DDAS Accident Report

Accident details

Report date:	07/03/2011	**Accident number:**	707
Accident time:	09:00	**Accident Date:**	01/05/2006
Where it occurred:	Urumpirai 4a, Jaffna	**Country:**	Sri Lanka
Primary cause:	Field control inadequacy (?)	**Secondary cause:**	Field control inadequacy (?)
Class:	Excavation accident	**Date of main report:**	Not recorded
ID original source:	EM01	**Name of source:**	Demining group
Organisation:	[Name removed]		
Mine/device:	Type 72 AP blast	**Ground condition:**	building rubble hard rocks/stones
Date record created:		**Date last modified:**	07/03/2011
No of victims:	1	**No of documents:**	1

Map details

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

Accident Notes

no independent investigation available (?)

mechanical follow-up (?)

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

visor not worn or worn raised (?)

handtool may have increased injury (?)

metal-detector not used (?)

squatting/kneeling to excavate (?)

Accident report

A report of the accident was made available in 2010. The date of the accident is uncertain (Month certain}. The report is reproduced below, edited for anonymity.

This report will be updated if more information becomes available.

Internal report

The investigators visited the site on the same day as the accident for one hour and visited again a few days later.

Weather: Hot, sunny, good visibility, mild.

Ground conditions: Stony, clay, rubble. Vegetation already removed by mechanical methods.

Details of Victim: Name: [Name removed]. Occupation: Deminer. Age 26. Gender: Male. Experience: at least one year as a deminer.

PPE Issued: Frontal apron, Long visor. PPE used: Frontal apron

Damage to equipment: PPE vest unserviceable; PPE visor rendered unserviceable but no damage; trowel bent

Injuries: Damage to both eye resulting in total loss of vision in left eye, full recovery of right eye, minor hand damage, some cuts and bruising to neck and forearms.

Description of the events surrounding the accident: Manual excavation mine clearance on a portion of a linear minefield.

It was a normal working day.

History of the worksite: The SLA had laid this minefield to trap surrounded LTTE from escape to the Vanni, along the Jaffna - Palali road. It was a dense minefield of P4 (AP) and Type 72A (AP) laid in a crow's feet pattern. It had been cleared by the SLA using the rake method however clearance was incomplete and even in portions that had received clearance, accidents occurred and missed mines were found.

It is worth noting that the accident occurred in a portion of the minefield that, although along the mine line, seemed to have been cleared. Only sporadic mines had been found within 25m of this portion.

Description of the worksite: The worksite was within a suburban environment: a few hundred metres astride the main road, there was a minor tarmac road <50m from the accident site, and several buildings nearby. Of note this accident occurred in a disused area of thick vegetation near an old damaged building, and there was a lot of rubble and stones in the ground.

Methods used at the site at the time of the accident: Manual excavation assisted by (non intrusive) mechanical vegetation removal using a Bomford cutter. The use of detectors was not efficient due to high metal contamination. In places further along the minefield, the soil was so hard packed that machines were used to excavate and process ground as a method of primary clearance.

Activity of each person involved at the time of accident: The Victim said he was demining and thought it was working time, although the timing (regarding break or working hours) of the accident has not conclusively been confirmed.

Procedures and equipment in use at the time of the accident: Sideways [area] excavation using simple garden tools. PPE as per [Demining group] standard issue: full length face visor with single clip on headband, PPE covering torso and groin only. Deminer issued with working clothing (T-shirts, boots, heavy duty trousers).

The mechanical vegetation removal was done with a medium tractor using a Bomford cutter, several days previously.

There was a team leader (in charge of 3 sections) and 1 section commander and 2IC (in charge of up to 8 deminers) on site, so supervision levels met [Demining group] SOPs.

Events at the worksite leading up the accident: Nothing out of the ordinary. Nobody saw the accident and the team leader and section commander both claimed to have performed supervision of the lane (at least once for every working period by the SC).

There is confusion about the timing of the accident with some witnesses saying it took place before the start of work whistle, whilst the deminer says he thought it was work time. Either way, nobody saw the accident and the deminer was slightly out of view from the next 2 lanes (at least 25m spacing).

Events following the accident: Accident reaction was good. The PM was informed within 5 minutes and was on scene within 30 minutes. He saw the ambulance on its way to the Jaffna Teaching Hospital but decided to continue to the site as the casualty was reported to be stable. He reported the accident immediately to the DMAO and the UNDP Technical Advisor. He spent around 1 hour at the site speaking with the TL and SC who were still there. He then went to the hospital to check on the casualty who was undergoing treatment for eye trauma.

The casualty was transferred to Colombo for specialist treatment where they managed to save his right eye.

The casualty was later discharged from deminer duties with an insurance payout and reportedly left the country.

Statements: Kept on [Demining group] files.

Investigator's summary

The deminer was suspected to have applied too much force in stony ground.

The visor was at the side of the lane with no damage. It is strongly suspected that it was not used at the time of accident. It is possible that the deminer was poking his lane during a break-time, or that he was not wearing it at all during work.

Given the time of day and temperature, fatigue is not thought to be a contributing factor.

There was ambiguity about the working time whistle blasts, this may have occurred because of post-accident confusion.

The reaction of the team was good and the casevac worked well.

An investigation was conducted within the hour and external and internal investigators visited the scene of the accident in the same day.

The investigation by DMAO with UNDP TA and the [Demining group] PM concluded that training, procedures, and equipment were probably not at fault. [Demining group] conducted refresher training and disseminated to all TLs/ SCs the need to maintain a regular schedule of observation of deminers, and to ensure that they rest away from their lanes during the rest period.

[Demining group] PM stood down all deminers the following day to allow for a proper ‘soak period’ to discuss possible further action with [Demining group] HQ/ UNDP/ DMAO etc.

Investigator’s recommendations

Deminers to be reminded not to use excessive force in stony ground.

Use of mechanical excavation to be maximised in such ground.

‘Zero Tolerance’ to any investigation outside of working times, or to non-wearing of PPE.

Refresher training on supervisory functions of SC/ PC.

Victim Report

Victim number:	893	**Name:**	[Name removed]
Age:		**Gender:**	Male
Status:	deminer	**Fit for work:**	yes
Compensation:	Not made available	**Time to hospital:**	less than 60 minutes
Protection issued:	Short frontal vest Long visor	**Protection used:**	Short frontal vest

Summary of injuries:

INJURIES: minor Arm, minor Hand, minor Neck, severe Eye

AMPUTATION/LOSS: Eye Left

COMMENT: No Medical report was made available.

Analysis

The primary and secondary causes of this accident are listed as *Field Control Inadequacies* because the field control systems allowed ambiguity about working periods and allowed the Victim to work in the hazardous area without wearing his visor. The demining group management reacted promptly and addressed the field control problems in a professional manner.

The handtools in use did not meet the IMAS recommendations for blast resistance and may have contributed to the victim’s injuries.

The frontal apron favoured by the demining group does not include a collar that interfaces with the visor, which is a breach of the IMAS 10.30 requirements for PPE designed to be used with a visor. The absence of the collar may explain the neck injuries.