DDAS Accident Report

Accident details

Report date:	15/03/2004	**Accident number:**	330
Accident time:	11:40	**Accident Date:**	18/11/2000
Where it occurred:	MNB West, Dakovica, Koshare West	**Country:**	Kosovo
Primary cause:	Management/control inadequacy (?)	**Secondary cause:**	Inadequate equipment (?)
Class:	Handling accident	**Date of main report:**	22/11/2000
ID original source:	MD/CC/JF	**Name of source:**	KMACC
Organisation:	Name removed		
Mine/device:	PMA-3 AP blast	**Ground condition:**	rocks/stones woodland (light)
Date record created:	20/02/2004	**Date last modified:**	20/02/2004
No of victims:	1	**No of documents:**	3

Map details

Longitude:		**Latitude:**	
Alt. coord. system:	GR DN 3511 0148	**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

inadequate metal-detector (?)

inadequate equipment (?)

inappropriate vegetation cutting tool (?)

disciplinary action against victim (?)

squatting/kneeling to excavate (?)

vegetation clearance problem (?)

use of pick (?)

incomplete detonation (?)

metal-detector not used (?)

Accident report

The following is the Accident report made by the Kosovo MACC, edited for anonymity. Excess pictures have also been removed. (See also the demining group's internal accident report under Related papers.)

Introduction

1. In accordance with MACC Standard Working Procedure #4, the MACC Programme Manager issued a Convening Order for an accident investigation Board of Inquiry (a copy of the Convening Order is attached at Annex A).

2. This is a comprehensive report by the Board of Inquiry on the mine accident that occurred on Saturday 18th November 2000.

3. Based on the results of the investigation, the statements from the personnel involved in the accident (see attached statements in Annex B appendix 1 to 8), visits to the accident site and photos from the accident site, this accident can be considered as a preventable mine accident. This finding is further qualified by the fact that the accident was caused by non-adherence to [the Demining group]'s approved Standard Operating Procedures.

4. The information provided by the [Demining group] to the MACC in the "Incident Report" is confirmed. However the BOI does not concur with some of the [Demining group]'s findings regarding the contributory factors to this accident. A copy of the "Incident Report" is attached as Annex C [see Related papers]. The accident occurred at approximately 11h40 on November 18th, 2000 in a minefield located near the village of Koshare GR DN 3511 0148. Mr. [the Victim] was in a squatting or kneeling position in front of his one-meter wide lane using his sapping tool to pull vegetation and incidentally activated a PMA-3 blast mine. The casualty suffered very minor blast trauma to both hands and lower parts of his legs. He was released from the Italian KFOR field hospital the next day. There were no other personnel injured in the accident or any witness and the property damage was only to the sapping tool.

5. [The Victim] is a Deminer who has been working with [the Demining group] since September 22nd 1999. He is an experienced deminer but considered "weak" and had previously been warned verbally by his Team Leader for not following the [Demining group]'s SOPs.

6. The MACC task dossier number in that area is W02-37. The location that the deminer had the accident is in a row of mines that are part of a two-row mine pattern adjacent to a water stream. The pattern is similar to the other minefields in the task dossier.

Sequence, Documentation and Procedure of Tasking

7. [The Demining group] started working on this minefield on 20th of July 2000, and have cleared 6277 sq metres of land and located and destroyed 174 anti-personnel mines. These mines were PMA-3 blast and PMR-2A fragmentation mines. The VJ records indicate that over two thousand AP mines were laid in the area and many of the fragmentation mines were laid with blast mines as keepers around them. The lane in which the casualty was working had been excavated as it was not possible to use the Ebinger H detector due to soil interference.

[The picture above shows the accident site. the visor was the victim's. It is some metres from the "adjacent stream".]

Geography and Weather

8. The task site is located close to the village of Koshare in a mountainous region on the west border with Albania where [the Demining group] is currently working on four manual tasks. Access to the site is by the dirt road across mountaineering ground. The weather was cloudy and the ground was damp due to rain before the accident. The temperature was approximately 10 to 12 Celsius. The vegetation is semi dense and there are a lot of dead trees. The soil is a mix of rocky, soft muddy ground.

Site Layout and Marking

9. The site layout and marking was in accordance with the [the Demining group]'s SOPs. The area is marked with small red top pickets every one meter and 1-meter picket every 5 meters.

Management Supervision and Discipline

10. [TL] was the Team Leader in charge of the site on the day of the accident. The immediate supervisor of [the Victim] was his Section Commander who had visited him 25 minutes before the accident and noted that he was working in accordance with the [Demining group]'s SOPs.

11. The [Demining group] has two different ways of conducting minefield clearance:

The first technique is the one-man one lane (OMOL) drill where a single deminer is working in each clearance lane for a period of 30 minutes with 10 minutes break in between.

The second technique is two men one lane (TMOL) drill, where each pair of deminers is responsible for one clearance lane. Each deminer alternately spends half an hour demining and then half an hour observing his partner at work from a 25 meters distance.

12. The technique used on the day of the accident was the OMOL drill and supervised by the Section Commander who is directly responsible for the control of the deminers in his section.

Quality Assurance and Quality Control

13. [The Demining group] internal Quality Control and Quality Assurance is obtained through a system of adherence to [the Demining group]'s SOPs, an international or local Demining Supervisor on site, training standards and very strict discipline in the danger area.

14. External Quality Assurance is conducted by regular MACC QA visits. So far, a total of 12 QA Evaluations visits have been conducted at this site. Three of these visits had to be cancelled due to rain. In general the Evaluation reports were good.

Communications and Reporting

15. Communications on each of the [Demining group] task sites is provided by VHF hand held and VHF and HF vehicle mounted radios. In accordance with [the Demining group] SOP, no clearance operations are to be performed without effective communications. On the day of the accident, the mine/UXO clearance team had proper and appropriate communications on site.

Medical Details

16. [The Victim] was removing vegetation with the help of the sapping tool, when he activated a PMA-3 blast mine. He then walked down his safe lane back to the main track and attempted to wash his injured hand in a rainwater puddle. By that time the Section Commander, who was in the adjacent lane at the time of the explosion, met with the casualty and stopped him from washing is hand. The Team Medic, who was at the satellite medical point was with the casualty in less then 2 minutes and gave immediate treatment (see Annex: D for details).

17. The ambulance with the other two Team Medics was sent to the accident site by the Team Leader. They reached the casualty in 4 minutes and gave assistance. The casualty was conscious but in shock. The Team Leader informed the [Demining group] base in Dubrava who requested and co-ordinated MEDEVAC with the Italian KFOR. Request for a helicopter was done and the casualty was transported in the standard [Demining group] ambulance to the HLS located approximately 600m from the accident site.

18. At approximately 12h40, the helicopter landed at the HLS. The casualty was loaded and flew directly to the Italian KFOR field hospital. The casualty arrived at the Italian KFOR field hospital at12h50. The Doctor on duty immediately assessed him. No surgical procedures were required and he was kept for observation overnight night and released the next day (see pictures of injuries).

Personnel

19. A list of the team personnel, and their duties, is attached at Annex B. A written draft of the [Demining group] Internal minefield Accident Report from the [Demining group] Manual Demining Supervisor and the statements from the personnel that assisted in the CASEVAC are attached as appendices to Annex B.

Dress and Personal Protective Equipment

20. At the time of the accident, [the Victim] was wearing personnel protective equipment according to the [Demining group]'s SOPs. No significant damages were found on the

personnel protective equipment. [Photographs showed that the PPE was a long visor and a short frontal vest.]

Tools and Equipment

21. There is convincing proof that at the time of the accident, [the Victim] was using the [Demining group] standard sapping tool to drag/remove the vegetation in front of him.

Mine blast damage on the handle of the sapping tool. [What the demining group call a "Trowel" is shown below.]

Details of Mine Involved and evidence of Minefield

22. The mine was a PMA-3 anti-personnel blast mine. The evidence at the accident site confirms that the mine was surface laid and up side down.

Account of Activities

23. The following is the description of the events that led up to the accident. (The statements that were evaluated to describe the events are attached in Annex B as Appendixes 1 to 8):

At 07h30, the team left the Dubrava compound.

At 09h15, the team arrived to Koshare 1.

At 09h30, work started.

At 09h40, work stopped due to rain.

At 09h55, start working again.

At 11h15, the Team Leader moves [the Victim] to the new working clearance lane.

At 11h40, uncontrolled detonation.

At approximately one minute after the explosion, the Section Commander and the Medic at the satellite medical point got to the casualty. He received immediate treatment and the Team Leader calls the base in Dubrava.

At 11h50 the casualty in ambulance and heading for the HLS. At the same time the MEDEVAC is requested to Italian KFOR.

At 12h40, helicopter arrived to the HLS and loads the casualty.

At 12h50, Casualty arrives at Italian KFOR field hospital.

Insurance Details

24. [The Victim] was covered by the standard [Demining group] insurance cover for all personnel involve in mine/UXO clearance activities. All insurance policies for [Demining group] are through Lloyd's of London.

Conclusions

25. Based on this investigation, the statements and visits to the site, the Board of Inquiry conclude the following:

- The procedure used by [the Victim] to remove the vegetation is not in accordance with the [Demining group]'s SOP for *"Removal of deadfall"*. By doing this, he was putting at risk both the Deminer and the Section Commander in the adjacent lane 30m away. He had been previously briefed by the Team Leader and his Section Commander on the types of mines found (PMR-2A and PMA-3). If he had initiated a PMR-2A, the consequence of his act would have resulted in far more casualties and possibly a fatality.
- The Team Leader had previously warned [the Victim] verbally with regard to his disregard of [the Demining group]'s SOPs.
- The mine involved in the accident is the PMA-3 blast mine. The evidence at the accident site suggests that the mine was lying up side down on the ground surface.
- The marking at the accident site was done in accordance with [the Demining group]'s SOPs.
- There is no witness to the accident.
- The support from the Italian KFOR was very good. The Italian KFOR medical staff requested information by radio to be better prepared for the arrival of the casualty at the field hospital, this in no way detracted from the effectiveness of the Medevac.
- The BOI does not agree with the statements in the [Demining group] Accident report, regarding the inaccuracies of the VJ minefield. The minefield at the accident site had been identified and the pattern is standard and concurred with many of the other VJ minefield records in the same MACC task dossier.
- The BOI, does not accept as valid the statement that the road journey and working hours were excessive. If this were valid, why was [the Demining group] not operating from a field camp? In addition the deminers were working on a Saturday extraordinarily.
- This accident was preventable.

Recommendations

26. The following are recommendations based on the Board of Inquiry conclusions:

- It is recommended that [the Demining group] Management take the appropriate disciplinary action against [the Victim].
- [The Demining group] management must review their SOPs and re-write the chapter 8 "Conducting of Clearance" then conduct refresher training. Until these two issues are resolved it is recommended that the [Demining group] manual mine clearance operations are suspended.
- [The Demining group] Management must enforce their warning system mentioned in current SOPs under paragraph #13 title *Discipline*.
- [The Demining group] Management must provide better supervision with proper experience in all of their mine/UXO clearance sites, especially in complex task sites like Koshare.
- [The Demining group] Management must seriously consider a satellite field camp for mine/UXO clearance operations in the area of Koshare.

Signed: QA Officer

Annexes:

A: MACC 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: MACC QA Medical Officer “Medical Report”

Comments by the Chief Operations Officer

The [Demining group] internal Accident Report quotes “*Koshare is punishing and there is no room for errors”*. If this is true why was an identified “weak” deminer deployed there without adequate supervision?

The comments regarding the VJ records are both unnecessary and irrelevant. The deminer was in an existing breech lane moving forward into a known and visible row of mines.

Based on the fact that identical recommendations have been made to [the Demining group] in the past with no significant action taken, I intend to withdraw the relevant accreditation for [the Demining group] to conduct manual mine clearance in Kosovo.

I find the conclusions and recommendations of this report, both considered and valid.

Signed: Chief of Operations

Comments by the Programme Manager

I concur with the findings and recommendations of the BOI. The major concern held is the lack of appropriate supervision at [the Demining group] manual mine clearance sites. Whilst this is in keeping with [the Demining group]’s philosophy for developing local capacities and promoting them rapidly into positions of responsibility, this approach has less relevance in the context of the Kosovo Mine Action Programme.

Signed: Programme Manager

Victim Report

Victim number: 414

Name: **Name removed**

Age:

Gender: Male

Status: deminer

Fit for work: yes

Compensation: not made available (insured)

Time to hospital: 1 hour 10 minutes

Protection issued: Long visor

Short frontal vest

Protection used: Long visor, Short frontal vest

Summary of injuries:

INJURIES

minor Hands

minor Legs

COMMENT

See medical report.

Medical report

The demining group recorded the Victim's injuries as:

"Right hand - blast injuries, cuts and fragmentation from mine and dirt below skin.

Left hand - similar but less serious than right hand.

Left leg - small burn below knee.

Right leg - minor injuries below knee".

The UN MACC medical report

This report was included as Annex: D in the accident report.

Investigation report, medical, from the accident 18th November 2000 in Kosare 1 minefield.

Introduction

This report is based on the accident report by Manual Demining Supervisor, [Demining group]. The statements and interviews with Medic (1), Medic (2), Medic (3), and Italian KFOR [Doctor]; interview with the casualty; the documentation, accident chart, from the Medics and my own observations from the site of the accident.

Summary

[The victim] was removing vegetation from the ground to front his lane in a squat position, when he hit a PMA 3 Mine. After the accident he walked down the safe lane, which is a steep hill, to the track where he was met by the Section Commander and another deminer. [The Victim] tried to put his injured hands into a puddle of water but was interrupted and escorted to the improvised medic point.

At the time of the accident medic 1, with the medical trauma injury kit, was located at the improvised medic point, within one minute from the casualty. At 11:40 hrs medic 1 heard the detonation and the whistling signal. She immediately started to prepare field dressing and infusion. The medic started to assess [the Victim's] condition, which was stabile. The casualty was conscious, but shocked and had therefore difficulties with taking deep breaths. The bleeding was not assessed as extensive. Medic 1 started to clean the wounds on both hands and put field dressing and immobilized the right hand.

The two other above-mentioned medics, who were stationed at the control point, got the information directly about the accident by Motorola. They went momentarily with the emergency vehicle, driver included, to the satellite medical point, preparing the medical trauma injury kit in the meantime. They arrived within 4 minutes and assisted Medic 1 to assess and treat the casualty. The medics took off the apron in order to check the breast followed by taking off the trousers. Sterile dressings, immobilization, were applied to the left hand. The minor injuries bellow the left knee got the same treatment as the hands. An intravenous cannula was applied and the casualty received infusion, one dose of analgesic drug iv and Oxygen. Before transportation by road to the HLS the medics did a recheck of [his] condition. The medics recorded the treatment that had been given on their accident chart, which followed the casualty.

At 11:50 hrs the stabilized casualty was waiting, in the [Demining group] ambulance, on the HLS. After approx. 50 minutes the Italian KFOR helicopter arrives. [The Victim]'s condition was stabile during the whole procedure. [The] Team Leader, two medics and one deminer, with the same blood group, followed the casualty during the MEDEVAC.

At 12:50 hrs the casualty arrives at the Military Hospital in Peja and Dr. [Name] immediately assessed [the Victim]. Diagnose: Multiple superficial wounds on both hands and left leg. Treatment: X-ray of both hands and left knee/leg. Ultrasound scan of abdomen. There was no evidence of bone fractures or fluid on the spleen. No surgical procedures were carried out. The casualty was dismissed to his home the following day and is followed-up by Italian KFOR Hospital with wound care of the hands.

Undersigned visited the casualty in his home. He means that the medical treatment that he received in the acute phase was very good.

Conclusions

The Medical staff performed in accordance to the [Demining group]'s SOP. [The Victim] received medical treatment momentarily because of the proximity of the medical point.

[The Victim] is satisfied with the received medical care. It should be mentioned that the casualty is not completely satisfied with the support from the organization e.g. no official representative has talked with him after the accident.

Even though evacuation by road could be enough due to the injuries. The decision that was made to evacuate by air was good because the hard terrain and that the casualty's condition was difficult to diagnose under those tough circumstances.

It took the helicopter 0:50 hrs to arrive from the time the message was sent to Italian KFOR.

The staff, who were in contact by radio with Italian KFOR, experienced that there were too many questions asked in the acute situation. It should be remembered that sometimes more detailed questions is of importance for making the decision if evacuation by air is necessary and to prepare for possible surgery.

Overall MEDEVAC time was approx. 1:10 hrs.

Recommendations

Psychological support and follow-up for the casualty.

Debriefing for the staff, who were involved in the accident.

Each organization should have a standardized MEDEVAC radio procedure form from KFOR.

Signed: Medical Officer, 23rd November 2000

In December 2001 the MACC reported that the Victim had fully recovered but had been dismissed for breaking SOPs in this accident.

Analysis

The Primary cause of this accident is listed as a *"Management/control inadequacy"* because the demining group involved had not listened to the MACC requirements following previous accidents, and the MACC felt it necessary to suspend their licence to operate.

The secondary cause is listed as *"Inadequate equipment"* because the tool used by the demining group was inappropriate. Euphemistically described as a "trowel" by this group around the world, the tool is a hoe or a side-headed axe. Its wooden handle has frequently featured in injuries for this group.

The demining group's management have failed to provide accident records for many countries, but this database includes records of their accidents while using the tool in Angola, Mozambique and Kosovo.

There also appears to have been a significant failure of training and appropriate Field control.

Large parts of the mine's plastic case were recovered and are pictured below. The presence of most of the base implies that it was in the ground and so the mine was not upside-down (as the internal investigator speculated – see Related papers).

As with most reports from the Kosovo MACC, the accident report demonstrates an unusually thorough and critical approach to accident investigation. The Mine Action Co-ordination Centre which carried out the investigation was not engaged in demining, and this may (in part) explain the unusually objective nature of their investigations

Related papers

These are the Annexes referenced in the MACC Accident report, followed by the demining group's internal accident report.

ANNEX A: MACC convening order for accident investigation Board of Inquiry – not in file.

ANNEX B: List of personnel involved with attached statements as appendices – omitted for anonymity.

ANNEX C: IMSMA Mine/UXO Accident Report – omitted for anonymity.

ANNEX D: MACC QA Medical Officer "Medical Report" – see Victims tab and click on Medical report.

Demining group Internal Accident report

Minefield Accident - 18 November 2000

1. General

a. Location of Accident : Koshare 1 minefield - Kosovo, MNB West, Dakovica, Koshare West.

b. 34T DN 35580 01550

2. Background Information

The [Demining group] has been carrying out mine clearing operations in Kosovo since October 1999 and is currently working in MNB (multi-national brigade) Central and West regions. [The Demining group] commenced manual demining operations in Koshare village on 20 July 2000 and, to date, has cleared 6277 sq metres of land and located and destroyed 174 anti-personnel mines. These mines were PMA-3 pressure blast and PMR-2A fragmentation stake mines. The Serb minefield records indicate that over two thousand AP mines were laid in the area and many of the fragmentation stake mines were laid with pressure blast mines (keepers) around them as an anti-clearance method.

Koshare is situated in a mountainous region on the west border with Albania and [the Demining group] are currently working on four manual tasks there. Each task is commanded by a Team Leader who is qualified in EOD and each team comprises sections of up to five deminers who are supervised by a Section Commander. There is full medical support for all demining operations in the form of a Land Rover ambulance and at least two qualified paramedics at each site. There are also satellite medical points throughout the minefields. KFOR approved helicopter landing sites have also been built close to demining operations and in the MNB Central region, the Italian KFOR are on stand-by in the event of an emergency.

The Koshare minefields are located high on the border with Albania and can be reached by tarmac road and dirt tracks by vehicle. Drive time from the [Demining group] base in Dubrava is 2 to 2 ½ hours and the stone/dirt track which winds its way up from Junik is both narrow and uneven and is normally used by local horse and carts and Albanians crossing to illegally cut wood. This means that by the end of a normal working day the deminers have not only worked for six hours in the minefield but have also had to endure a four to five hour uncomfortable journey in the back of a DAF truck. Koshare is an extremely difficult area in which to work and, although [the Demining group] is working from old Serb records in one area (Koshare 1), these have been found to be inaccurate with regards numbers of mines and their location. Other tasks which are higher up the mountain are in areas which were only accessible with the aid of a Case front loader which was used for safe recce and to breach into suspect areas in the hope of seeing or detonating an AP mine. Most of the terrain is covered in trees and bushes with numerous tracks and streams cutting through the dense vegetation. Mines have been laid on the slopes of hills, under trees, in bushes, on the sides of streams and along tracks. It is the most hazardous current [Demining group] manual task in Kosovo with the largest number of AP mines reported to have been laid.

3. Accident Details

On Saturday 18 November 2000 at 11:40 hrs (local time), a deminer in section 4, had an accident while working in Koshare1 minefield. The deminer had been removing vegetation from the ground to the front of his lane when he initiated a PMA-3 anti-personnel pressure blast mine.

Note: The deminer has been employed by the [Demining group] since 22 September 1999 after he successfully completed a [Demining group] demining training course. This was his second day working at this site and he had previously worked at Prilep and Babaj Bokes minefields, which are also in the MNB West region.

At the time of the accident I was in Babaj Bokes minefield with the Dubrava Assistant Location Manager [ALS] and we were showing a dog handler from the [2nd demining group] the site. We heard on the VHF radio a conversation between the Koshare 1 Team Leader, and [Demining group] Dubrava that there had been a mine accident in Koshare 1 and that a deminer had initiated an AP mine resulting in injuries to both hands. After confirming this with Dubrava, [ALS] and myself drove to the accident site. I had already spoken by radio to [the] Dubrava Location Manager, informing him of my movements and that I would carry out an initial investigation of the accident. [Demining group] Dubrava had already informed the Italian KFOR and requested the helicopter to RED 26, the designated HLS at Koshare. As we arrived at Koshare 1 the helicopter was departing with the casualty, Team Leader and two medics to the Italian KFOR hospital in Peja. The accident lane had been closed and was guarded by a deminer and the remainders of the team were at the control point with the teams from Koshare 3, 4 and 5. After updating [Demining group] base of the situation I spoke

briefly with the injured deminer's Section Commander before he took me to the closed lane. I then carried out an initial investigation of the accident site.

4. Initial Investigation (Inspection of the Accident Site 18/11/00 at 12:15 hrs)

I had been informed by the Section Commander that the mine had been initiated in the uncleared area and it was not a missed mine. The lane in which the deminer was working had been excavated as it was not possible to use the Ebinger H detector due to soil interference. After confirming this myself with a H detector I decided that it was safe to walk up to the site of the accident.

Visual Inspection

The area where the accident had occurred was to the left side (looking up from the track) of a steep two metre wide excavated lane leading from the main track and adjacent to a stream. The lane was rocky and steps had been cut out by deminers after excavating to a depth of twenty centimetres in order for them to walk safely. Vegetation (grass and bushes) had been removed during the demining process and there was a bundle in the lane surrounded by four blue painted wooden sticks indicating a contamination pit (as per SOPs). A number of yellow painted wooden sticks had been placed at intervals along the lane marking where PMA-3 and PMR-2A AP mines had been found and destroyed.

The site of the accident was at 16 ½ metres up from the main track and on the left side of the lane. A two metre by 50 centimetre area had been recently excavated and marked to the left of the lane and was to the side of where the deminer had been working when the accident occurred. The lane had been marked correctly with wooden 50cm red painted sticks at 1 metre intervals marking the border of the clear/unclear area. A visor and long-handled trowel could be seen in the uncleared area at 20cm to the front and in the centre of the two red sticks where the deminer had been working. To the left side of the visor was a 2m long tree log which was laying parallel with the lane. A 30cm x 30cm trench had been excavated to a depth of 12cm (12cm is minimum depth of excavation in new SOPs) to the left of and behind the front of lane (safe area). This excavation was a continuation of the 2 metre excavation and formed part of a step. To the front of the lane the ground was covered with very short grass and there was no evidence of excavation. A small bare patch of grass was visible behind the trowel (approx. 40cm from the front of lane) and the end of the log, close to where the visor was lying, seemed to be charred. No crater could be seen and a few small pieces of green plastic and small amounts of explosive were beneath the visor/trowel. A plastic base plate from a PMA-3 was found at two metres to the left of the accident site and outside the red sticks. At two metres above and to the right of the accident site was the bundle of sticks/brush. The deminer's detector and tool bag were two metres bellow where he had been working.

5. Physical Evidence

Tools

Long-handled trowel - this is used by the deminer for shaving the ground during the excavation process. The trowel has a metal trowel/hammer head and a wooden shaft:

The centre of the wooden shaft had black/grey scorch marks and was broken at the centre although, not completely severed.

Protective Clothing

Ballistic visor - One small pit mark at the top centre on the outside of the lens. A small black powder mark on the outside bottom centre. No markings on the inside of the lens and no further damage to the lens or band.

Body Armour - Small amount of pitting on the front top and some blood on its front and on the front of flap.

6. Further Investigation (Koshare 18/11/00 at 13:00 hrs)

The following people were interviewed by myself at Koshare 1 control point after the initial investigation of the accident site:

Section Commander, Section 4, Team 2

[The Victim] had been moved from another lane by the Team Leader earlier in the day to the lane where the accident occurred. He was told by the Team Leader to widen the left side of the two metre wide lane in order to make it safer to walk past the contamination pit containing the sticks/brush. [The Team Leader] had last checked the deminer at 11:10 hrs and the deminer was working safely and excavating with his trowel at a depth of twelve centimetres across his one metre wide lane and out to the left side of the two metre lane. He had already cleared one metre wide and out to fifty centimetres and was on his second metre (next to accident site). After excavating the deminer was cutting steps to connect with existing steps made previously by deminers. The deminer had marked his lane as per SOPs and was wearing his blast gear correctly.

[The Section Commander] was approximately thirty metres away in a lane on the opposite side of the stream and heard the explosion at 11:40 hrs. He immediately blew his whistle three times and shouted to his deminers to stop work, close their lanes and come out of the minefield. He spoke to the Team Leader by radio confirming that there had been an uncontrolled explosion. The injured deminer walked down the lane to the track where he was met by [the Section Commander] another deminer. The injured deminer tried to put his injured hands into a puddle of water but [was] stopped and escorted to the satellite medic point, fifty metres along the track. A medic had been positioned there prior to commencing work and started to carry out first aid. Within four minutes the ambulance with Team Leader and two medics arrived from the control point to carry out further medical aid. The only comments that the casualty had made were that he had pain in his hands.

1st Deminer Section 4, Team 2

At the time of the accident he was working thirty to forty metres above the casualty in the same lane. After the explosion he heard the Section Commander shout that there had been an accident. He then saw the casualty walk out of the lane to the track. He then closed his lane and took his equipment with him to the track. He walked to the satellite medic point and saw that the casualty was receiving first aid.

2nd Deminer Section 4, Team 2

He was working in a lane across the stream and approximately thirty metres away from the accident site. At the time of the explosion the Section Commander was checking him and therefore went with him to assist. He confirms that the Section Commander prevented the casualty from placing his hands in the puddle and at the satellite medic point he and the Section Commander assisted the medic.

Medic at improvised medic point

Shortly after hearing the explosion the casualty was brought to the medic point by the Section Commander. She looked at the casualty's injuries and started dressing the right hand. Within minutes the ambulance arrived and the two other medics assisted. The left hand was dressed and a wound on the left leg (bellow the knee was bandaged). The casualty was administered 10ml of Nubain painkilling drug and an intravenous was set up with 500ml of Gelofusine solution. The casualty was placed in the ambulance and driven to designated point near the HLS to await the helicopter.

Team Leader, Team 2

(After the investigation in Koshare I interviewed the Team Leader in Junik 18/11/00 at 15:30 hrs on his return from the Italian KFOR hospital in Peja.)

[The Team Leader] said that [the Victim] is a very weak deminer and that he had previously worked with him in Prilep and Babaj Bokes and had warned him on a number of occasions for not carrying out correct demining procedures and wearing his visor unsafely. [The Victim] had first come to work in Koshare on 17 November and [the Team Leader] warned him that Koshare was a difficult and dangerous task and that he must follow [Demining group] SOPs. On the day of the accident [the Team Leader] had instructed the Section Commander to move [the Victim] in order to widen the lane adjacent to the stream, as his current lane was getting too close to another working lane. He did not see the deminer working after he was moved. The explosion took place at 11:40 hrs and prior to that [the Team Leader] had been preparing the firing cable in an area where three mines had been found, approximately 400 metres from the accident site. After realising where the detonation had taken place he called by radio to the Section Commander in order to find out what had happened. He then stopped all work in the minefield and went with ambulance to the satellite medic point. He attempted to call [the Demining group] base by Codan while in the ambulance but was unsuccessful. After seeing that the casualty was being treated by the medics he was able to get through on the Codan and inform [the] base of the accident and give all the necessary details.

The helicopter arrived at RED 26 just before 12:40 and [the Team Leader] went with the casualty and two medics to Peja hospital. During the flight a further 500ml of Gelofusine was administered. When [name excised] left the hospital, the casualty was in a satisfactory condition. He had only received minor injuries from the blast.

The Victim

(After visiting his family, the casualty was interviewed at the Italian KFOR hospital Peja 18/11/00 at 19:15 hrs by myself and [name excised].)

Earlier in the day he had been moved from another lane in order to widen the lane near the stream. He was working in the squat position and was reaching over the front of his lane with his right hand and was pulling a small branch of a tree which was lying on the ground. As he pulled the branch he must have somehow initiated the mine.

7. Physical Evidence

Injuries to Deminer

Right hand - blast injuries, cuts and fragmentation from mine and dirt below skin.

Left hand - similar but less serious than right hand.

Left leg - small burn bellow knee.

Right leg - minor injuries bellow knee.

8. Summary of Investigation

The Team Leader said that [the Victim] was a “weak deminer” and had a history of verbal warnings for not following correct SOPs. The area where he was working at the time of the accident was very difficult to excavate as it was uphill and covered in bushes and rocks. Prior to the accident [the Victim] had been visited by the Section Commander who had seen him carrying out excavation correctly. It was not possible to use detectors safely in this type of terrain and the soil is ferrous and therefore not suitable for the H detector. PMA-3 and PMR-2A AP mines had already been found in the lane and therefore great care and cautiousness had to be taken when working there.

9. Conclusions of Accident

From the visual inspection carried out during the initial investigation and the physical evidence the following can be concluded :

There was no evidence of excavation to the front of the lane and the long-handled trowel was lying 20cm to the front which would indicate that although the casualty said that he had been pulling a branch with his hand when the mine was initiated, the damage to the trowel and its location, would indicate that it had struck the mine or forced something onto the mine. Due to its design (pressure plate tilts) the PMA-3 can be easily initiated. It is likely that the deminer had been removing vegetation from the surface of the ground by raking or pulling with the trowel which was held in his right hand. After this he would have undoubtedly carried out excavation as he had done previously. There was no crater left after the blast and only a bare patch in the grass at approximately 40cm to the front of lane. This would indicate that the mine was on the surface or possibly upside down and possibly covered with vegetation and not visible to the deminer.

It can be concluded from the minor injuries to the deminer and the location of these injuries that he had been in the squat/half squat position and that the right hand had been closest to the mine. The visor and body armour had been worn correctly.

Deminers have only been taught to use the trowel for excavating the ground in a shaving motion working from side to side and not downwards. The trowel should not be used to scrape the surface of the ground or pull vegetation especially as trip wires have been found in the area and some PMA-2 AP mines, which have been found in other areas of Koshare, have a plunger which usually stands above the surface. [The Victim] had been warned by the Team Leader about his work on a number of occasions and this was only his second day in this difficult minefield. Although the minefields he had worked in prior to Koshare had been mixed AP/AT, they had been mapped accurately (Serb records) and as well as being able to pretty much guarantee where the mines were laid, the terrain was far less challenging. Koshare is punishing and there is no room for errors and therefore speed of clearance has to be balanced with cautiousness. He was working carelessly and unsafe and has been extremely lucky to escape with only minor injuries.

10. Casualty Evacuation

The casualty was treated within minutes from the time of the accident. This was due to the close proximity of the satellite medic point, the actions of the Section Commander and the fact that the deminer walked out of the lane (probably in shock) himself. The ambulance with Team Leader and two other medics arrived from the control point within minutes and all medics performed well. The medics have carried out numerous minefield accident exercises, especially in Koshare, which have included the use of the Italian KFOR helicopter.

It took the helicopter nearly one hour to arrive from the time the message was sent to the Italian KFOR in Peja and, there was much confusion and misunderstanding by the Italian radio operator while he reeled off his list of one thousand and one stupid questions to ask in the event of an emergency. Despite this when the helicopter did eventually arrive the casualty was evacuated swiftly to Peja.

The casualty was given the following medicines and treatment by medics prior to evacuation to hospital :

10 ml Nubain intravenous.

500 ml Gelofusine.

Dressings to right hand, left hand, right leg, left leg.

11. Further action

The casualty should be released from hospital on 20 November and will continue his recovery at home. UNMACC are carrying out their own investigations on 19 November.

12. Future Recommendations

Ensuring that when staff are given warnings, especially in the minefield, that these are recorded properly and staff are dismissed at the appropriate times.

As usual - Supervision. Although good supervision is taking place in the minefields there is always room for improvement and, it must be more vigilant in these difficult and hazardous areas. In the case of Koshare, this had already been identified and there had been an increase in supervision with senior staff spending more time there.

Satellite medical points where possible in all minefields. This has been further increased in Kosovo since the [name excised] visit.

As far as [the Victim] is concerned, after he has fully recovered, recommendation that he is dismissed.

13. Attachments

Annex 1 - Operations Log

Annex 2 - Sketch map of accident site

Annex 3 - photographs of accident site

Report compiled by: Manual Demining Supervisor, The [Demining group], Kosovo.

Dated: 19 November 2000.

Statements

Other statements are included in the body of the Demining group's internal accident report under Related papers.

The Victim

Statement taken by MACC Assistant QA Officer and MACC Medical QA Officer.

I was clearing my lane and wanted to remove a branch in from of my way so I could go forward, as I pool the branch and the explosion happen.

After that I walk at the bottom of my clearance lane to the main track on my way to the medical satellite point I stopped and I put my hands on the water because I fill a kind of burning on my hands. One of the deminers I can't remember who took me and we walk together to the medical point.

At the medical point a medic she started the treatment cleaning my hands, and in a short time the other medics arrived.

We wait for the helicopter at HLS approximately 50 minutes and they arrived took me and to other medics to the KFOR field hospital.

Q1: What equipment you were using?

A1: *I start excavating and on my hand I had a sapping tool but I'm not sure if I had a sapping tool on my hands at the time of the accident, also I state that during clearance that day I was using the detector and the prodder.*

Q2: Did you use the detector all the time before the accident happened?

A2: *Yes I can say that everywhere where I step I cheeked before with detector.*

Q3: You where tired that day?

A3: *No I was not tired*.

Medic: Date 19.11.2000

We were sitting in the control point myself, another medic and the ambulance driver. When through Motorola we hear that there had been an accident. Immediately driver starts the ambulance and Team Leader told as that we have accident and the time was 11.40.

For one minute we went to the control point in that place were the accident was happen. Over that time I was preparing trauma kit I wore the gloves, I prepare 2 compressive and elastic bandages and gene fusion, the Team Leader was trying to contact the compound to inform them about the accident. When we arrived we saw another medic Raze who was immobilising the casualties right hand. The casualty was conscious, then another medic and I checked his airways and he was good. We took off the apron and check his chest he was good and after that we took off his trousers and he's got three holes under the knee, I immobilised his leg and another medic immobilised his hand. After that we put a canella in him, the time was time was 11.44.

When the casualty in the ambulance we started going to the helicopter point we put him oxygen and all the time we was checking his situation which he's felling big pain in his hands. Another medic gave to him one Nubian from 10mg. Because he was felling pain in his hands. After the helicopter arrived, Team Leader, I and another medic also one deminer with same bloods group we go in the helicopter and we start going in the way to Peja for 5 or 7 minutes we arrived in KFOR Peja hospital, all the time we was with him after that he was felling better and we start coming to Dubrava Location.

Team Leader: Date 19.11.2000

We start working at 9.30.

10.00. Break

10.10. Second Shift

10.20. We stopped working

10.35. We start third shift.

11.05. Break

11.15. We start fourth shift

11.40. I heard a strong detonation towards the end of the minefield, immediately, I called the Section Commander by radio. He told me that there had been an accident. I order all work to stop and informed the medics. They arrived with ambulance to the helicopter point. We left to the place were the accident happened.

The medics came to give first aid, I contacted [Demining group] Dubrava to pass all information related to the accident.

S .Commander: Date 19.11.2000

It was working time and I told [the Victim] to widen the lane for 20 cm I think it was 11.15 when I visit him he was working after that I go to check another deminers I was in [another] lane when the accident happen I heard a detonation accident was happened in the 11.40. I saw that [the Victim] has a accident and I blow the whistle and I told to deminers to close lanes, and go out the minefield. [Excised] asked me what is happening I told him we have a accident, after that I get the [the Victim] out the lane and I took the casualty in the control point. [A medic] offer him a first aid, when the ambulance arrived and they send him to the helicopter point after that I closed [the Victim]'s lane I call all deminers and we left to the control point.

Medic 1: Date 19.11.2000

We were sitting to the control point when through Motorola heard that we have a accident. Immediately driver stared ambulance and team leader call as to go cause we have a accident time was 11.40min. We were with him to the helicopter point. For one minute we went to the

control point in that place were the accident was happen. Over that time [medic] he open the trauma kit and he prepared the 2 compressive and elastic bandages and gene fusion, Team Leader was trying to contact with compound to informed them about the accident. When we arrived we saw another medic who was immobilising the casualties right hand. The casualty was conscious. We took off the apron and check his chest he was good and after that we took off his trousers and he's got three hols under the knee, I immobilised his hand and another medic immobilised his leg. [Excised] took off his boots and I saw that he's got injuries under the knee he cleaned him a wound and he put him a elastic bandage after that I put a canella the time was 11.44minutes. We get casualty in the ambulance we put him oxygen about 11.44 min we was to the helicopter point. All the time we were controlling his situation, but he was felling the pain in hands. After that I give one Nubian from 10mg. After that he was felling better but still he's got the pain to the hands. About 12.40min after the helicopter arrived Team Leader, I and another medic also one deminer with same bloods group we go in the helicopter and we start going in the way to Peja. After 5 or 7min we were in Peja.

There we get the casualty out the helicopter and we sent him in the hospital with their ambulance and after that in hospital doctors and medics took him inside, we was with him all the time. He was felling better and we decide to come in Dubrava.

Deminer: Date 19.11.2000

I was working when I heard a detonation, the section commander was checking my lane. After he heard a detonation, he blow the whistle and asked us to close our lanes. I close my lane and I was walking when I saw [the Victim], he wanted to put hands in the water but the section commander didn't let him. After that [the Section Commander] asked me to help the medic and I help her.

Deminer: Date 19.11.2000

I was working when I heard a detonation and I now that we have a accident I heard a whistle, the section commander informed us about an accident, and I saw [the Victim] walking down, I closed my lane and I took my bag of equipment. I went down to the road when the ambulance was coming and they left. The casualty was conscious, I checked his airways and he was good

Medic 2: Date 19.11.2000

About the first aid given to [the Victim] on Saturday November the 18th. At the moment I heard the blow and the whistle whistling three times I opened the major trauma Kit and began preparing the field bandage and giving set for infusion. Then, on arriving the casualty I offered him the first aid. I checked the airways and his conscience. Everything was OK so I immediately cleaned the wound in the both hands with povidone iodine solution and tied the wound in right hand with field bandage. Minutes later the Ambulance arrived with two another medics in it. Then we went on with the casualty's left hand and right leg. Then we put the canella in and started giving the fluids including 10 mg of Nubian, and put the casualty in the ambulance, put the oxygen on and did the rechecking of the casualty in order to make sure of any existing complications.

On arriving the Helicopter we put the casualty in and left to the Peja KFOR Hospital.