DDAS Accident Report

Accident details

Report date:	19/04/2006	**Accident number:**	56
Accident time:	08:15	**Accident Date:**	31/07/1997
Where it occurred:	Huambo Airport	**Country:**	Angola
Primary cause:	Field control inadequacy (?)	**Secondary cause:**	Inadequate training (?)
Class:	Excavation accident	**Date of main report:**	12/08/1997
ID original source:	MD/SP/MJ/TJ	**Name of source:**	INAROEE
Organisation:	[Name removed]		
Mine/device:	PPM-2 AP blast	**Ground condition:**	hard
Date record created:	23/01/2004	**Date last modified:**	23/01/2004
No of victims:	1	**No of documents:**	1

Map details

Longitude:		**Latitude:**	
Alt. coord. system:		**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:	Huambo	**Map series:**	
Map edition:		**Map sheet:**	256
Map name:	1:100 000		

Accident Notes

inadequate equipment (?)

inadequate medical provision (?)

handtool may have increased injury (?)

inconsistent statements (?)

safety distances ignored (?)

no independent investigation available (?)

squatting/kneeling to excavate (?)

visor not worn or worn raised (?)

inadequate area marking (?)

inadequate training (?)

Accident report

An internal commission of inquiry report dated 12th August 1997 was available at the country MAC. The following summarises its content.

The investigators made a site visit between 4-6th August 1997. They found that the accident had occurred in a 10k long minefield that circled the airport and was laid by Cuban forces in 1981-2 (later reinforced by government troops). In the working area there were three mine lanes, one with PPM-2 mines and two with PMN mines. OZM-72 mines and MAI-75 mines had also been found, along with various UXOs.

The platoon was clearing a "base line" following a lane of PPM-2 mines. The other mine lanes were "visible and had been detected". The victim began work at about 08:00 and got a detector reading at the base of a termite mound. He informed the commander and began the excavation of the reading to a depth of 5cm.

Two witnesses "who at this stage were only one metre from the deminer" described his attempts at excavation as "futile" because the ground was too hard. The victim used water to try to soften the ground but this did not help. He excavated for about eight minutes before the detonation occurred at 08:15. The blast was "within half a metre of his body". The victim received injuries to his face "and may well lose his sight… his right forearm was later amputated….his right leg has fragmentation injuries". The victim was wearing a "fragmentation vest" and a visor (both damaged). The plastic handle of the detector and the trowel were listed as "broken". The visor was found a metre and a half from the accident site.

By 08:20 the victim was being treated at the Brazilian hospital. His amputation was completed by 10:30 and at 16:00 he was evacuated to Luanda Military Hospital.

The Platoon Commander said the victim was wearing his visor correctly.

The Section Commander said the victim was wearing his visor correctly.

The victim said that his visor was not closed completely but that the accident was his "destiny" because his girlfriend had foretold it.

Conclusion

The investigators found that the victim was only excavating to 5cm which was a breach of SOP (which gives 15cm as the excavation depth). The investigators made a similar excavation to that achieved by the victim in 8 minutes and it took them 24 minutes. From this they concluded that the victim had used unsafe procedures. They decided that the witnesses were standing too close to the deminer and may have distracted him and decided that, "an indicative figure of 5m will be included in the SOP as a safe distance from a working deminer".

They further found that the trowel used for excavation was unsuitable and that the detector was working properly. They also found that some parts of the minefield were inadequately marked due to local people stealing the markers. The base line used by the deminers was not wide enough (at one meter) and it should not have run along the mine belt but should have been parallel to it. They also found that the brigade paramedics were "below the standard required" and the time taken for evacuation to Luanda was criticised.

The investigators added that delays in deminer payment had left some unable to afford food. They were surviving on fruit and water, which had affected morale.

Recommendations

The investigators stated that the "excavation drill needs to be amended for well compacted soil conditions". They advised that future deviations from SOPs must be approved in writing and observed that, this being the second PPM-2 accident inside one month, refresher training was required immediately. They recommended that the supervisors should be "censured" for allowing the victim to excavate using unsafe procedures and that a new "medical plan" for the area must be "established".

Victim Report

Victim number:	76	**Name:**	**[Name removed]**
Age:		**Gender:**	Male
Status:	deminer	**Fit for work:**	not known
Compensation:	not made available	**Time to hospital:**	5 minutes
Protection issued:	Frag jacket Long visor	**Protection used:**	Frag jacket

Summary of injuries:

INJURIES

minor Leg

severe Eyes

severe Face

AMPUTATION/LOSS

Arm Below elbow

COMMENT

No medical report was made available.

Analysis

The primary cause of this accident is listed as a *"Field control inadequacy"* because the victim was working improperly and was not corrected despite being closely watched. The fact that his supervisors did not seem aware that he was working incorrectly implies a failing higher in the management chain responsible for their appointment and training. The secondary cause is listed as *"Inadequate training"*.

The speed at which the victim worked indicates that, when he used water to try to soften the ground to make excavation safer, no time was allowed for the water to permeate.

The five metre distance from a working deminer recommended by the investigators is presumed to have applied to supervisory staff rather than other working deminers.

It is strange that the victim admitted his visor was raised (confirmed by his injuries) but the supervisors were not censured for allowing this to be the case. Either the supervisors were ignorant of how a visor should be worn, or they were trying to conceal their own management failings when they said that the visor was worn correctly.

The failures of management listed by the investigators included poor medical provision, inadequate site marking and apparent "mine-hunting".