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DDAS Accident Report

Accident details

Report date: 06/04/2006	Accident number: 299
Accident time: 07:50	Accident Date: 04/08/2000
Where it occurred: Ploughshare Minefield, Mozambique border	Country: Zimbabwe
Primary cause: Field control inadequacy (?)	Secondary cause: Field control inadequacy (?)
Class: Missed-mine accident	Date of main report: 04/08/2000
ID original source: JM	Name of source: Various/AVS 2001:Z06
Organisation: [Name removed]	
Mine/device: M969 AP blast	Ground condition: woodland (bush)
Date record created: 19/02/2004	Date last modified: 19/02/2004
No of victims: 1	No of documents: 1

Map details

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

Accident Notes

no independent investigation available (?)

inadequate investigation (?)

inadequate area marking (?)

Accident report

The following official "accident summary" was made available in January 2001. No other report was made. The summary was compiled by the demining group's site manager on the day following the accident. For obscure reasons, the country manager of the programme edited/censored the content of the following before making it available.

The text has been edited where necessary to conceal the identity of individuals and organisations mentioned by the researcher.

At 07:50 on 04 Aug 2000, Deminer [name withheld by demining group] detonated a mine whilst conducting clearance in the Ploughshare Minefield at UTM 0331525 8209341.

At the time of the accident the Operations Manager and Project Doctor were located at the Operations Base.

I learnt of the occurrence over the radio. I then suspended operations on the other sites. Further information indicated that a deminer had stood on a mine and had lost his right foot.

Dr Chitsama immediately left Operations for the affected site and contacted headquarters in Harare to place MARS (Medical Air Rescue Service) on standby for a possible air-evacuation from Mukumbura airstrip. The casualty was treated on site and stabilised by the paramedics.

Dr Chitsama decided that the casualty would best be air evacuated to Harare by MARS. MARS was contacted again and requested to uplift the casualty from Mukumbura airstrip. Pertinent information required by MARS was provided and Avenues Clinic in Harare was warned to prepare to receive a surgical case.

The aircraft arrived at Mukumbura airstrip at 11:18 hrs and was airborne a few minutes later arriving in Harare at 12:06 hrs. The casualty was immediately transferred to Avenues Clinic where successful surgery was conducted.

On Site Examination

An on site examination headed by [the] Operations Manager and including [the QA] reps was conducted at 11:45hrs.

A deminer was used to clear the 1m wide lane before the investigation team entered the accident area. During this recheck, 22 ploughshare fragments were found. The deminer did not need to excavate for these items and it is assumed they fell from the injured deminer's pouch during recovery.

The area in which the accident occurred, was within the B row of the Ploughshare minefield. A 1m wide lane had been cleared from B3 into the first cluster, identifiable by a picket. The two mines, located at 2 and 5 o'clock had been found and destroyed. Both were M969. The deminer had continued from this cluster for a distance of approximately 15m but he did not find any PSF pickets to guide him. On advice from another deminer in the next lane who had spotted a picket in a different direction, [the victim] started a new lane and began to clear towards the picket just identified.

Marking was clearly visible along the length of the 1m wide lane, excluding approximately the last 8m where no white pegs had been used. All that marked this last 8m stretch was the base stick tape. Full vegetation removal had been conducted, including approximately 1m in front of his base stick.

The detector was set correctly.

The visor was recovered forward of the base stick, almost centrally on the crater. The visor had received blast splatter to the face of the screen. However, the pattern radiated from the top of the visor outwards.

No damage to the vest was identifiable.

The sickle was also located beside the detector, forward of the base stick. The trowel was found approximately 8m back from the crater, within the 1m lane. It is assumed that this was in his pocket and had fallen out during the recovery from the minefield.

The blast crater indicated that the mine was buried and was approximately 40cm in front of the base stick. Evidence of excavation was not noticeable. The crater was conical in shape. The crater was approximately 30cm in width and 5-6cm deep. This would indicate the mine was not deeply buried.

Witness accounts and observations

The deminer was clearing a 1m wide lane at an angle of 50/60 degrees to his original axis. The deminer was in search of the next cluster which was not identifiable by pickets. Another deminer working in B4 informed [the victim] that a picket existed to his 'north'. It is likely he was aiming for this point. During his clearance, the deminer had marked his areas as per SOP, up to 8m before the accident site. The deminer's detector and sickle were positioned forward of the base stick. The vegetation had been removed for approximately 1m in front of the base stick. The location of the crater was forward of the base stick.

Conclusions

From the nature of the accident the following conclusion were made:

- a) The deminer, slightly disorientated by a lack of guiding pickets, had proceeded in the direction of pickets identified by a colleague in B4. During this process the deminer was not expecting a cluster in the area he stood on a mine. It is most likely that the deminer, not expecting a mined area/cluster, was taking shortcuts in his drills to speed up his clearance process.
- b) The deminer was working forward of his base stick, in breach of our laid down SOP's. Evident by the amount of vegetation removed forward of the base stick and the fact that his detector and sickle were positioned, as if placed, forward of the base stick.
- c) From the size and shape of the crater, the mine was quite close to the surface, buried to a depth of approximately 4/5cm. At this depth, all known mine types used in the Ploughshare are detectable with our detectors.
- d) The marking of his 1m lane, in particular, the last 8 meters, was incorrect.
- e) Immediate treatment and casevac from the minefield of the casualty was adequate.
- f) Communications proved to be adequate at the time of the accident and during the casevac to a level 3 establishment.
- g) The casevac system proved to be very effective on site, with the Team Leaders, Paramedics, and ambulance co-ordinating very well to firstly, recover the casualty from the safe breach and secondly, to commence ambulance transportation by road.
- h) Suspension of operations within the other 2 crews was well co-ordinated and controlled.

Recommendations

That decisive disciplinary action be taken against anyone found breaching SOPs. Dismissal is the punishment that would deter would be offenders.

It would appear that this mine accident could have been avoided if the deminer had conducted correct clearance procedures. As a result, the following recommendations are made:

- a. Both manual crews conduct a minimum of 2 hours revision on the following:
 - 1) the marking system
 - 2) process of marking and advancing during clearance
 - 3) investigation of all readings
 - 4) Explanations of working to a patterned minefield and the possibilities of ignoring readings between the pattern

Signed: Operations Manager

[The mine is identified as an M969 by inference from the others found in the vicinity.]

Victim Report

Victim number: 379	Name: [Name removed]
Age:	Gender: Male
Status: deminer	Fit for work: not known
Compensation: not made available	Time to hospital: 4 hours 15 minutes
Protection issued: Frontal apron Long visor	Protection used: not recorded

Summary of injuries:

AMPUTATION/LOSS

Leg Below knee

COMMENT

See medical report.

Medical report

A brief field medical report was obtained from other sources. The following reproduces its content verbatim. The use of *** indicates illegible handwriting.

Details of injury: Traumatic amputation L foot (crush)

Minor bruises ipsilateral L leg

Field management: Pressure bandaging, benzyl penicillin 5th 1ml stat, A** 0.5 ml stat, patient reassurance, IVI fluids with Ringers Lactate solution, Brufen 400g inject, P**** 100g 1ml injects.

Air departure (by MARS) at 11:00. Arrival at 11:45

Theatre time started: 12:40 Theatre time ended: 14:30

Surgical procedure: Definitive surgical amputation L foot.

Post operative management: Debridement of stump in August and October

Addendum: Patient fully recovered. Permanent disability 40%. Prosthesis from [named Doctor].

Analysis

The primary cause of this accident is listed as a "*Field control inadequacy*" because it seems that the victim was working in breach of several SOPs and his errors were not corrected. The method of "chasing" pickets from the Ploughshare mines was questionable, and if commonly practiced (as seems to have been the case) makes it understandable that the victim did not expect danger where there was no picket.

Despite the internal investigation deciding that the MEDEVAC had gone well, the return flight from Mukumbura to Harare took less than 50 minutes, yet there was a four hours and 15 minute delay between the accident and the victim's arrival in Harare. This implies that there was an unexplained delay of over two hours in either calling out the flight or the call being acted upon.

The blast pattern on the visor may indicate that it was upside down, so being carried. It is possible that the victim suffered injuries not recorded in the edited report made available by the demining group's country manager.

The accident investigation is considered inadequate because it was censored prior to being made available.