DDAS Accident Report

Accident details

Report date:	22/01/2004	**Accident number:**	11
Accident time:	13:14	**Accident Date:**	27/04/1999
Where it occurred:	Kapfudze Village, Mukumbura	**Country:**	Zimbabwe
Primary cause:	Management/control inadequacy (?)	**Secondary cause:**	Inadequate training (?)
Class:	Handling 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:**	not applicable
Date record created:	11/01/2004	**Date last modified:**	22/01/2004
No of victims:	2	**No of documents:**	3

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

inadequate training (?)

visor not worn or worn raised (?)

safety distances ignored (?)

inadequate investigation (?)

no independent investigation available (?)

inadequate area marking (?)

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 demining group destroyed mines that could readily be disarmed by the removal of their booster charges (R2M2 and VS50 blast mines) and burning the parts at the end of the day.

The picture above shows mines brought to the demolition pit in such numbers that a stretcher was used.

An internal demining group "Memo" on the accident was made available for inspection in December 1999. The Memo was a report by the Site Supervisor on the accident and its causes. The following report is derived from the content of the Memo and from interviews taken during a Site visit by the researcher on 29/30th April 1999.

The demining group were clearing the Zimbabwe/Mozambique border minefields. The detector used was a Vallon with a folding handle. Deminers reported being poorly paid at the time and morale was low. The site management was intensely unpopular and seen as having little relevant background in humanitarian demining.

The Site Supervisor reported that Victim No.2 had neutralised an R2M2 mine in accordance with SOPs and noticed that the booster charge he had removed was held in an unusually shaped plastic housing. The housing had a larger rim than usual with three holes in it. He took the mine and its booster and placed them in the demolition pit, which had a separate area for boosters.

Victim No.1 was supervising the demolition and had just returned from gathering wood to use in the demolition fires and was not wearing any protective equipment. He placed the wood and noticed the unusual booster. He called Victim No.2 and asked which mine the unusual booster had come from. Victim No.2 identified a mine. Victim No.1 then took the mine from the pit and held it in his left hand with the booster in his right. He inspected the booster-well of the mine while holding it correctly from the sides. Victim No.1 then started to screw the booster back into the mine.

Victim No.2 had moved "about 4m" away and raised his visor. He saw what Victim No.1 was doing and shouted a warning. The mine exploded at 13:10 and traumatically amputated both of Victim No.1's hands. He also suffered light body injuries and "lacerated eyes". Victim no.2 received a minor eyelid and a minor leg injury.

A VHF hand-held radio that was being carried by Victim No.1 was damaged in the blast.

Other [unofficial] reports indicated that the mine may have brought to the demolition pit with its booster charge in place and that Victim No.1 was attempting to unscrew the booster when the accident occurred. [It would have been a breach of SOP to move the mine without first disarming it, so the truth may have been concealed.]

The site paramedics attended the victims within 3 minutes and the victims were taken to the site medical facility after a further 10-15 minutes.

The Site Supervisor then gave immediate instructions for the site to be shut down and the scene of the accident to be untouched pending an investigation [which he later carried out himself with two representatives of the QA team].

An air Medevac was requested by satphone at 13:30. Victim No.1 was transferred between ambulances en-route to the airstrip and it was then decided to cancel the call for Medevac and drive the victim to Karanda Hospital because that would be quicker. The air Medevac was cancelled at 13:45.

The investigators felt that the experience and technical knowledge of the operator may have been a contributory factor [presumably the lack of these] along with fatigue because the accident occurred at the end of the working day. Protective equipment [its lack] and "adequate supervision" were also identified as possible factors influencing the accident.

Statements were taken from eye witnesses [these were not made available] and the deminers began an immediate period of refresher training.

Conclusion

The Site Supervisor concluded that accident had been caused by "a momentary lack of concentration" on the part of Victim No.2. He stated that "…the Team Leader carried out an action which if he had been aware of the consequences he would never have carried out in the first place".

Recommendations

The Site Supervisor recommended that routes around the mined area should be correctly marked [presumably they were not], and that "each clearance team should have its own properly marked storage area for mines and boosters to minimise movement".

Victim Report

Victim number: 21 **Name:** [Name removed]

Age: **Gender:** Male

Status: supervisory **Fit for work:** DECEASED

Compensation: not made available **Time to hospital:** not recorded

Protection issued: Frontal apron **Protection used:** Frontal apron

Long visor

Summary of injuries:

INJURIES

severe Eyes

AMPUTATION/LOSS

Hand Both

COMMENT

See medical report.

Medical report

No formal medical report was made available: see Accident report. The Site Supervisor (a trained medic) described Victim No.1's traumatic amputations as "clean", taking both hands off at the wrist, and the eye injury as "definitely blind".

Victim No.1 was still in a local hospital on 30th April 1999 but on the researcher's recommendation was moved to Harare for his eyes to be examined for possible penetrations.

In 2001, another Site Supervisor at the time of the accident (still living in Zimbabwe) reported that the victim has killed himself as a result of being unable to live with his injuries. [See also “Related papers”.]

Victim Report

Victim number:	22	**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

Summary of injuries:

INJURIES

minor Eye

minor Hearing

minor Leg

COMMENT

See medical report.

Medical report

No formal medical report was made available: see Incident report and Other documents.

Victim No.2 was interviewed by the researcher at the demining site on 30th April 1996. He showed a damaged eyelid and a dressing on his lower leg. He also complained of ear pain but not hearing loss. The site doctor was present. He was already at work with light duties (not demining).

Analysis

The primary cause of this accident is listed as a *"Management/control inadequacy"* because (whichever version of events was true) Victim No.1 was in breach of safety SOPs and caused the accident by acting in an inexplicable manner, yet he was in a supervisory role. Victim No.2 should not have raised his visor while still in the working area.

Deminers in this group were allowed by the Site Supervisor to wear visors raised despite the fact that the visors issued were designed to be locked down. Raising them by force breaks the head-frame. The Site Supervisor did not respond to suggestions that his actions regarding

visors might have been irresponsible. There are three groups on adjacent sites (all the same demining company) at least one of which has no problem wearing visors down. These differences imply a lack of cohesion and integrated policy that is also a management failing.

The Site Supervisor stated that Victim No.2 would not have taken the action "if he had been aware of the consequences". This implies that he was not aware of the risk and so was inadequately trained. There was a suggestion from others that low pay rates and poor conditions led to few experienced men working on the site, and that some supervisors were inadequately trained for their role. If so, this management failing is reported to have been addressed soon thereafter.

Related papers

An internal report from for the demining group was made available. It stated that the accident occurred at 13:14 and the site was closed down at 13:15. Victim No.2 was treated at the field medical unit.

In an interview with the demining group management in December 1999, they stressed that deminers are paid *a minimum* of US$150 per month, have one week off in every eight weeks and enjoy good working conditions. They agreed that many deminers were inexperienced when recruited, but pointed out that "the majority of deminers have now cleared more than 100 mines each".

The researcher has dismantled many R2M2 mines in order to make detector test-pieces (some shown below).

In several cases the ball bearing mechanism has jammed and although the balls are lined up with their exit holes, they have not moved sideways to allow the spring-loaded pin to drop. In these cases, they could move at any time – which may explain why the mine went off as the supervisor screwed the booster charge back in. The picture alongside shows the mechanism with the pin just visible above the detonator.The picture below shows the fuze assembly complete with detonator.

The demining group declined to give any details of compensation, which was reported to have been miserly. The victim is reported to have committed suicide [confirmed by second source] as a result of being unable to keep himself clean without his hands.