3-10-2000

DDASaccident270

Humanitarian Demining Accident and Incident Database
AID

DDAS Accident Report

Accident details

Report date:	18/05/2006	**Accident number:**	270
Accident time:	13:10	**Accident Date:**	10/03/2000
Where it occurred:	Plowshare minefield, Mukumbura	**Country:**	Zimbabwe
Primary cause:	Unavoidable (?)	**Secondary cause:**	Unavoidable (?)
Class:	Excavation accident	**Date of main report:**	[No date recorded]
ID original source:	none	**Name of source:**	KMS
Organisation:	Name removed		
Mine/device:	R2M2 AP blast	**Ground condition:**	woodland (bush)
Date record created:	18/02/2004	**Date last modified:**	18/02/2004
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

long handtool may have reduced injury (?)

no independent investigation available (?)

squatting/kneeling to excavate (?)

Accident report

At the time of this accident the demining company operated in two-man teams using a one-man drill. One deminer looked for tripwires, cut undergrowth, used the detector and excavated finds while the other watched from a safe distance and "controlled" him. The group issued frontal protection and their drills assumed that the deminer would kneel or squat while excavating.

The demining group were clearing the Zimbabwe/Mozambique border minefields known as the "Cordon Sanitaire" and the "Plowshare". The detector used was a Vallon with a folding handle.

An internal accident report dated was made available in December 1999 along with a Quality Assurance team report. The following summarises their content, with additions from interviews with the investigators during a site visit by the researcher in April 1999.

The victim initiated a mine at 13:10 while he was prodding to investigate a detector reading. His visor and apron "absorbed the blast", with the visor being torn off and landing in an uncleared area 8m away. The prodder had not been found at the time the report was written [it was found and photographed later].

The victim sustained minor injuries to his left arm and fractured the little finger on his left hand. After the accident he stood up, turned and walked a few paces and fell over, injuring his lip as he did so. The original report mentioned a forehead injury and this believed to be the lip injury because it is not mentioned again – see “Related papers”]. The victim was evacuated by road with the site doctor in attendance.

Work at the site ceased and the personnel underwent refresher training. Work was scheduled to restart as soon as the responsible authorities gave their approval.

A site examination was carried out immediately after the accident and the investigators determined that the mine was an R2M2, and that the size of the crater indicated that it was buried deeper than usual.

The investigators described the actions carried out by the demining group after the accident as an immediate site shutdown followed by an accident investigation including taking statements from witnesses. Then crew re-training began. This involved briefing of all personnel on the probable cause of the accident, on mine marking procedure, prodding drills, correct wearing of protective equipment, use of water for prodding on hard ground, and Medevac procedure.

Conclusion

The investigators concluded that the indirect cause of the accident was the "incorrect action" of "prodding directly on the top of the mine as opposed to prodding towards the mine from the rear at the specified distance and correct angle". It was stated that this conclusion was drawn from witness statements and the on-site investigation, and that there was no forensic or scientific evidence to prove or disprove it. The investigators decided that the probable cause was an error of judgement by the deminer. They found that all safety measures were in place and that procedures worked "extremely well".

Recommendations

The investigators recommended that the following required investigation: the inexperience of the operator; his time in the minefield prior to the accident, his fatigue, heat, rations and water intake; adequate supervision, and the possible inadequate marking of the mine's position.

Victim Report

Victim number: 344

Name: **Name removed**

Age:

Gender: Male

Status: deminer

Fit for work: yes

Compensation: not made available

Time to hospital: not recorded

Protection issued: Frontal apron
Long visor

Protection used: Frontal apron, Long visor

Summary of injuries:

minor Arm

minor Face

severe Hand

AMPUTATION/LOSS

Finger

COMMENT

No medical report was made available. His finger was amputated surgically much later, see "Related papers".

Analysis

The primary cause of this accident is listed as *"Unavoidable"* because the victim appears to have been working as directed according to the SOPs when the accident occurred. His injuries were inconsistent with prodding at a steep angle. His left hand was guiding the probe (so resting on the ground) and was injured. His right hand holding the probe was uninjured. The left hand was unprotected and very close to the initiation so some injury may have been expected.

The victim's 18" (15cm) prodder (made locally) was bent by the accident but remained in one piece.

Several other excavating accidents occurred in this mined area within weeks of this one. The area being cleared was the densest minefield yet tackled in the history of humanitarian demining with more than 3000 AP mines per kilometre and as many as 200 mines being found each working day.

The demining group was new to the industry at the start of the contract and had attracted some press criticism. The management had shown an unusually high level of concern to protect its workers, had corrected early errors and had successfully limited the severity of most of its accidents. Management had demonstrated an eagerness to improve all aspects of its work.

Related papers

A covering letter, dated 19th March 1999, stated that the victim was a "walking patient" in a hospital in Harare and that it was expected he would soon be discharged. A later paragraph made the point that in removing 1,000,000 mines, this would not be the last accident "unless we change our contract and go from manual clearance methods to mechanical clearance ones".

A letter from a senior TA to the demining group's HQ, dated 11th March, mentioned that the accident occurred in the PSF [Plowshare field] and happened about 6m from the picket on the defending side of the field [an unexpected place].

In a private interview the investigator said that the victim had stood up after the accident, started to walk, then fallen flat on his face. His lip was cut at that time.

The victim was interviewed on 10th March 1999 in Harare and photographed reproducing his working position. He said that the accident occurred while he was prodding.

He had found no other mines that day. He was approaching a plowshare picket from the side and was getting many detector readings. The plowshare mine was no longer on the picket.

He found a fragment five centimetres away but the detector reading that turned out to be the mine was different. He claimed to be able to tell the difference between the signal from a fragment and that from a mine. When he started to excavate the last reading he knew he had found a mine and was cautious. It was the sixth mine he had found since starting work as a deminer. Aged 29, he started training on 18th January 1999. He showed his injuries which were a small cut on the lip, a severe scar on the side of his left hand extending from the palm down the little finger and scarring on his upper right arm - and had no sign of a forehead injury. All injuries were healed except the finger which was swollen and still bandaged. He said he intended to return to work as soon as possible and expected that to be within two weeks.

The victim's visor, apron and prodder were photographed. The armour had splinters of the end-of-lane marker stick in the cover but they did not penetrate the first layer of aramid (16 layers in all). The visor was heavily scarred and certainly protected him from severe eye injury. The locally made prodder was curved but intact.

The demining group's site manager reported on 18th July 1999 that the victim's finger had contracted and curled towards his palm. As a result the victim had elected to have the finger surgically amputated so that he could return to work more quickly.