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Recommended Citation
Database, Humanitarian Demining Accident and Incident, "DDASaccident040" (1995). *Global CWD Repository*. 240.
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DDAS Accident Report

Accident details

Report date:	11/03/2004	**Accident number:**	40
Accident time:	not recorded	**Accident Date:**	08/03/1995
Where it occurred:	Maganja da Costa, Zambezia Province	**Country:**	Mozambique
Primary cause:	Management/control inadequacy (?)	**Secondary cause:**	Inadequate training (?)
Class:	Missed-mine accident	**Date of main report:**	28/04/1995
ID original source:	AC	**Name of source:**	Other (consultants)
Organisation:	[Name removed]		
Mine/device:	PMN AP blast	**Ground condition:**	metal scrap
Date record created:	22/01/2004	**Date last modified:**	22/01/2004
No of victims:	1	**No of documents:**	2

Map details

Longitude:		**Latitude:**	
Alt. coord. system:		**Coordinates fixed by:**	
Map east:		**Map north:**	
Map scale:	not recorded	**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

inconsistent statements (?)

inadequate investigation (?)

mine/device found in "cleared" area (?)

inadequate area marking (?)

Accident report

No accident report was found on file at the Country MAC or the UN controlled demining group. A brief "Interim Report" was made available in November 1998. A full Accident report was made available by its author in July 1999. The author was a consultant representing the demining group's funder at the time. The later report included very similar text to the brief report and the substance is summarised here.

The investigator visited the site on 23rd March 1995. The mined area was adjacent to an airstrip and a "quite substantial quantity" of PMN and M969 mines had been cleared.

On the day of the accident the demining group's ex-pat country Manager went in to investigate the accident of the previous day (7th March 1995) and confirmed that the mine involved had been a PMN. He found parts of the device that he thought indicated that there had been two mines, but those parts were lost during subsequent events. When he went into the area a second time he spent ten minutes examining the area, then called out for people to gather together for a briefing. Immediately thereafter he was seriously injured by an explosion [no reason why he went back a second time was given]. The coincidental presence of a helicopter in the vicinity (at a commercial demining site) led to a rapid evacuation within 20 minutes of the accident.

The victim was flown to Quelimane hospital in "less than one hour" and flown from there to Johannesburg "at about 16.30". He lost his right leg about four inches below the knee and his right arm about four inches above the wrist. "..he is making a good recovery".

"..circumstantial evidence suggests he was not injured by a mine", but by a booby trap "involving an uncased block of TNT". The presence of a PFM-1 mine in the area was taken as an indication of the possibility of booby-traps [it is not obvious why] and the investigator concluded the victim "was injured by a phenomenon not previously encountered in Mozambique".

The victim said that he was blown into the air by the explosion and landed on his front. "He rolled over to look into the hole caused by the explosion to see if he could find what had happened". He remained conscious throughout and gave instructions on his treatment to the medic.

The victim's apron was bloody but without fragment marks. The investigator said that his visor stayed in place. The accident investigator's time at the site was limited to two hours during which he could find no evidence of the device in the crater left by the explosion. He found that the victim's leg injuries could have been caused by a PMN, but he seemed to think it more likely that the cause was an uncased block of TNT used as a booby-trap of some kind (other "circumstantial" evidence of booby-traps existed). Both the investigator and the surgeons found the victim's hand injuries hard to explain if he had stepped on a booby-trap. If he had been carrying another, smaller device it was felt that the damage might make sense, but the victim claimed to have been walking back to the end of the lane with a prodder in the hand that was damaged. He thought that his hand was behind him when the device went off.

Conclusion

The investigator concluded that "there is no obvious and logical explanation for the injury to his [the victim's] hand. "As far as can be ascertained, there was no error of procedure on his part". He believed that existing SOPs were adequate for the previously perceived threat but should be reviewed to cover the new threat perceived. He recommended that further work at the site should use excavation methods only.

The investigator "found no evidence to suggest that the demining NGO operated in an unsafe way or that their procedures were unsound. However, he did find that the casevac procedures relied on "luck" and that the presence of a doctor to treat the casualty was also a matter of luck.

Recommendations

The investigator recommended that the demining group "reconsider" its casevac and medical arrangements. The grass on the airstrip that would have been used for a fixed-wing evacuation if the helicopter had not been present "may have been too long to allow" a landing. The investigator suggested checking that the air-strip was useable before starting work. He also suggested that the "possible change in threat" meant that the demining group might need to "reallocate a resident EOD trained team member to Mozambique". Also that future work at the site "must" be by excavation, with special care taken to look for "unusual

devices" and wires. A final recommendation was that the accident area should be "re-signed", the originals having been reported stolen.

Victim Report

Victim number:	58	**Name:**	**[Name removed]**
Age:		**Gender:**	Male
Status:	supervisory	**Fit for work:**	not known
Compensation:	not made available	**Time to hospital:**	1 hour
Protection issued:	Short frontal vest Long visor	**Protection used:**	Short frontal vest, Long visor

Summary of injuries:

AMPUTATION/LOSS

Leg Below knee

Arm Below elbow

COMMENT

See medical report.

Medical report

The doctor at Quelimane hospital described the victim's injuries. She said that "his right foot had gone leaving only the flesh of his heel with his lower leg complete down to the ankle joint. The skin immediately above the ankle was heavily marked by black spots. His right hand was damaged severely and although his fingers were intact, his palm flesh had gone and the bones were.... crushed to dust. His fingers were still attached to his lower arm by the skin on the back of his hand. He had no other injuries".

The ICRC surgeon who had undertaken over 200 amputations following mine blasts said:

"In my experience, there is rarely part of the mine case in the body of the victim unless it is a fragment mine. Buried mines with their plastic cases exert their damage from the blast not fragments; it is the earth and stones which are driven up into the body. The case itself either vaporises of forms particles of hot, carbonised material which either sticks to the skin or penetrates not very far. This is evidenced by small black burns around the wound."

Analysis

The primary cause of this accident is listed as a *"Management/control inadequacy"* because the victim was the senior programme manager and was in breach of safe working practice by not checking the accident area adequately with a detector. The Victim was a new arrival and seems to have been inadequately prepared for his role, so the secondary cause is listed as *“Inadequate training”.*

The investigator did not discover that the victim had gone into the accident area without checking it adequately with a detector. His time at the site was limited, but it is unusual for an investigator not to check the area themselves. Clearly he did not do that because 8Kg of metal was found there later.

Related papers

The full internal report included a sketch map of the site and photographs showing the vegetation and marking in use and the victim's armour and visor.

In an informal interview with the demining NGO's country Manager on 16th December 1998, he reported that the mine was believed to have been a "boosted" PMN (boosted with either a second mine or a TNT block). This was inferred from the absence of mine debris in the crater and the severity of the blast injuries. The lane in which the accident occurred was re-cleared and 8 kg of metal recovered – which was so striking that it was kept in the NGO's office for some time. The victim had taken a detector into the lane but obviously did not check it properly or he would have found the metal.

In January 1999 a Technical Advisor with another demining group in the area reported that an NR409 boosted with a 200g block of TNT had been found at the same site.