DDAS Accident Report

Accident details

Report date:	22/01/2004	**Accident number:**	28
Accident time:	12:30	**Accident Date:**	03/05/1997
Where it occurred:	Songo village, Cahora Bassa, Tete Province	**Country:**	Mozambique
Primary cause:	Management/control inadequacy (?)	**Secondary cause:**	Inadequate training (?)
Class:	Handling accident	**Date of main report:**	05/05/1997
ID original source:	0197/IND/NPA field	**Name of source:**	CND/IND/NPA/DG
Organisation:	[Name removed]		
Mine/device:	AUPS AP frag	**Ground condition:**	not applicable
Date record created:	22/01/2004	**Date last modified:**	22/01/2004
No of victims:	1	**No of documents:**	2

Map details

Longitude:	32° 45' 38" E	**Latitude:**	15° 35' 54" S
Alt. coord. system:		**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

pressure to work quickly (?)

protective equipment not worn (?)

inadequate training (?)

Accident report

Two accident reports were made available. The first that follows was prepared for the National Mine Action authority. The second was an internal demining group report.

Accident report 1

An accident report prepared for the National Mine Action authority was made available in November 2000. The following summarises its content.

The weather on the day was cloudy.

The accident occurred at 12:30 in a minefield laid by the Portuguese in the early 1970s. The mines were Italian AUPS mines, with and without fragmentation jackets. The demining group had been working in the area since 1996 and 234 AUPS mines had been destroyed. "The minefield crosses the road many times as it is linked as an obstacle with the river which is running along the valley. At the accident site, the minefield following the road alignment at a distance of about six metres on a rocky slope of approximately 35 degrees." Clearance of ten metres had occurred at the site. The mine had been known to the deminers for "several days".

Following SOPs, the deminer informed his Section Commander who "passed this information to the responsible supervisor". The "nearby" deminers were evacuated and the victim (aged 48) began to disarm the mine. The normal time taken to disarm the mine was five minutes. The Senior Supervisor reported that the victim was working on the mine for "7-8 minutes".

The investigators determined that the victim was squatting over the mine attempting to disarm it with a "Leatherman multi-tool". "The time he worked and that he did not report any difficulties with the fuse suggests no initial problems." When he tried to remove the detonator the mine activated.

The victim received first aid within 5 minutes and was pronounced dead. He arrived at hospital within one hour and 22 minutes. The report indicated that the victim had lost both legs, both hands and both eyes with severe trauma to the right shoulder and upper part of the chest.

The photograph above shows the remains of the victim’s Leatherman and the metal stake on which the mine had rested.

The AUPS mine can be configured as a pressure or a tripwire mine. When configured as a tripwire mine it has a tripwire fuse on top and a pressure fuse on the bottom. "The detonator projects less that 1mm above the surface of the booster and requires the use of a tool such as a Leatherman for extraction. Any downward movement of the top detonator onto the bottom fuse striker or inadvertent pressure on the mine can cause detonation. Extra care is required when removing the tripwire, the detonator or the mine from the stake to avoid placing pressure on the bottom fuse.."

AUPS mines with fragmentation jackets were used "in this minefield where the blast mines could not be buried. The mine is mounted on a metal stake and the tripwire attached". This mine was supported on its stake about 30cm above the ground. After the detonation the stake was bent over and could not be removed from the ground.

The victim had been a supervisor for six months and had disarmed AUPS mines before.

Conclusion
The investigators determined that the existing "policy and procedures" of the demining group were "inadequate as was the supervision".

Recommendations
The investigators recommended that the demining group review its policy of disarming mines in order to bring them in line with International Standards. They also recommended that the demining group "detail the point at which disarming will not continue….detail on who is to make this decision should be included". A further recommendation was for an independent review of the group's "policies, SOPs and disarming procedures" with a view to enhancing safety.

Accident report 2

An internal demining group report dated 5th May 1997 was prepared by the group's Deputy Programme Manager. The following summarises its content.

The victim was a Supervisor who had been with the programme since February 1994. The particular group had been working at Songo since November 1996. The victim was experienced and had a good track record. His group had cleared several AUPS mines and other tripwire operated mines recently, so he was familiar with the procedures. The victim detonated an AUPS AP fragmentation mine at 12:30 and "died instantly".

The report mentioned that "Stress debriefing sessions" for staff involved in the accident were planned, and that the demining group would pay all funeral costs.

When disarming devices, the demining group makes safety spectacles and frag-jackets available if wanted.

Victim Report

Victim number:	42	**Name:**	**[Name removed]**
Age:	48	**Gender:**	Male
Status:	supervisory	**Fit for work:**	DECEASED
Compensation:	US$4,500	**Time to hospital:**	1 hour 22 minutes
Protection issued:	Safety spectacles Frag jacket	**Protection used:**	none

Summary of injuries:

INJURIES

severe Chest

severe Eyes

severe Face

severe Head

severe Legs

severe Neck

severe Shoulder

AMPUTATION/LOSS

Hand Both

Leg Below knee

Eyes

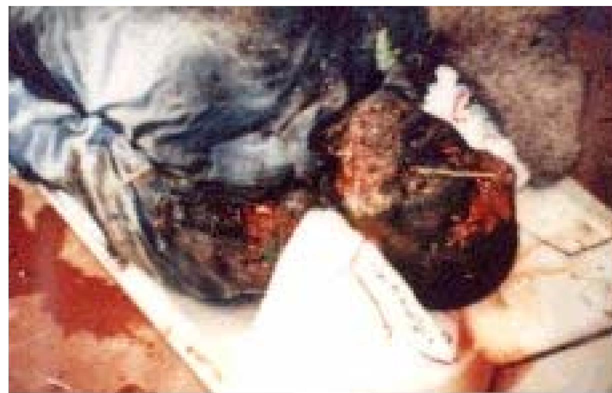
FATAL

COMMENT

See medical report.

Medical report

A medical report from the demining group (dated 4th May 1997) was made available by the National Authority in November 2000. The following summarises its content.



The photograph above shows the injury sustained.

The victim "died immediately of the injuries face destroyed, open head trauma, both hands blown off, open fractures on both legs and right foot blown off".

The rest of the report details the decision to bring the body to Tete and problems at the unstaffed mortuary.

At 06:00 on the following day the accident site was checked and "a few body parts were found and brought to the body at the morgue".

Comments on the CASEVAC made reference to the medics behaving calmly and treating the body with respect. A death certificate gave the cause of death as "explosion of a mine".

In 2002, a summary of all accidents with the demining group was made available. It recorded that US$4,500 was paid to the victim's family.

Analysis

The primary cause of this accident is recorded as a *"Management/control inadequacy"* because the victim was a field supervisor and appears to have been inadequately trained for the disarming task. Responsibility for his selection and training lay directly with senior management. The secondary cause is listed as *"Inadequate training"*.

According to the investigators, the accident was caused by the victim failing to recognise that his difficulty in dealing with the device meant that it should be destroyed in-situ. The victim was a Supervisor and should have recognised the risk - or should have had his error pointed out to him by senior staff. The reason they did not may have been a simple desire to end the day's work as quickly as possible.

Some argue that defusing mines is inherently dangerous and should never be attempted as a routine activity. The respected demining group involved in this activity routinely disarmed a range of devices at that time.

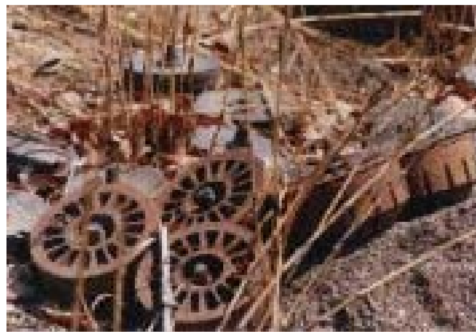
Related papers

An internal accident report prepared by the demining group was on file. This gives detailed timings for the group's response to the accident, transportation of the body etc, and states that the victim had been working a deminer since 1994 after being trained by the group in Tete Province. He was promoted in the same year and was trained as a Field Supervisor. He "was working well and [was] a quite experienced field operator". "Stress debriefing sessions" were scheduled for staff involved in the accident.

Details of the AUPS mine and how to disarm it were attached to the accident report.

The victim's contract of employment was added to the report and appear to show that he started work with the group on 9th January 1993.

Photographs of the accident site showed a rocky hillside with scattered bush and grass to a metre high. The accident occurred among large rocks. Another photograph showed the mine stake bent downward and the remains of the victim's Leatherman. The site, and a "typical" mine emplacement were also shown, along with an open AUPS mine showing the high explosive with a booster at its core.



When the researcher visited the site in 1998 many AUPS mines seen on the ground and in piles placed by the local people – who moved them when the presence of the mines inhibited their agricultural activity (shown on the right). The general view at the time was that most of the mines would not operate as designed, and that direct pressure on the rear of the detonator (or stabbing the front) would be required to make one functional.

"A Supervisor detonated a AUPS anti-personal [sic] mine and was killed" (demining group's Annual Report 1997).

Photographs in the group's internal accident file show the victim with his right foot apparently in place and his left partly attached. A substantial amount of his left hand is also in place. The victim's chest was not seriously wounded, but his throat, forehead and face received shattering fragmentation with the eyes and neck severely damaged. Body parts may have been placed with the victim for family identification (the purpose of the medic "cleaning up" the body). There was no sign that the victim wore any form of protection.