

DDAS Accident Report

Accident details

Report date: 15/03/2004	Accident number: 255
Accident time: 12:59	Accident Date: 21/09/1999
Where it occurred: Orcusa village, Dragas region, Rapce Onji, Nr Prizren	Country: Kosovo
Primary cause: Unavoidable (?)	Secondary cause: Inadequate equipment (?)
Class: Survey accident	Date of main report: 04/10/1999
ID original source: JR/MD/JF	Name of source: KMACC
Organisation: Name removed	
Mine/device: PMA-3 AP blast	Ground condition: bushes/scrub hard woodland
Date record created: 18/02/2004	Date last modified: 29/02/2004
No of victims: 1	No of documents: 3

Map details

Longitude: 34° 47' 27" E	Latitude: 46° 46' 86" N
Alt. coord. system: ORUSCA GR 665 541	Coordinates fixed by: GPS
Map east:	Map north:
Map scale: PRIZREN	Map series: GSGS 5726
Map edition: 1 GSGS	Map sheet: 680
Map name:	

Accident Notes

inadequate communications (?)
inadequate equipment (?)
squatting/kneeling to excavate (?)

Accident reports were prepared by the MACC and by the demining group involved. Both are reproduced below.

Accident report 1

The MACC accident report is reproduced below, edited for anonymity.

Introduction

This is a comprehensive report by the Investigation Team on the mine accident that occurred on the 21st of September 1999. Based on the statements from the personnel involved in the accident included in the demining group's internal investigation report and the photo from the accident site, the demining group's SOPs were adhered to during the clearance operation. This accident is considered as a non-preventable mine accident.

The Investigation Team consisted out of the MACC QA EDD Officer and the QA Officer.

Order of Events

At the clearance site it was explained that the demining group has been conducting a survey Level 2 approximately 500 metres from the village of ORUSCA GR 666 541. On Monday, 20 September 1999, the Programme Manager moved the [partner company's] survey team to the location. The reason for this move was that the team had a better vehicle (4x4) and therefore enhanced mobility to access the site.

On the first day of work, the team cleared 11 square metres. On Tuesday, 21 September 1999, before the accident occurred the team cleared 5 square metres. The reason for the slow progress was the brush vegetation and the hard soil the team encountered.

The clearance operation took place along a road/trail used by people from Albania who were stealing parts and items from the abandoned houses on the Kosovo side of the border. The area is a known mined area and is marked by the local population.

A locally made mine sign is shown in the picture of the site below.



The victim, was clearing a lane past the remains of a dead cow and was already a metre past the cow when the accident occurred. While the victim was sweeping with the mine detector he received a signal on the right 10-cm overlap of the lane he was busy clearing. The ground at the accident site sloped slightly to the right of the lane. The victim started to prod in the area of the signal by using the prodder. When he was prodding on the right of his base stick, he activated an explosive device. This occurred at approximately 13:00.

After the explosion the victim started to walk towards the number two deminer, who went towards him. The team medic was then sent on to site by the team leader and administered the necessary first aid.

KFOR Medical Support in Prizren was contacted by SAT Phone by the Team Leader at 13.04 pm. CASEVAC was requested from the Dragas Turkish Military Base. The Team Leader and Team Medic took the casualty by vehicle to the military base where they arrived at 13:20 pm. The military helicopter with a doctor onboard arrived at the base at 13:22 pm and recovered the casualty to the Emergency Medical Unit at the Brigade HQ in Prizren for further medical attention. The helicopter arrived at the hospital at 14:05 pm.

General Information

The following information was obtained from the Programme Manager and the Technical Advisor at the accident site:

Deminers' experience: Approximately 18 months.

Arrival at the work site: Approximately 09:15

Time of the CASEVAC requested: 13:04

How was it requested: By satphone directly to KFOR CASEVAC medical support unit. After he contacted the Lead demining group Programme Manager.

Time of departure from the work with the casualty: 13:08

Transportation used: Ambulance vehicles 4x4.

Travelling time to helicopter pad in Dragas Turkish base: 12 minutes arrived at 13:20.

Did you have a doctor on site? We did not but the Turkish trauma unit at the helicopter pad had one.

Time of CASEVAC: 13:56

Arrival at KFOR Brigade Hospital in Prizren: 14:05

Type of injuries: Facial and upper body.

Number and names of the witness: One witness, the number two.

Suspected type of device or mine: Unknown

Action at time of accident: Manual clearance prodding drill.



The picture above shows a reconstruction of the victim's position at the time of the accident.

Findings

After reading the Internal investigation report (see attach document) and visiting the site, the Investigation Team made the following findings:

- The deminer is an experienced deminer.
- The deminer was wearing the proper safety equipment.
- The deminer was working in accordance with the SOP's.
- The CASEVAC procedure was followed and done in accordance with SOPs.
- The blast of the explosion deflected between the vest and the visor. The visor shattered.
- The right side of his body absorbed the biggest part of the blast.
- The deminer will keep his eye sight and suffer minor facial injuries.
- The only reliable means of communication on site was the SAT phone.
- The total time to evacuate the injury was 1 hour and 6 minutes.

- The demining group closed the site and conducted an investigation a few hours after the accident.
- The crater created by the blast is too big for a PMA 3 AP blast mine.
- The prodder used by the [sub-contracted demining group] is very heavy and the deminer loses some of the sensibility and need to use more pressure on it.
- The demining group reacted very well and handled the situation in a professional manner.
- This accident was non-preventable.

Recommendations

The following are recommendations based on the present findings:

- The demining group will have to sweep the area to find or confirm the information on the type of mine.
- Refresher procedures on the prodding technique should be given to the de-miners of the group and excavation drills should be developed when the ground is not even.
- The long and heavy version of the prodder used by [the sub-contracted deminers] should be replaced.
- Communication system should be put in place as soon as possible.
- A statement from the injured deminer should be taken as soon as possible.
- Every organisation involved in mine/UXO clearance in Kosovo should be practicing their CASEVAC procedures and to take the constant increasing road traffic on the roads and towns in consideration.
- We are not sure what type of device the deminer initiated and the site therefore will have to be investigated.

Signed: UNMIK Mine Action Co-ordination Centre, QA Officer

Written comments may have been added by the following [not on the copy held].

UNMIK Mine Action Co-ordination Centre

Chief Operations Officer

UNMIK Mine Action Co-ordination Centre

Programme Manager

Accident report 2

Between 29th November and 1st December 1999, the demining group conducted a further investigation. The content of their report is reproduced below, edited for anonymity.

On arrival at the site most of the permanent marking which had been erected had been taken away by the local inhabitants, and it was uncertain where the cleared area commenced.

After reclearing the approach to the accident area the team using one demining pair commenced clearance along the same route as used by the deminer. Upon initial investigation it was noticed that there was another crater approximately one meter away from the place of the accident. It was also noticed that there was a PMR-2 approximately 7m away which was not visible on the initial survey.

The clearance team then continued along a clearance lane, adjacent the possible row of mines for a distance of approximately 5m, up to the bushes. Upon investigating on the right hand side of the clearance lane a PMA-3 was discovered in line with the existing craters. Upon excavation it was noticed that there was something else underneath the mine, this was 200g block of TNT. This mine was 5m from the accident site and in line with the other craters. The mine confirms that the crater from the accident was not a standard size for a single PMA-3 anti-personnel mine.

The team then continued to clear up to the PMR-2 to remove it from the area as it was only 7m from the cleared lane. The clearance lane continued towards the PMR-2 and discovered

another PMA-3 reinforced with a 200g block of TNT. This again reinforces the fact that the mine laying was not standard.

[Photographs of the reinforced mines were taken, but only poor photocopies made available. The standard paper-wrapped 200g TNT block was directly beneath the mine.]

Victim Report

Victim number: 329	Name: Name removed
Age: 26	Gender: Male
Status: deminer	Fit for work: yes
Compensation: not made available	Time to hospital: 1 hour 5 minutes
Protection issued: Frag jacket Helmet Short visor	Protection used: Frag jacket, Helmet, Short visor

Summary of injuries:

INJURIES

minor Chest

minor Face

severe Eyes

COMMENT

See medical report.

Medical report

A medic's report (see Statements) included the following:

"The injured person was seen by the 2nd deminer before me. When I saw the injured deminer he was still standing on his feet but his face and arm was covered with blood and dirt. My colleagues and I took the injured deminer to a safer place. Immediately I started to give him first aid. I noticed that his major blood vessels were okay and there was not too much blood loss to damage his vital functions. I saw that the injuries were in the vicinity of his eyes and face and noticed that his right eye was more damaged than his left eye. Breathing through the nose was okay and the injured person was able to breathe."

"After the First Aid was given, we took the injured person to the vehicle and then to a Turkish KFOR base, and then their medical personnel put him on an IV drip. On the way to the Turkish HQ I was continually checking the injured person. We waited at the Turkish HQ for the German helicopter which arrived with all their specialists and equipment of urgent medicine who did their part of the job. All the time I was with the injured until we settle him in the helicopter which was taking him to the German field hospital in Prizren. "

A severe eye accident is presumed because the victim was taken into surgery after arrival in hospital.

Surgeon's report

A surgeon's report in German was made available. Handwritten by a doctor, some of it was illegible. The decipherable sections were translated and are reproduced below.

On admission:

Arrived approx 14.00 hours on the 21st September 1999

Breathing sufficient, but reduced. Spontaneous

No injury to abdomen or thorax

Diagnosis: Multiple foreign bodies penetrated the skin of the face, cornea, conjunctiva and eyelid. Edge torn off right lower eyelid.

Operation: Inspection of "bulbous" [eyeball?], removal of foreign bodies, adaptation of right eye lid, removal of debris from face skin, Right shoulder, and Right and Left lower arms.

Operation Report: Left eye double [unrecognised word] of eyelid and removal of dirt particles.

On inspection of [unrecognised word] 2 suspicious [unrecognised word] areas were found. In those areas did a door wing cut. Put onto "squint hook" [direct translation] and freed the quadrant, and close inspection to see if perforated.

The sclera is not damaged. A perforation could not be found. Closed up the eye with 5-0 Vicryl [sutures?]

Removal of foreign bodies from [unrecognised word]. A few particles were left, removal in a few days.

Same procedure on right eye.

There we find in comparison to the left eye markedly stronger [unrecognised word] and small VK bleeding. No perforation of the right eye. A few deeply imbedded foreign bodies can also be removed from HH. Following this a reconstruction of the eyelid side/rim. Firstly small [unrecognised word] and later clean/neat adaptation of eyelid with 5-0 vicryl.

At the end the skin of the face, the right shoulder and the right and left fore arms cleansed with H₂O₂ and a brush and partially with a "sharp spoon" [direct translation] the particles were scratched out.

Dressed with cream on the face and gauze on the remaining areas.

The duration of the operation was 2 ¼ hours.

Post operatively transferred to Intensive Therapy Unit

Had swelling of upper and lower airways.

Extubated @ 1900hours

Discharged @ 1600hours on the 22nd to a ward.

In December 2001 the MACC reported that the Victim had suffered a permanent 20% sight loss in his left eye. At that time he was living and working as Café owner in Bosnia.

Analysis

The primary cause of this accident is listed as "*Unavoidable*" because it seems that the victim was working properly in accordance with widely respected SOPs when the accident occurred.

The secondary cause of the accident is listed as "*Inadequate equipment*" because, if the investigators were correct and the prodder does reduce tactile feedback, the prodder was inadequate. The visor and communications equipment at the site were also inadequate.



The visor was entirely unmarked by "soot" or earth in the blast, so it was not directly in the fragment cone associated with the blast, yet it shattered. This leads me to suspect that it was either made from perspex (much cheaper than polycarbonate) or was poorly manufactured so that stresses were locked into it. The clarity of the pieces shown makes the stress theory unlikely. The visor appears to be both thinner than the 5mm standard and very clean. It may have been cleaned before examination to remove marks on the inside (which might have provided evidence that it was raised). The damage to the visor implies that it was a) raised and b) that it may have been made of thin polycarbonate or cheap perspex – both of which fail to meet any approved standard for blast protection. If this was the case, the supply of this equipment would represent a serious management failing. But the cleanliness of the visor raises the possibility that it was not involved in the blast at all. It may have been deliberately broken after the blast to excuse the injuries to the victim's face and eyes.

The use of a sat-phone as the only communication device was unsatisfactory because communication via the satellite is not guaranteed. The MACC recommended a radio communications system (see Related papers).

The Accident report demonstrates an unusually thorough and critical approach to accident investigation. The country's 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 the investigation.

Related papers

In a summary on mine/UXO accidents in Kosovo, (undated but covering September 1999 - August 2000), this accident was "considered non-preventable". The summary includes "Lessons learned" and lists:

- 1) "The long and heavy version of the prodder used by [excised name of demining group] should be replaced."
- 2) "Prodding and excavation drills should be developed [for] when the ground is not even."
- 3) "A radio communication network must be established as soon as a Mine Action Programme is initiated."

The file also contained:

Various photographs (photocopied in black and white and poor quality) of the accident site and the victim's equipment.

IMSMA information

Various hand-drawn sketch maps of the area.

Internal "Daily Reports" from the demining company outlining the work undertaken in the days leading up to the accident.

Internal demining medical accident form with no detail.

Medical data from German KFOR hospital, in German.

Post operative report from German KFOR hospital, in German.

Statements

Statements from five people involved in the accident are reproduced below (edited for anonymity).

Victim

The victim made a statement on 07/10/99

On 22 [sic] September '99 at 0915 am we arrived at the survey area for demining.

The work started at 12.30 when my colleague and I went out on to the minefield. I started first while my colleague was watching me. I opened a new lane according to our SOPs. I worked very carefully because I was expecting a mine about half a metre in front of me. I saw a square of land approximately 25cm X 25cm where there was something buried.

When I arrived in that area I worked very carefully with a prodder. Several times I prodded that place. I'm writing again that I was very careful because I knew there was something there.

Before and after the explosion I was working with my helmet and visor on and was in a kneeling position where my colleague could see me.

After the explosion I was disorientated but I could hear my colleague calling me. I could not answer him but I heard him calling the Medic and the Team Leader. I stood up and walked out of the mine field by holding onto the mine marking tape and walked out safely.

Team Leader

On the 21 September '99 about 13:00 pm an accident happened on location in Orcusa.

We began survey work on the minefield at approximately 09:35 am.

The team consisted of six deminers. They were working in pairs for one hour at a time. At approximately 12:30 I changed the pairs of deminers. Then I took the second pair to the place where they were to work and showed them their tasks. I explained to them the direction in which they were to work and warned them to be very careful. After I gave them their instructions I went to the rest area where the other deminers were resting. About 13:00 I heard an explosion. From that moment I ran straight away to the place where the pair were working. When I reached the area where they initially began their tasks I saw deminer No. 2 assisting the injured man to the rest area. And with the medic's help gave him first aid.

At the same time I asked the interpreter to tell the Supervisor to call for a helicopter with the sat-phone. With the help of the other deminers brought him to the supervisor's vehicle. The Supervisor, with his Landrover, and I took him to the Turkish HQ. From the moment of injury to the Turkish HQ took half an hour. Then afterwards, all the remaining first aid was taken over by the Turkish Doctors. Afterwards the German helicopter took the injured person.

Signed: 21/09/99

Medic

I began the day as any other day, keeping to all the standard safety procedures. All the time I was at my place in the Medic's area. At 13:00 I heard an explosion and ran immediately to the accident area with all my equipment as per the standard medical procedures.

The injured person was seen by the 2nd deminer before me. When I saw the injured deminer he was still standing on his feet but his face and arm was covered with blood and dirt. My colleagues and I took the injured deminer to a safer place. Immediately I started to give him first aid. I noticed that his major blood vessels were okay and there was not too much blood

loss to damage his vital functions. I saw that the injuries were in the vicinity of his eyes and face and noticed that his right eye was more damaged than his left eye. Breathing through the nose was okay and the injured person was able to breathe.

After the First Aid was given, we took the injured person to the vehicle and then to a Turkish KFOR base, and then their medical personnel put him on an IV drip. On the way to the Turkish HQ I was continually checking the injured person. We waited at the Turkish HQ for the German helicopter which arrived with all their specialists and equipment of urgent medicine who did their part of the job. All the time I was with the injured until we settle him in the helicopter which was taking him to the German field hospital in Prizren.

The injured person was taken by German specialists, and the team leader and I returned to the other deminers to pick up the equipment and come back to the office. During the evacuation I kept to the urgent medical regulations.

Signed: 21 September 1999

Demining Company Manager (regional)

At approximately 13:15 while on location at a mine clearance site on the Albanian border I received a radio message from November Lima Charlie 3 who is the interpreter working with the survey teams conducting Level 2 survey operations in the Gora region. The message, although, very unreadable, informed me that a member of the survey team had had a mine accident.

At this point, I suspended all [the demining group's] demining operations and concentrated on gathering as much information about the accident as I could. After a while I established that the injuries of the casualty were sufficient to warrant a CASEVAC from the area using KFOR Helicopter. I then proceeded by road to Prizren attempting to keep in contact with the DSL International Technical Adviser, who was co-ordinating the CASEVAC.

Because of the lack of communications between the operational teams, myself and DSL office in Prizren it was necessary for me to establish which location and hospital the casualty was to be taken to so I could prewarn the medical emergency staff of the incoming casualty. On route to Prizren I was informed via radio that the casualty was to be taken to the civilian hospital in Prizren.

On my arrival at the hospital I informed the medical staff of the situation and of the incoming casualty. While waiting for the helicopter to arrive I was then informed that the new location for the casualty was to be German KFOR Brigade, HQ, Prizren. I then proceeded to the Brigade HQ to await the arrival of the helicopter. At approximately 14:05hrs the helicopter arrived and the casualty was taken to the Emergency Room. I then informed the [demining group] office in Prizren of the arrival of the casualty and advised them that I would be staying in the hospital to keep them updated with the casualty's condition.

At approximately 15:00hrs after an initial examination by the German Military Surgeons the casualty was taken into theatre to be operated on.

Signed: 21 September 1999

Victim's partner

Me and the [victim] arrived in the demining area, with him reaching the area first. I was in a position where I could watch him from the standard regulation distance of 25m. While I was watching the deminer, I suddenly saw the dust and then the heavy detonation which threw the deminer backwards. At that moment I tried to call him and then I saw him come to me from the working stage. At the same time I called the medic and the team leader. I went to the injured man and he asked me "Are my eyes okay?" and I replied "Everything is okay." Then I took him on the way to the rest area. At the same time the team leader arrived, then the medic, where we started to apply First Aid. Then we took him to the Supervisor's vehicle. Afterwards, we went to the Turkish KFOR HQ.

p.s. In the moment of detonation the deminer was working with the prodder.

Signed: 21 September 1999