EOD/De-mining personnel.

2. 1MC [Name removed] found that same day a cluster at the entrance of the UXO collection place.
3. Locals (shepherds, hunters and farmers) use all terrains, also the uncleared fields, for economical reasons. When clusters or other UXO are found these are marked as follows: a stack of stones or red painted stones or rocks. The clusters are often collected by the locals and laid at different places in the field, mostly at places where the EOD personnel is working.
4. In the cleared zone, such a stack of stones was found after the clearance activities were finished (see Fig 7)
5. There is no bad intention or any causal relationship between the find and the accident. It proves that the site was visited during the weekends by others. It is impossible to deny the access to site.

Conclusions

1. The procedures were applied by the personnel.
2. The cluster which detonated was sunken in the ground until a depth of at least 8 cm under the surface and could not be seen by 1MC [Victim No.1].
3. During the clearance operations while using metal detectors in very contaminated or difficult areas, the chance exists that some subsurface clusters are not detected. It is possible that a sunken cluster was not detected.
4. QC and QA are not a guarantee that a terrain is 100% cleared. The international humanitarian standard is 99,7 %. On a total of more than 2000 cleared clusters at this site, it is statistical allowed that 6 clusters are not cleared.
5. The incident of the clusters found is in no relation to the accident and there is no bad intention, but it is a unlucky way of helping us.

Propositions

- a) There exists a chance that on the very contaminated plateau more subsurface clusters are lying. This terrain has to be cleared again and every signal has to be checked like the mine clearance procedures.
- b) Due to the bad weather conditions, only one test with a cluster and a mine detector could be done. To get a better idea of the sensitivity of the detector, some additional tests has to be done with clusters at different depths and a variance in the sensitivity of the mine detector is such a terrain.
- c) In a rocky terrain, the metal detector has to be used as close as possible to the surface.



[The accident area.]



[An investigator examining the crater, without wearing PPE.]



The boots of Victim No.1]

Victim Report

Victim number: 746	Name: [Name removed]
Age: 38	Gender: Male
Status: deminer	Fit for work: presumed
Compensation: Not made available	Time to hospital: 55 minutes
Protection issued: Not recorded	Protection used: None

Summary of injuries:

severe Foot

COMMENT: See Medical report.

Medical report

An undated IMSMA report gives the victim's date of birth as 19/09/1968. The first hospital was reached at 10:20.

The IMSMA sketch shows loss of foot/toes on right leg. It is presumed that this is an error and injury was meant.

See also the Medic's report under "Statements".

Victim Report

Victim number: 747	Name: [Name removed]
Age: 37	Gender: Male
Status: deminer	Fit for work: presumed
Compensation: Not made available	Time to hospital: 55 minutes
Protection issued: Not recorded	Protection used: None

Summary of injuries:

severe Arm

COMMENT: See Medical report.

Medical report

An undated IMSMA report gives the victim's date of birth as 04/02/1968. The first hospital was reached at 10:20.

The IMSMA sketch shows loss of right arm. It is presumed that is an error and injury was meant. Later the note "Heel of the right foot broken" is added, also in apparent error. The IMSMA entries were incomplete and undated.

See also the Medic's report under "Statements".

Statements

Statement 1

Interrogation of the victim

V. What is your surname, name, rank and ID?

A. [Victim No.2], ADJT

V. What are the circumstances the accident occurred?

A. On the 29 Jan 07, about 09.30 Hr I was at the EOD site of AYTARUN with 1MC [Victim No.1] in the framework of the handover. I am the EOD Team Leader for [Name removed] 2. [Victim No.1] would give me an overview of the site from the top of the hill. This is situated in cleared area. From the parking area we went upwards by the marking of the limit of the cleared area. At the top we went to the other limit of the cleared area. From there we went further upwards till the top of the hill, a flat plateau. [Victim No.1] walked at 2 meters in front of me. In spite of the fact that we walked in cleared area we looked carefully where we walked. At a sudden moment I heard an explosion and I saw a lot of dust. [Victim No.1] made a roll, turned around and looked in my direction. Approximately at the same time we realized that he was wounded at his right foot. I went to him and I tried to support him, but I could not. I laid him on his back and checked his foot, but I saw no blood. I told [Victim No.1] to stay there because I had to get help. I went downwards as fast as I could and I cried for help and waved with my arms to pay. When I reached 2/3 of the way downwards, the medical team, consisting of four men, came in my direction. One of the medical team asked to carry her medical bag and then I realized I was wounded at my arm. I went back to the top in front of them. 1KC [Name removed] and 1KC [Name removed] joined me. [Name removed] and I went to the top in front of the rest. When we reached the top, we could find [Victim No.1] because I tried to get downwards at his own initiative. Suddenly someone cried "there he his". We went into his direction. The doctor and a part of the medical team gave first aid to [Victim No.1] and two members of the medical team, together with [Name removed] and someone of the deminers gave me first aid. When the first aid was given and the wound was threatened, [Name removed] and someone of the medical team helped me to reach to the ambulance. The ambulance was made ready for departure and we waited for the arrival of [Victim No.1]. We joined the compound and I was examined in the [Name removed] hospital.

V. Who are the most important civilian or military witnesses of the accident?

A. 1MC [Victim No.1]

At TIBNIN, on the 30 Jan 07

Statement 2

Interrogation of the victim

V. What is your surname, name, rank and ID?

A. [Victim No.1], ADJT

V. What are the circumstances the accident occurred?

A. On the 29 Jan 07, about 09.30 Hr I was at the EOD site of AYTARUN with 1MC [Victim No.2] in the framework of the handover. From on the top of the hill, situated in cleared area I would show him the limits of the cleared area and the surface to. From the parking area we went upwards by the marking of the limit of the cleared area. At the top we went to the other limit of the cleared area. From there we went further upwards till the top of the hill, a flat plateau. I walked in front. Suddenly I heard an explosion and I felt a nudge in my back. I turned over and I turned in the direction of [Victim No.2] because I thought the explosion came from behind me and not from under me. I saw he was still standing up and my right shoe was damaged. I stood up and [Victim No.2] came in my direction. He asked me if every thing was alright and I asked him the same. I asked him to help me to go downwards, but because of the terrain, this was not possible. [Victim No.2] said me that he would get help and I stayed for a while. I decided to go as close as possible in the direction of the ambulance. After a while I heard some voices and I cried. I saw three persons coming in me direction; [Victim No.2], 1Sdt [Name removed] and 1Sdt [Name removed]. They started immediately to immobilize my foot. A few moments later, the doctor arrived and stabilized my foot with a vacuum splint and gave me morphine against the pain. They laid me on the bran card and they carefully went downwards, changing the carrying personnel. Half-way other members of the section took over. Together with [Victim No.2] we joined the compound in the ambulance. When arrived in the [Name removed] hospital I was examined.

V. Who are the most important civilian or military witnesses of the accident?

A. 1MC [Victim No.2]

At TIBNIN, on the 30 Jan 07

Statement 3

Interrogation of the witness

[Name removed]

Rank and ID: Medical Major

V. What are the circumstances the accident occurred?

A. Around 09.30 Hr I heard an explosion, which sounds louder than the explosions we daily hear coming from LAF. I looked around and observed the people of the Engineers which were the Force Protection that day and I looked in the valley in the direction of the people who were working. Because nobody was worrying and no call by radio was received, it stayed calm. I said to my medical support team that the explosion came from close by. Ten minutes before I saw two men walking in the safe zone towards the top of the hill. The medical support team saw them walking and recognized one person. We did not pay attention on it, because we saw this on a daily base. Around 09.40 Hr we saw, Medical Support Element and Force Protection crew, a man running from the hill waving with his hands in the air, without saying anything. He was far away, but I thought he would call the ambulance. He gave signs that something happened upwards the hill and that he was injured at his arm. Suddenly everything started in a hurry. I heard voices which were saying that something happened with [Victim No.1] upwards the hill and some people told he had to look. It is not the normal procedure in case of an accident, but I had no other option to go upwards the hill because of the long distance, no evacuation equipment in that area and a lack of communication equipment. This decision was made in 3 or 4 seconds without reflecting. I ordered the two nurses to go upwards, equipped with a vacuum splint, a bran card and my medical bag. Each one carried a part of the equipment and we went upwards. During the climb I heard someone telling "Be

careful, there is one more over here. Mind your steps.” I was angry and I told this was not the normal procedure in case of an accident. The others and I continued our climb, I suppose because of the adrenaline shock we felt at that moment. A few more times someone told “Mind your steps” and I translated it in French for my other colleagues. Suddenly I came in the footprint of the EOD who lead me in his safe trace. I carried a 30 Kg bag and I requested to slow down. Completely tired I arrived at the spot near the victim. I checked him after I checked if any explosives were around. I concentrated me for 100% on [Victim No.1]. I realized that the victim was joking, which indicates that his parameters were still good. (Conscientious, Airway, Breathing and blood circulation were good). The taint of his face was normal. I asked him were he felt pain and he answered immediately that he his right foot was hurt. I saw that his right shoe was damaged and saw a lot of blood. His other shoe was also covered with blood. He only suffered a lot of pain at his right foot. He said that he could move his toes. I knew enough and we laid him on the bran card. Together with a nurse, we put on the vacuum splint. When I gave him a strong pain killer in his left arm, I asked the nurse to prepare a Baxter NaCl 0.9%. In the mean while I tried to give him an intravenous IV line in his left arm, but I did succeeded (cold, wind, tired trembling hands). Because it is standard procedure to give a IV line in the terrain, I tried it. Because it was cold and there was a lot of wind and he did not lost a lot of blood and his parameters were good, I decided to stop trying and to continue without a IV line. We covered him with an isothermal cover to avoid under cooling. We fixed the spanners of the bran card and started the way down, knowing that we have to mind our steps. I took the command of the bran card team: at three they carried the bran card and started to walk. All the time, I had to ask the front team to slow down the speed because the back team could not follow, especially in the muddy parts full of stones. Every 30 seconds I changed the teams. I heard someone of the front team telling “one more”. We passed it and I saw it. Someone of the EOD took it and neutralized it. We arrived almost down the hill and I saw that the driver of the ambulance already came as close as possible to the hill. We walked in that direction. Arrived at the spot, we took the bran card in the ambulance. I told [Name removed] from the engineers that she had to request the preparation of the chirurgical team and the radiologist before our arrival. During way towards the Role 2 in Tibnin I monitored the laying [Victim No.1] and the sitting, emotional shocked Adjt [Victim No.2]. [Victim No.1] continued joking and the strong pain killers were clearly functioning. Due to the bad road, [Victim No.1] moved a little, and we laid him back in the best position. We arrived around 10.25 Hr in the Role 2.

At TIBNIN, on the 31 Jan 07

Statement 4

Interrogation of the witness

[Name removed]

Rank and ID: 1soldier

V. What are the circumstances the accident occurred?

A. At the 29 Jan 07 we went to AY TARUN with the EOD and the engineers. Arrived, we parked the ambulance at its position and the works started. Around 09.35 Hr, an explosion occurred and after we saw [Victim No.2] running from the hill, waving with his arms, we took our equipment and waited for the EOD and the engineers to go upwards the hill. At 09.45 Hr we arrived at [Victim No.2] and 1MC [Victim No.1]. I gave first aid to [Victim No.2] and treated his arm. The doctor did the same with 1MC [Victim No.1]. I asked [Victim No.2] to go downwards with two of its colleagues, amongst them one first aid man. Together with the

colleagues we took the bran card and went downwards. Around 10.00 Hr we went off from AYTARUN to TIBNIN. We arrived around 10.25 Hr.

At TIBNIN, on the 31 Jan 07

Statement 5

Interrogation of the witness

[Name removed]

Rank and ID: 1Soldier

V. What are the circumstances the accident occurred?

A. During the work we heard an explosion. We saw someone coming from the hill. I went immediately to the parking area and asked the medical bag. At the sign of the chef we went, in front of the Medical Support Team, to the place of accident. On the way I got instructions from 1MC [Victim No.2], who was involved in the accident. After I found 1MC [Victim No.1] he would stand up. I asked him to lay down and at that moment 1Sdt [Name removed] and the Medical Support Team arrived. I helped with the splint and I talked with 1MC [Victim No.1] during the work of the doctor. After helping laying the victim on the bran card we started to go downwards. On the way, the people of EOD and engineers joined us and helped us to carry the bran card. Arrived at the ambulance, we helped to get the bran card in the ambulance. After a short brief given by 1Sgt [Name removed] and after the EOD did their work, we went back to our compound.

At TIBNIN, on the 30 Jan 07

Statement 6

Interrogation of the witness

[Name removed]

Rank and ID: 1soldier

V. What are the circumstances the accident occurred?

A. At the 29 Jan 07 we went to AYTARUN with the EOD and the engineers. Arrived, we parked the ambulance at its position and the works started. Around 09.35 Hr, an explosion occurred and after we saw [Victim No.2] running from the hill, waving with his arms, we took our equipment and waited for the EOD and the engineers to go upwards the hill. At 09.45 Hr we arrived at [Victim No.2] and 1MC [Victim No.1]. I gave first aid to [Victim No.2] and treated his arm. The doctor did the same with 1MC [Victim No.1]. I asked [Victim No.2] to go downwards with two of its colleagues, amongst them one first aid man. Together with the colleagues we took the bran card and went downwards. Around 10.00 Hr we went off from AYTARUN to TIBNIN. We arrived around 10.25 Hr.

At TIBNIN, on the 31 Jan 07

Statement 7

Interrogation of the witness

[Name removed]

Rank and ID: 1Soldier

V. What are the circumstances the accident occurred?

A. On Monday, the 29 Jan 07, between 0900 Hr and 1000 Hr I heard an explosion, coming from the hill in front of me. We checked if everybody was there and we concluded that 1MC [Victim No.1] and 1MC [Victim No.2] were missing. A few minutes after the explosion I saw someone running from the hill, waving his arms. It seemed that he was crying, but we only heard it after he was half way. As soon I saw him coming I laid my equipment in the equipment zone on the ground and I took my medical first aid bag. At the same time 1Sgt [Name removed] alerted the medical support team and another first aid man, 1Sdt [Name removed], ran to the M113. I followed him. When we saw it was 1MC [Victim No.2], we knew that 1MC [Victim No.1] was still on the top. Everybody was ready to go up the hill and we waited until the GO of someone of DOVO (EOD). 1Sdt [Name removed] and me arrived as the first to the victim, after us came the medical support team with 1MC [Victim No.2], 1Sgt [Name removed] and 1Sdt [Name removed], a first aid man, and 1KC [Name removed], an EOD member. 1MC [Victim No.2] gave the direction where 1MC [Victim No.1] was laying. Almost at the top of the hill we started to cry to 1MC [Victim No.1], when we arrived at 50 meters from the top of the hill, he could hear us. We found him sitting on his hands and knees. We asked him to lay on his back. 1Sdt [Name removed] checked his foot to see if was heavily bleeding. This was not. We calmed 1MC [Victim No.1] and after one minute the doctor and the medical team arrived. 1MC [Victim No.1] told us that he could move his toes, this was a good indication. The medical team took over the activities. At the same moment, 1 KC [Name removed] said us we were in an uncleared area. He and 1KC [Name removed] started to conduct a small reconnaissance close to the victim. Once arrived on the top, 1MC [Victim No.2] felt and saw his was wounded at his right arm. The doctor, one first aid man and two nurses treated 1MC [Victim No.1]. The two other nurses helped 1MC [Victim No.2]. I supported him because he was a little bit in shock and I covered him to protect him against the coldness. When both victims were ready for transport, one first aid man and someone else, helped 1MC [Victim No.2]. The others carried the bran card. It was difficult due to the rocks, the vegetation, the inclination of the hill and the weight of the victim. Halfway the hill, five other people helped us to carry the bran card. Arrived at the ambulance, both victims were taken inside and brought to TIBNIN. We waited for a while and we joined Tibnin.

At TIBNIN, on the 30 Jan 07

Statement 8

Interrogation of the witness

[Name removed]

Rank and ID: 1soldier

V. What are the circumstances the accident occurred?

A. Around 09.35 Hr I heard an explosion and a few minutes later 1MC [Victim No.2] took our attention from the top of the hill. We waited the EOD team to clear the way in front of us. 09.45 Hr, arrival at the place were [Victim No.1] was and first aid and evacuation towards the ambulance. 10.00 Hr, departure to the Role 2. 10.25 Hr, arrival at role 2 and hand over of the injured people.

At TIBNIN, on the 31 Jan 07

Statement 9

Interrogation of the witness

[Name removed]

Rank and ID: 1KC

V. What are the circumstances the accident occurred?

A. At the 29 Jan 07, around 09.35 Hr, I worked with my squad in AYTARUN. Suddenly an explosion occurred. First I thought it was the shot of a hunting gun and then I realized it was an explosion. I was working with a metal detector down the hill. The 1MC [Name removed] ordered to stop working. We laid down the metal detectors and with my colleagues we went in the direction of the explosion. I met 1MC [Victim No.2], who told the medical support team that 1MC [Victim No.1] was laying on the top of the hill and that he was wounded. He turned back and took the lead. 1KC [Name removed] joined the group and 1Sdt [Name removed] and 1Sdt [Name removed], both first aid men, joined the group. When I joined 1MC [Victim No.2], he said to me that he was hit in his arm and he pointed his right arm. He continued his way. Immediately after this, I heard someone of the medical support team telling "there are some clusters over here". I asked to show it to me. I found two M77 laying on a rock. They were not buried and were free of earth. I waited until the team was far enough and I neutralized these. I continued my way upwards. When I arrived, the medical support team, the first aid men and 1KC [Name removed] were given first aid. I saw they were in an uncleared area and I asked their attention. I explained the situation with the intention to leave as fast as possible in a safe way this area. 1KC [Name removed] started to check the lowest part of the area, while I checked the upper part. 1MC [Victim No.2] and 1MC [Name removed] gave me the direction of the explosion. I found the location and marked it with stones. I joined the group. With four people we carried the bran card with 1MC [Victim No.1] downwards. Almost at the same place where I neutralized two clusters, someone said me that there were two clusters. I found two more M77, they were free of earth and clearly visible and I neutralized these and continued my way. I just saw how 1MC [Victim No.1] was met in the ambulance and was transported to the Belgian hospital with 1MC [Victim No.2], who was already sitting in the ambulance.

At TIBNIN, on the 30 Jan 07

Analysis

While it is not listed as such, the primary cause of this accident was "*Inadequate training*". This is because the demining team involved had not been prepared for their role.

It seems that the personnel involved, including the internal investigation team, were not aware that the International Standards for Humanitarian Mine Action do not require that "99.7%" [sic] of all ERW be cleared. Since 2001, the standards have required that ALL ordnance be cleared to a specified depth. If the method in use cannot find the threats at the depth, another method must be used. If it can find the threats but the process would be slow (as was the case here) then clearance must be slower: it is irresponsible to simply press on knowing that you are leaving dangerous devices behind. The safety of the end-user of the land is paramount in HMA, second only to the safety of the demining personnel. Both were put at risk by this group's lack of understanding of their role.

No one in the rescue party was wearing PPE despite a known risk of secondary injury and the presence of live M77s in their path.

There were inadequate site communications so that the victims could not report their plight and the medics did not know how and when to act. If Victim No.2 had also been disabled, no one would have known they were injured.

There was inadequate site marking. The photographs show no obvious marking at all. This allowed Victim No.1 and the medical team to enter an uncleared area without knowing it. A further accident was only avoided by luck.

The primary cause is listed as a "*Management control inadequacy*" because it is the management's responsibility to ensure that their men are adequately trained.

The secondary cause is listed as a "*Field control inadequacy*" because the field controllers did not require the men to check the surface for ordnance in cleared areas at the start of each day. This is normal practice when it is known that civilians deliver items to the clearance site.

The clearance plan for the site allowed people to be out of site of others and have no means of communication. This was a very basic failing.

The files provided include a "Suspension" letter (in French) "Interruption des activites EOD/demining" dated 1st February 2007.