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### DDASaccident014

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# DDAS Accident Report

## Accident details

<b>Report date:</b> 15/03/2004	<b>Accident number:</b> 14
<b>Accident time:</b> 12:55	<b>Accident Date:</b> 31/07/2000
<b>Where it occurred:</b> Nr Junik and Djakovica	<b>Country:</b> Kosovo
<b>Primary cause:</b> Unavoidable (?)	<b>Secondary cause:</b> Victim inattention (?)
<b>Class:</b> Victim inattention	<b>Date of main report:</b> 08/08/2000
<b>ID original source:</b> PS/JF	<b>Name of source:</b> KMACC
<b>Organisation:</b> [Name removed]	
<b>Mine/device:</b> PMA-3 AP blast	<b>Ground condition:</b> leaf litter woodland (light)
<b>Date record created:</b> 12/01/2004	<b>Date last modified:</b> 22/01/2004
<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> DM 36586 99794	<b>Coordinates fixed by:</b> GPS
<b>Map east:</b> MGRS: 34T DM	<b>Map north:</b>
<b>Map scale:</b> Junik	<b>Map series:</b> M709
<b>Map edition:</b> 3DMA	<b>Map sheet:</b> 3079 1
<b>Map name:</b> 1:50 000	

## Accident Notes

visor not worn or worn raised (?)

safety distances ignored (?)

metal-detector not used (?)

## Accident report

A Mine Accident Report was prepared for the country MACC and made available in August 2000. The following summarises its content.

The accident occurred at a recorded minefield known to contain PMR-2A, PMA-1 and PMA-3 mines. The weather on the day was sunny with the temperature between 25-30 degrees C. Both victims had been deminers for approximately a year.

The group operated using a one-man drill and a two-man team with the resting deminers in a designated rest-area. Working time varied between 30 minutes and an hour depending on "the weather conditions". The last MACC QA visit had been seven days before. [There was

no mention of metal-detectors in the report, so it is presumed that a "sapping drill was being used.]

Photographs of the site show that the accident occurred in woodland. The ground was covered in leaf-litter. A picture of the site is shown below.



At 12:35 Victim No.2 located a PMR-2 and informed the Deputy Section Commander. Victim No.1 (Deputy Task Site Commander) was tasked to "disarm" the mine. Victim No.2 briefed him about the PMR-2 and Victim No.1 "informed the medics that he was about to disarm a mine". At 12:50 Victim No.1 asked for Victim No.2's prodder and told him to "leave the lane". Victim No.1 then "moved his right foot outside the safe lane" at 12:55. Victim No.2 had moved 2-3 metres away and raised his visor when he heard a detonation. He returned to Victim No.1 and "pulled him back into the safe area".

Victim No.2 was wounded by "minor debris" in the back of the right thigh and a bruise near the right eye and a cut by the lip. Victim No.1 suffered "blast trauma to his right foot, right arm was badly injured and there was a wound on his left cheek". Four deminers carried the victim "from the lane to the road where the medics started giving first aid". The victim was taken to the Argentine KFOR hospital arriving at 13:35.

A photograph of victim No.1's boot is shown below.



The mine was identified as a PMA-3 by inference.

## **Conclusion**

The investigators concluded that Victim No.1 was wearing his PPE but that Victim No.2 had raised his visor while still in a working lane. They found that the demining group's SOPs "did not cover all details" on what to do when locating a mine. They decided that the accident was caused by "human error" and so was preventable. [The accident report included photographs of the investigators at the site, all with their visors raised.]

## Recommendations

The investigators recommended that the demining group should review their SOPs and that refresher training should be given to all deminers.

## Victim Report

<b>Victim number:</b> 25	<b>Name:</b> [Name removed]
<b>Age:</b> 27	<b>Gender:</b> Male
<b>Status:</b> supervisory	<b>Fit for work:</b> yes
<b>Compensation:</b> not made available	<b>Time to hospital:</b> 40 minutes
<b>Protection issued:</b> Short frontal vest Helmet Short visor	<b>Protection used:</b> Short frontal vest, Helmet, Short visor

### Summary of injuries:

#### INJURIES

minor Arms

minor Face

severe Hand

#### AMPUTATION/LOSS

Leg Below knee

#### COMMENT

See medical report.

## Medical report

A brief medical report based on statements made by medical co-ordinators and the medics involved was attached to the accident report. The report states that the "there were two victims of the accident but only one of them was injured".

The injured victim (Victim No.1) "was conscious and responsive" when the medics arrived. "His right arm and leg badly injured and he had a wound on his left cheek". The medics gave him an "intravenous cannula and... infusion (NaCl) and analgesics (Traumadol and Morphine) intravenous. The victim's wounds were cleaned and bandaged, "his right foot and leg was immobilised and he had a stiffneck collar". "Blood pressure, pulse and airways were controlled". These treatments took about 15 minutes before he was taken by stretcher to the ambulance.

While in the ambulance the victim was given oxygen and the medics filled in the "medical journal". The journey to the KFOR hospital took about 25 minutes and they arrived at 13:35. At the hospital "his right foot was amputated" and the medics stayed with him until the operation took place.

The report concluded that the CASEVAC and medical treatment were very good.

The demining group's own internal report listed an injury to the right hand that left his "ring finger" disabled and "cannot be used". It also listed burns to both arms.

That report described a "secondary survey" of his injuries as (copied verbatim):

- 1) traumatic amputation of 3rd 4th 5th fingers of the right foot with the destruction of tarsal and metatarsal bones and soft tissues, especially the lateral side of the right foot.
- 2) Numerous foreign body (explosive) debris resulting in 3<sup>rd</sup> degree burn wounds of the front surface of the right leg.
- 3) 3<sup>rd</sup> degree burns of the dorsal surface of the right hand and deep traumatic wounds of the dorsal surfaces of the 4<sup>th</sup> and 5<sup>th</sup> fingers of the ulnar area of the right hand.
- 4) 3<sup>rd</sup> degree burns of the right forearm (especially the ulnar surface) and lower part of the right arm.
- 5) Two superficial incisive wounds of the radial side of the right forearm approximately 1.5cm long each.
- 6) 3<sup>rd</sup> degree burns of the dorsal surface of the left hand (especially 4<sup>th</sup> and 5<sup>th</sup> fingers).
- 7) 2<sup>nd</sup> degree burns of the ulnar surface of the left forearm and the lower part of the left arm.
- 8) One deep incisive wound of the left cheek (including foreign bodies debris).
- 9) Several foreign body (explosive) debris with resulting burns of the jaw area diameter smaller than 5mm.

In December 2002 the MACC reported that, after rehabilitation and setting of a permanent prosthesis in Denmark, the victim was working in the demining group's office in Decane.

### Victim Report

<b>Victim number:</b> 26	<b>Name:</b> [Name removed]
<b>Age:</b> 37	<b>Gender:</b> Male
<b>Status:</b> deminer	<b>Fit for work:</b> yes
<b>Compensation:</b> not made available	<b>Time to hospital:</b> 40 minutes
<b>Protection issued:</b> Short frontal vest Helmet Short visor	<b>Protection used:</b> Short frontal vest, Helmet

#### Summary of injuries:

INJURIES

minor Face

minor Legs

COMMENT

See medical report.

## Medical report

A brief medical report based on statements made by medical co-ordinators and the medics involved was attached to the accident report. The report stated that the "there were two victims of the accident but only one of them was injured".

The accident report recorded that Victim No.2 was wounded by "minor debris" in the back of both legs.

In the demining group's internal report (undated) the investigator's concluded that Victim No.2 had raised his visor before the accident because he had a small bruise beside his eye and a small cut beside his lip. This more detailed report stated that his leg injury was a bruise on the back of the right thigh.

No medical report for Victim No.2 was made available. The demining group's internal assessment of his injuries later was (repeated verbatim):

- 1) Several foreign body (explosive) debris (diameter smaller than 5mm) with resulting burns in the posterior surfaces of the femoral areas of the both legs.
- 2) One foreign body (explosive) debris (diameter approximately 5mm) in the right upper nasal area.

This report stated that both victims were taken to the hospital following on-site stabilisation. Victim No.2 was taken by Landrover, whereas Victim No.1 went by ambulance.

In December 2001 the MACC reported that the victim was fully recovered and still working as a deminer with the same demining group.

## Analysis

The primary cause of this accident is listed as "Unavoidable" because Victim No.1 was injured when his supervisor accidentally stepped outside the cleared area. However, many groups clear a margin (15 - 25cm) outside the area marked clear to guarantee an overlap as their lanes merge. The apparent failure to do this may be seen as a failure of management systems and may have been due to clearance by sapping alone (no metal-detector).

The record of the actual injuries in the Accident Report was relatively poor (for this theatre).

Victim No.1's facial injury may indicate that his visor was also raised, although short, helmet mounted visors stand away from the face and can allow fragmentation to enter from below when worn properly. This can allow lower-face damage but only allows a direct fragment route to the eye if the visor is raised. Some groups use an overlapping collar on their frontal PPE to close the gap.

## Related papers

An internal demining group preliminary report is on file.

The injuries resulting from stepping on a PMA-3 vary from traumatic amputation to minor bruising. The picture below shows why this happens. It shows a cut-away section through a PMA-3. The 35g Tetryl is in the top and centre of the mine. The area of pressure-plate surrounding the TNT is actually larger than the area of pressure-plate over it. If a victim is fortunate, they step on the pressure plate but the explosive charge is not beneath their foot.

