7-10-2001

DDASaccident322

Humanitarian Demining Accident and Incident Database
AID

DDAS Accident Report

Accident details

Report date:	15/03/2004	**Accident number:**	322
Accident time:	10:55	**Accident Date:**	10/07/2001
Where it occurred:	Rasa Koshare minefield No.315	**Country:**	Kosovo
Primary cause:	Field control inadequacy (?)	**Secondary cause:**	Inadequate training (?)
Class:	Vegetation removal accident	**Date of main report:**	24/07/2001
ID original source:	TG/CC/JF No 007/2001	**Name of source:**	KMACC
Organisation:	Name removed		
Mine/device:	PMA-3 AP blast	**Ground condition:**	electromagnetic leaf litter woodland
Date record created:	20/02/2004	**Date last modified:**	10/03/2004
No of victims:	2	**No of documents:**	1

Map details

Longitude:		**Latitude:**	
Alt. coord. system:	GR 34T DN 351 017	**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

vegetation clearance problem (?)

inadequate metal-detector (?)

inadequate training (?)

disciplinary action against victim (?)

partner's failure to "control" (?)

safety distances ignored (?)

metal-detector not used (?)

Accident report

The following is the MACC accident report, edited for anonymity.

Introduction

In accordance with the Mine Action Co-ordination Centre (MACC) Standard Working Procedure No 4, the MACC Programme Manager issued a Convening Order on Tuesday 10 July 2001 for an accident Investigation Board of Inquiry. Annex A details the Convening Order. [Annex A is omitted.]

This is a comprehensive report by the Board of Inquiry into the mine accident that occurred on Tuesday 10 July 2001. Based on the investigation, interviews, statements from [the demining NGO involved] personnel involved in the accident, visits and photos of the accident site, this accident is considered to be preventable.

This finding is based on the fact that at the time of the accident the [victim] was not adhering to demining NGO's clearance procedures as stated in their SOPs.

Events leading up to the accident

The demining NGO (two in collaboration) have one manual clearance team conducting operations at minefield number 315. This minefield is PMA 3 Anti Personnel Blast minefield with the mines laid in a very dense pattern. All minefields in the Koshare area are cleared by prodding and excavation drills [detectors not used]. This clearance drill is employed by [the demining NGO] as part of their threat assessment for these minefields. This team employs a two man one lane drill whereby one person works whilst the other rests. The victim was paired up with another deminer. The section leader and [name removed] had completed their shift and were replaced by [Victim No.1] and the Reserve Section Leader (Victim No.2) in the lane. Victim No.1 entered the lane and commenced manual clearance with the Reserve Section Leader providing supervision.

At 10:55 whilst Victim No.1 was conducting manual clearance, he stepped over his base stick and detonated a PMA3 blast mine. The injuries he received were a partial traumatic amputation of the left foot as well as minor injuries to his right leg and left arm. The Reserve Section Leader who was standing behind Victim No.1 at the time received minor injuries to both legs and right hand.

[The picture above shows the accident site. The victim's secateurs are lying beside the blast crate in front of (and central to) the base-stick. Beyond the secateurs to the right, there are fresh cuts on a small tree.]

After the uncontrolled explosion, another section leader as well as the Task Site Leader arrived on the scene and carried Victim No.1 out of the lane to the base lane, where the medical team was waiting to provide first aid. He was stabilised and then transported by ambulance to the HLS approximately 600m away. A request for a helicopter CASEVAC was made to KFOR through the MNB(W) senior partner, approximately 4 minutes after the accident. It took 50 minutes from the time the request was made to when the helicopter

arrived at the HLS and a further 10 minutes before the patient was at the Italian KFOR Field Hospital in Peja. Victim No.2 walked out of the lane and was also given treatment. He was then taken by ambulance to the Gjakova civilian hospital and given further treatment and then discharged.

Victim No.1 has stated that he tripped over the base stick and then stepped on the mine. However upon investigation of the blast hole and surrounding area it was discovered that the branches of the tree to the left of the lane had been cut back. This cutting of the branches was well past the 30cm clearance in front of the base stick, which is a breach of demining group's approved SOPs. These branches had been cut by someone leaning forward over the base stick with the cutters, and cutting the branches back. The distance from the base stick to the cut branches was in some cases over one meter.

The mines in this lane were laid in a consistent pattern, of a mine every 1- 1.5m. The location of the PMA-3 that was stepped on by Victim No.1 was in the place that a mine could be expected. Although this lane is densely laid with mines, and the mines are laid in a forest, it is not considered to be difficult. The ground is flat, with a thin layer of leaves, and the mines are not deeply laid.

This mine accident was a breach of the most basic of clearance procedures. If the Reserve Section Leader [Victim No.2] carried out his duties effectively, then this accident would not have occurred. The demining NGO has dismissed him from their organisation for his lack of supervision.

The demining NGO suspended all mine clearance operations the day after the accident and then conducted refresher training for all mine clearance staff the day following. This refresher training focused on the duties and responsibilities of all section leaders and supervisors, as well as the correct manual clearance drill to be carried out by deminers.

This is now the third mine accident to occur in this minefield in the past three months. The first two were close to the stream in the swampy area.

Work history of Victim No.1

The victim had been working for the demining NGO as a deminer since September 1999.

History of the Area

The accident site is Task Dossier W02 – 37, at minefield number 315. The minefields in this task dossier are all in the Rasa Koshare area, which is on the Kosovo – Albanian border. There was heavy fighting in this location during the war and there are numerous minefields along this border area. A specialist NGO conducted clearance operations in the Rasha Koshare minefields from July – November 2000.

Sequence, Documentation and Procedure of Tasking

The Task Dossier No W02-37 was issued to the demining group on 17 February 2001. As stated this was a minefield that a specialist NGO had previously conducted clearance in, although had not completed.

Geography and Weather

The area in general is the Kosovo – Albanian Border approximately 25km NW from Gjakova. The border region around this area is mountainous and covered with forest and bush. The road access to this site is through the village of Junik. The route from here is a 12km very uneven gravel road which winds its' way up to the minefield. The weather at the time of the accident was fine with a temperature of approximately 30 degrees Celsius.

Site Layout and Marking

The site layout and marking at the site was in accordance with the demining NGO's SOPs for mine-clearance. The mine row that this particular lane follows is through a wooded area, on flat ground. According to the Vojska Jugoslavije (VJ) minefield record there are five mine rows containing PMR-2A fragmentation mines with PMA-3 blast mines as keepers. The mines in the accident lane however contain only PMA-3 blast mines.

Management Supervision and Discipline

The Reserve Section Leader directly supervised Victim No.1 at the time of the accident. There is also a Team Site Leader and a Senior Demining Supervisor who oversees the supervision of all demining sites. Managing all the demining NGO's clearance operations is an Operations Officer.

The demining NGO have dismissed the Section Leader, the number two deminer and the Reserve Section Leader from their organisation.

Quality Assurance and Quality Control

The demining NGO's Quality Control is achieved through a system of on-site checks by the Section Leaders and Team Leaders to ensure adherence to the mine-clearance SOPs. The MACC QA teams conduct external Quality Assurance on a regular basis, normally each site is visited a minimum of once per week.

Communications and Reporting

At the time of the accident there was effective communication by VHF hand-held Motorola radios between the Section Leaders and team Site Supervisor on their internal net. There was further communication by hand-held VHF radios from the team site, and the demining NGO's base situated in Hereq also on their internal net.

At the time of the accident the MACC QA Officer was in the region and monitored all radio traffic concerning the accident on the MNB (W) channel.

Medical Details

Victim No.1 suffered a traumatic amputation of his left heel with minor injuries to his right leg and left arm.

Personnel

A list of personnel and their duties is detailed at Annex D [omitted] to the demining NGO Preliminary Investigation Report. Written statements from the personnel involved in the accident form the Appendices to this Annex.

Dress and Personal Protective Equipment (PPE)

At the time of the accident the victims were both wearing personal protective equipment in accordance with the demining NGO's SOPs. [In previous accidents involving the same demining group, the PPE was identified as a helmet, long visor and short frontal vest. It is presumed that the same PPE was in use]

Tools and Equipment

Victim No.1 was using vegetation cutters at the time of the accident.

Account of Activities
The following is a description of the events before and after the accident. The information from the investigation forms the basis of the description of events:

Tuesday 10 July 2001

10:55 – Time of accident.

10:56 – Radio report of accident to demining NGO base that they have an accident on their site with one deminer who has a traumatic amputation of the foot.

10:58 – Radio report to senior partner reporting the accident detail.

11:00 – 11:20 Radio call to KFOR reporting that there is a mine accident and a helicopter CASEVAC is required. It took this long to get the message through, due to the poor English of the Italian radio operator.

11:49 – CASEVAC helicopter arrives and uplifts the casualty.

12:00 – Helicopter arrives at the Italian Field Hospital in Peja with the casualty.

Insurance Details

Victim No.1 is covered by the demining NGO's personal insurance it has for all staff. All insurance policies for the demining NGO are through Willis Insurance Group of London. A copy of the insurance detail is kept in the MACC QA Office.

Conclusions

Based on the investigation, interviews, the statements and visits to the site, the Board of Inquiry concludes the following:

This is the third mine accident that the demining NGO have had in minefield number 315 in the past three months. All of these mine accidents have involved PMA-3 blast mines. Two of these accidents have been in the stream area of this minefield.

The clearance lane, in which the accident occurred, followed a clear and consistent pattern of PMA-3 mines.

The clearance lane follows a mine row laid in a forest area on flat ground.

The deminer [Victim No.1] has stated that he tripped on his base stick and then stepped on the PMA-3 mine. The evidence at the accident site clearly shows that he was leaning forward and cutting branches outside the 30cm clearance limit in front of his base stick. In doing this he lost his balance and then stepped on the mine.

As there was a clear and consistent pattern to the mines, it was almost inevitable that there would be another mine in the location that this mine was detonated.

The Reserve Section Leader [Victim No.2] was standing behind Victim No.1 at the time of the accident and must have seen him cutting branches outside the clearance lane. He has been dismissed. This has now sent a clear message to the other employees that serious breaches of SOPs will be dealt with in the appropriate manner.

It took an unacceptably long period of time (over two minutes) for the KFOR radio operator to respond to the initial 'mayday, mayday' call. Once communications were established with KFOR, there was still a great deal of difficulty getting the message to them of the accident and the requirement for a helicopter CASEVAC. This was due to the poor English speaking ability of the KFOR radio operator.

The CASEVAC helicopter did not arrive at the HLS until 55 minutes after the accident. This may have had fatal consequences had the injuries been life threatening.

The demining NGO have carried out a threat assessment of the Koshare minefields and have determined that they conduct their clearance by prodding and excavation only. To date there

have not been any external trials to ascertain if metal detectors would be suitable in these minefields. There may well be areas within Koshare that are suitable for detectors.

Recommendations

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

All mine clearance in minefield number 315 be suspended until a threat assessment is carried out by the demining NGO to determine the high risk areas of this minefield, and to then establish a clearance plan to manage this risk.

This accident was caused by a complete disregard of accepted manual clearance procedures, and a fundamental breach of the duties and responsibilities required of a Section Leader. The evidence suggests that this accident was an isolated accident, however it does place doubt on the supervision at all levels within the demining NGO, especially in light of the previous three accidents within a three-month period. Therefore it is considered necessary to increase the number of external Quality Assurance inspections for these teams.

It is commendable that the demining NGO have taken swift and justifiable action by releasing the Reserve Section Leader from their organisation.

In order to avoid unnecessary confusion and time delays when communicating with KFOR for a helicopter CASEVAC due to the poor English speaking ability of the MNB(W) KFOR radio operator. It is recommended that for all mine accidents and emergencies, MNB(W) organisations make their request through the INTERSOS radio operator, instead of the [excised] radio operator as is the current procedure. The INTERSOS radio operator is able to speak Italian, and is therefore able to make the request and pass on all required information in a clear and timely manner to the KFOR radio operator in the Italian language.

If this procedure of helicopter CASEVAC is adopted then all clearance organisations need to practice this, and then maintain reliable radio communications in case of emergencies.

It is recommended that this new CASEVAC procedure be implemented without delay.

An external trial of metal detectors in the Koshare minefields is conducted by the MACC in order to ascertain their suitability.

SIGNED UNMIK Mine Action Co-ordination Centre, Quality Assurance Officer

Annexes: [not made available]

A. MACC convening order for accident investigation Board of Inquiry.
B. Map of the general area.
C. Medical Report from the MACC QA Officer.
Attachment: the demining NGO Preliminary Investigation Report

Signed: UNMIK Mine Action Co-ordination Centre, Chief of Operations

Comments by the MACC Programme Manager

The conclusions and recommendations of this BOI are concurred with. This accident could have been prevented had approved SOP been followed by the deminer and those responsible for his immediate supervision.

Signed: UNMIK Mine Action Co-ordination Centre, Programme Manager

Victim Report

Victim number:	405	**Name:**	**Name removed**
Age:		**Gender:**	Male
Status:	deminer	**Fit for work:**	not known
Compensation:	not made available	**Time to hospital:**	1 hour 5 minutes
Protection issued:	Helmet Long visor Short frontal vest	**Protection used:**	Helmet, long visor, short frontal vest

Summary of injuries:

INJURIES

minor Arm

minor Genitals

minor Leg

AMPUTATION/LOSS

Leg Below knee

COMMENT

See medical report.

Medical report

The following medical report was made available and has been edited for anonymity.

Medical report concerning Rasa Koshare accident 10/07/01 10.55 PM.

This report is based on interviews/statements of the following staff member of [the demining group].

- Dr. [Name excised]: [Demining group] Medical Coordinator.
- Mr.[Name excised]: Medical Team Leader of Rrasa Koshare III Medical Team.
- Mrs. [Name excised]: Medic of the Rrasa Koshare III Medical Team.
- Mr. [Name excised] Deminer: (Victim)
- Dr. [Name excised]: Surgeon at Italian Field Hospital Peja

Victims:

- Mr. [Name excised]: Deminer.
- Mr. [Name excised]: Section Leader

Injuries:

Mr. [Victim no.1] was taken by helicopter to KFOR hospital in Peja and treated for: Traumatic amputation of left heel with concomitant destruction of surrounding tissues.

Burning wound on upper part of right leg.

Burning wound on scrotum

Minor wounds on left arm.

Mr. [Victim No.2] was taken by road ambulance to Gjakova Hospital and treated for: Minor burning wounds on right knee.

Attachments:

[Demining group] Accident report by Medical Coordinator [Name excised].

The sequence of events, by Medical Coordinator [Name excised].

Introduction:

At the time of the accident there was one Ambulance and two Medics with all their medical equipment at the site.

At 10:56 they where called on radio by TSL [Name excised] who was close to the place of the accident. The Medical Team arrived to the line after 4 minutes, [Victim no.1] had then been carried to a safe area.

The victim was conscious and responsive in full and logical verbal contact, airways intact and open, respiratory pattern and rate, pulse rate and blood pressure within normal limits.

The Medics immediately started with first aid and stabilization of the victim who was bleeding and was in big pain.

The bleeding was stopped and 10mg Morphine and Ringer Lactate was given iv. He also got Oxygen 15 l/min. and a Stiffneck Collar applied.

The Medical Team Leader decided to transport the victim by helicopter to KFOR Hospital in Peja. KFOR was contacted through [Name excised] at 11:02 and a request for Helicopter MEDEVAC was sent.

At 11:49 the Helicopter arrived (47 minutes after the request) and the victim was transported to Italian KFOR Hospital I Peja

The other victim, [Victim No.2] had only minor injuries on one knee and was taken to Gjacova Hospital by road Ambulance for a check up.

Order of events:

Time	Event
10:55hrs	Accident occurred.
11:56hrs	Medical Team was called.
11:00hrs	Victim receives first aid treatment at the safe area.
11:02hrs	Request for CASEVAC helicopter KFOR
11:49hrs	CASEVAC helicopter landed at HLS.
11:53hrs	CASEVAC helicopter departed from HLS with victim onboard.
12:00hrs	CASEVAC helicopter arrives at Italian Field Hospital in Peja.

Conclusions

- CASEVAC was performed according to S.O.P
- The time of arrival for helicopter to HLS is not acceptable.
- The treatment/assessment that [Victim no.1] received by the medical team at the scene of accident was carried out in a very professional way.

Recommendations:

- MEDEVAC Exercises with KFOR should be held on regularly basis to avoid unnecessary delay when Helicopter is requested.

Signed: Medical Quality Assurance Officer, MACC Kosovo.

In a statement from the MACC in December 2001 (just before it closed) they reported that Victim No.1 had a temporary prosthesis and was undergoing rehabilitation in Denmark, waiting for a permanent prosthesis. He was still employed by the demining group.

Victim Report

Victim number:	406	**Name:**	**Name removed**
Age:		**Gender:**	Male
Status:	supervisory	**Fit for work:**	yes
Compensation:	not made available	**Time to hospital:**	1 hour 5 minutes
Protection issued:	Helmet Long visor Short frontal vest	**Protection used:**	Helmet, long visor, short frontal vest

Summary of injuries:

INJURIES

minor Hand

minor Leg

COMMENT

See medical report.

Medical report

The following medical report was made available and has been edited for anonymity. It mostly covers the injuries to Victim No.1, but mentions Victim No.2.

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Victims:

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- Mr. [Name excised]: Section Leader

Injuries:

Mr. [Victim no.1] was taken by helicopter to KFOR hospital in Peja and treated for: Traumatic amputation of left heel with concomitant destruction of surrounding tissues.

Burning wound on upper part of right leg.

Burning wound on scrotum

Minor wounds on left arm.

Mr. [Victim No.2] was taken by road ambulance to Gjakova Hospital and treated for: Minor burning wounds on right knee.

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Recommendations:

- MEDEVAC Exercises with KFOR should be held on regularly basis to avoid unnecessary delay when Helicopter is requested.

Signed: Medical Quality Assurance Officer, MACC Kosovo.

Analysis

The primary cause of this accident is listed as a *"Field control inadequacy"* because one of the victims was a field supervisor and he allowed the other to work in a dangerous way without correcting him. The secondary cause is listed as *"Inadequate training"* because it seems likely that Victim No.2 did not understand the breach of SOPs that Victim No.1 was committing.