DDAS Accident Report

Accident details

Report date:	22/01/2004	**Accident number:**	22
Accident time:	14:00	**Accident Date:**	10/03/1998
Where it occurred:	Corrumane dam, Moamba(e) District, Maputo Province	**Country:**	Mozambique
Primary cause:	Management/control inadequacy (?)	**Secondary cause:**	Inadequate equipment (?)
Class:	Other	**Date of main report:**	02/04/1998
ID original source:	PB	**Name of source:**	CND/IND/MCM
Organisation:	[Name removed]		
Mine/device:	OZM-4 AP Bfrag	**Ground condition:**	not recorded
Date record created:	12/01/2004	**Date last modified:**	12/01/2004
No of victims:	2	**No of documents:**	2

Map details

Longitude:	32° 10' 27" E	**Latitude:**	25° 12' 05" S
Alt. coord. system:		**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

inadequate equipment (?)

inadequate medical provision (?)

inadequate training (?)

inconsistent statements (?)

mechanical follow-up (?)

no independent investigation available (?)

vegetation clearance problem (?)

protective equipment not worn (?)

Accident report

The accident was investigated by the Country MAC and a report (in Portuguese) dated 2nd April 1998 made available. The MAC provided the deminers and so the victims involved in this incident, so their investigated is considered “internal”. The following summarises its content after translation.

The mined area was about 20km from the group's base camp. The majority of mines found were PMN, OZM-4 and POMZ-2Ms. The vegetation was "quite tall". The method of clearance was manual follow-up of mechanical preparation/clearance.

The accident occurred during the manual clearance phase. Victim No.1 was clearing a lane and pulled a trip wire with his detector head, so initiating an OZM-4. [This version is denied elsewhere.]

The detonation "blew off both upper and lower limbs" and he suffered fragment wounds to his head and chest, killing him instantly. Victim No.2 was hit in the shoulder by a fragment.

The supervisor and the medic administered first aid to both victims. At 14.15 both the injured and the corpse were taken to the demining group's base camp, arriving at 14.50. They were then transported to Maputo Central Hospital. It took three and a half hours for Victim No.2 to receive his first treatment from a doctor.

Conclusion

The investigators concluded that the accident showed that the combination of manual and mechanical demining was effective, but that the interval between the two phases must be reduced, and that the number of deminers used should be increased. The height of the vegetation and the lack of shears suitable for dealing with it contributed to the way the mine was detonated. It was decided that protective equipment should be adequate and that the supervisor should be responsible for its availability.

Recommendations

To avoid lapses of concentration, the investigators recommended that rest periods be stipulated in the SOPs, that the use of prodders be in accordance with SOPs that should stipulate the use of defoliating tools, such as shears and knives. Further recommendations were that after an accident, the lane should be taped off and nothing moved until the investigation were completed, fragments from the mine should be kept for the investigators, the demining group must provide a suitable vehicle to serve as an ambulance and adequate medical equipment, and that supervisors must correct mistakes as they occur and not wait until after the event.

Victim Report

Victim number: 35 **Name: [Name removed]**

Age: 35 **Gender:** Male

Status: deminer **Fit for work:** DECEASED

Compensation: not made available **Time to hospital:** 3 hours 30 minutes

Protection issued: Not recorded **Protection used:** none

Summary of injuries:

INJURIES

minor Chest

severe Eyes

severe Head

severe Legs

AMPUTATION/LOSS

Arm Below elbow

FATAL

COMMENT

See medical report.

Medical report

The paramedic made a statement on 16th March 1998 in which he said of Victim No.1 that, "on primary examination I found that he had sustained two large wounds to his head, one entering his right eye and the other just above his left eye in the forehead, ostensibly from the blast of a fragmentation mine at close proximity. Exit wounds were clearly visible to the back of the head and his skull was pulpy, indicating massive skull fracture. His right hand was completely torn off by the blast and both lower legs were splintered. I applied an Eskmark tourniquet to his upper right leg, but could find no sign of a pulse at his neck or femoral artery. He … must have died within seconds of sustaining the wounds."

The Victim's DOB was recorded as 28/11/62.

Victim Report

Victim number: 36 **Name:** **[Name removed]**

Age: **Gender:** Male

Status: deminer **Fit for work:** yes

Compensation: not made available **Time to hospital:** 3 hours 30 minutes

Protection issued: Not recorded **Protection used:** not recorded

Summary of injuries:

INJURIES

minor Arm

COMMENT

See medical report.

Medical report

The paramedic made a statement on 16th March 1998 in which he said that he attended Victim No.2 after pronouncing Victim No.1 dead. Victim No.2 had been "working in an adjoining area about 30 metres away…. He sustained a small shrapnel wound in his latissmus dorsi muscle under his right arm. His breathing and lungs were normal".

Victim No.2 was taken to Sabie, arriving at 14:50, and then on to Maputo by vehicle. "We arrived at Maputo hospital at about 18:30" [the time he reports conflicts with the timing recorded in the Accident report].

Analysis

The primary cause of the accident is listed as a *"Management/control inadequacy"* because the delay between mechanical preparation and follow up led to significant undergrowth for which the deminers were ill-equipped. Their failure to provide appropriate grass cutting equipment, PPE or an ambulance were significant management inadequacies. (The issue of machetes to cut vegetation in a potential tripwire minefield was particularly short-sighted.)

The accident is classed as “Other” because the activity of Victim No.1 is unclear. The reports and statements say that he was either using a detector, excavating or cutting vegetation. In any of these cases the presence of significant vegetation could have led to him pulling a tripwire – but the pre-clearance should have activated or broken the fuses from the mines. It is possible that the victim picked up the core of a semi-activated bounding device and initiated its main-charge.

This was the demining company's first general-area clearance as opposed to road-clearance contract in Mozambique. Delays between mechanical ground coverage and manual follow up were caused by them being unexpectedly obliged to train the deminers supplied by the Country MAC. This, and bureaucratic delays outside their control, obliged them to start in the rainy season (40 working days were lost because of rain). It seems likely that suitable training for following mechanical preparation was not devised or carried out prior to deployment.

Related papers

The Field Manager made a statement on 16th March 1998 in which he said that his group had pre-cleared the area with steel-wheeled vehicles [when this was done was not stated]. This was followed with a manual clearance operation "as soon as practically possible". He added "Manual clearance is carried out by a team of Mozambican deminers in the employ of" the [then] Country MAC. At 14.00 he heard an explosion and saw smoke about 200 metres away. He ran to the place with the paramedic. He found Victim No.1 lying face down in the clearance lane. Other deminers carried him to where the medic could attend to him. He noticed "serious head wounds…that his right forearm was blown off and that he had sustained serious wounds to both his legs". The medic applied a tourniquet to the right upper leg but after a minute pronounced him dead. Victim No.1 was not wearing any protective clothing or visor.

Victim No.2 sustained a small shrapnel wound in his upper body under his right arm as he was working 25-30 metres away. It is not recorded whether he was wearing protective clothing but the field manager stated that deminers "preferred not to use" it, so it is presumed that he was not.

Both victims were evacuated at 14.15 to base camp at Sabie airstrip, arriving at 14:50. The local police were notified and the body taken to the hospital mortuary. The Mozambican MAC informed them that they "could not send anybody to Sabie and (they) therefore had to evacuate the corpse and the injured deminer to Maputo by vehicle". The vehicle arrived at 18:30 [this conflicts with the time reported in the accident report].

The Field Manager felt that the mine was probably an OZM-4 and that the trowel used by the deminer had probably been broken by the blast. The grass in the area was quite long, in spite of the fact that it was flattened by the steel wheels. This was, he explained, due to frequent rains and the fact that manual clearance could not be performed immediately after mechanical operation "as a result of its inherent slowness". Cutters and machetes were available. He "could find no clues as to why the explosion occurred…" He pointed out that protective clothing and visors were available but that deminers preferred not to use them due to the heat. He also stated that "none of the light visors issued to us and generally to most

demining institutions, would have stopped the blast and shrapnel at the distance that this explosion occurred".

The Platoon Commander made a handwritten statement in Portuguese dated 12th March 1998. This report confirmed the time of the accident. He said that an hour after returning to work he heard the explosion of an OMZ-4. He stated that "We" [presumably the deminers and he] think that the accident occurred because the victim pulled a hidden trip-wire while clearing vegetation. First aid was given at 14:00. He goes on to say that the deminers resented the way the body was transported to the hospital wrapped in canvas without a stretcher. He said that, "As platoon commander I represent the personnel, and request that the next time somebody is killed or injured the treatment be more humane".

The demining group's Casualty Report No. 4 stated that Victim No.2 was 25m away and received a minor injury from shrapnel to the side of the chest or arm and that Victim No.1 was fatally injured.

In a telephone interview with the head of the demining company on 6th January 1999, it was accepted that it was possible that Victim No.1 had been handling the device at the time - possibly trying to disarm it.