

DDAS Accident Report

Accident details

Report date: 31/07/2006	Accident number: 424
Accident time: 09:30	Accident Date: 05/08/2004
Where it occurred: DMAO Task No 35/03, VA-20. Vankalai, Mannar District	Country: Sri Lanka
Primary cause: Victim inattention (?)	Secondary cause: Other (?)
Class: Handling accident	Date of main report: 08/08/2004
ID original source: [Name removed]	Name of source: [Name removed]
Organisation: [Name removed]	
Mine/device: P2Mk2 P4Mk1 AP blast	Ground condition: dry/dusty hard
Date record created: 28/07/2006	Date last modified: 31/07/2006
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

inadequate investigation (?)

Accident report

Apparently, no formal Board of Inquiry report was carried out by the National Mine Action Authority. An internal demining group preliminary report was made available in August 2005. That report is reproduced below, edited for anonymity.

Details of Demining Accident

1) The Indian Demining team [Name excised] (OPCEM) has been tasked to carry out Technical Survey and Mine Clearance of DMAO Task No 35/03, Dangerous Area No VA-20 (Thomasपुरi, Bastipur and Suganthipur) at Vankalai, District Mannar.

2) The Task commenced on 29th Apr 2004. On 5th Aug 2004, while carrying out the task, a demining accident involving an anti-personnel mine P4 Mk1 occurred in the working lane being cleared by Team No 2 of the [Name excised] demining group.

3) Team No 2 was working to establish the location and direction of the Mine Strip No 2 in the minefield HM-5 in area Thomaspuri. [The victim] was the Team Leader of Team No 2. One sub team of Team No , under supervision of [the victim] was clearing the working lane. Deminer [name excised] (mine detector operator) located a metal/mine signal. He immediately marked the location and informed the Team Leader. Then he withdrew to a safe distance. [The victim] Team Leader approached the marked location, searched for and recovered an anti-personnel mine P4 Mk1. He tried to neutralize the mine in situ. Since he could not remove the detonator of the mine while in the lane, he decided to come behind in the already cleared safe lane and remove the detonator. While he was getting up from the kneeling position [the victim] slipped, lost his balance and the recovered mine fell down from his hand. [The victim] in a bid to regain his balance inadvertently stepped on the fallen mine and the mine exploded, thereby causing injury to his right foot.

Injuries/Damage

4) Deminer. [The] following injuries to [the victim's] right foot have [been] diagnosed by the Medical Officer of Government Hospital, Mannar.

a) laceration of the distal part of the sole of the right foot and multiple lacerations at the roots of the toes.

b) Fractures of bodies of all the metatarsals of the right foot.

c) Fractures of the proximal phalanges of the 1st to the 4th toes of the right foot.

d) Dislocation of the ankle with talus slipping forwards.

5) Damage to private property: nil.

6) Any other individual: none

7) Damage to demining equipment: the mine boot worn on right foot by [the victim] was damaged. No other equipment was damaged.

Experience of deminers

8) All deminers are ex Indian Army personnel having adequate experience in handling live mines, which includes arming and disarming. A training capsule of five weeks duration was conducted in Pune, India during April-May 2003 for re-orientation of the deminers to train them in the procedures of humanitarian demining. As most of the deminers had worked for a period of six months from June 03 to December 03 at Vavuniya to demine the Poorsankulam minefield, they had also gained proficiency in Humanitarian Demining.

9) [The victim] had served for 28 years in Corps of Engineers, the arm which deals with mine warfare. He has attended Combat Engineers Instructors Course and was an instructor in College of Military Engineering (Combat Wing). He was selected as Team Leader based on his experience and expertise in mine handling and demining.

Demining Timings

10) The work timings of [demining group] Demining Teams are as follows:-

a) 06:30 - Commencement of the work for the day

b) 08:00 – 08:30 Breakfast break

c) 10:00 – 10:30 Soft drink break

d) 12:00 – Stop work for morning shift

e) 12:00 – 16:00 – Lunch and rest

f) 16:00 – 18:00 – Evening shift

g) Rotation of sub-teams is done every 30 minutes.

Leave

11) After first demining project, the team had a break of four months (December 03 to March 04), and current project commenced on 29th April 2004.

Monitoring Procedure

12) Frequent visits by QA team ex DMAO, Vavuniya take place and in addition internal QA checks are carried out regularly by the demining team. Last external QA monitoring was done by QA team, ex DMAO, Vavuniya on 30th July 2004. There were no major observations made by the QA team regarding working procedures of the Organisation. Internal QA check was carried out by the Vice Chairman of this organisation during his visit to work site on 4th August 2004.

Demining and Safety equipment

13) Demining equipment used by the group is given below:-

a) Personal Protective Equipment (Visor – LBA International Ltd, Blast proof jacket – LBA International Ltd/ Star Wire, India, Mine Boots – BFR Global Ltd, Hong Kong.

b) Schiebel ATMID Mine Detector.

c) Hand tools (Prodder, Trowel, Bush Cutting Tools).

d) Engine driven bush cutter.

140 The photographs of the damaged mine boot are attached.

15) BFR mine boot has proved to be very effective in reduction of injuries. From the photographs it can be seen that though extensive damage was caused to outer sole, the inner sole remained intact, thereby reducing intensity of shock wave generated.

Medical

16) Sequence of event. The sequence of events from the time of the accident to the time the victim reached Government Hospital, Mannar, where adequate medical facilities were available, is as given below:-

a) 08:30 – Demining work recommences after breakfast

b) 09:30 – Mine accident occurs

c) 09:45 – Casualty evacuated and reaches Medical Aid Post

d) 09:55 – Ambulance with casualty starts from work site

e) 10:15 – Ambulance reached government hospital, Mannar

f) Hospital staff commences further actions for admission and treatment.

17) Medical treatment

a) **On site.** Immediate first aid in the form of application of speed splints to right foot and stabilisation was carried out by the Doctor of the organisation. The casualty accompanied by the Doctor was then evacuated by Government Hospital, Mannar.

b) **At Government hospital, Mannar.** 05 August 2004: surgery for reduction of fractures and dislocation. Monitoring by surgeon. 06 August 2004: review by surgeon. Casualty referred to Government Hospital Anuradhapura for Specialist Orthopaedic opinion and treatment, if required.

Minefield related details

18) Ground and weather condition

- a) **Weather.** Fair, with moderate temperature.
- b) **Soil condition.** Hard and dry clay.
- c) **Vegetation.** Medium size grass, thorny bushes and palm trees.

19) **Minefield record.** Not known. Minefield records are not available of minefield HM-5. Impact survey was made available by DMAO, Vavuniya. On enquiring villagers revealed that a number of cattle accidents have occurred in this area. Some villagers were known to have removed some mines. Exact number of mines removed is not known. The minefield runs along the Defence Bundh in northerly direction.

Findings of the investigation

20) After careful investigation, interaction with individuals involved and visit to the accident site, the findings are as under:-

- a) The accident occurred on 05 August 2004 at about 09:30 Hrs in the Minefield No HM-5 (Thomaspuri, Vankalai, District Mannar. DMAO Task No 35/03, Dangerous area No VA-20) during demining operations being carried out by [demining group] due to an anti-personnel mine (P4Mk1) blast under right foot of [the victim]. Only one person was injured.
- b) The injury was caused due to the blast effect. Details of injury are given in Para 4. The casualty is classified as Priority "three".
- c) There is no damage to any private property or to any civilian.
- d) The level of training and experience of [the victim] is sound.
- e) The current demining operation has commenced recently, on 29th April 2004 after a break of four months.
- f) On 5th August 2004, the work starting in the morning at 06:30 Hrs. There was a break of 30 mins from 08:00 Hrs to 08:30 Hrs for breakfast. The work resumed at 08:30 Hrs.
- g) The QA monitoring was carried out by QA team ex DMAO, Vavuniya on 30th July 2004. Frequent internal QA checks have been carried out to evaluate standard of demining.
- h) The deminers of the team consist mainly of ex-Corps of Engineers personnel who are trained for carrying out humanitarian demining. In addition, the team has undergone a refresher training from 25th to 28th April before commencement of the current project.
- i) All Personal Protection Equipment as per SOP was worn by [the victim] and all other deminers properly at the time of the incident.
- j) Use of mine boots has apparently contributed to reduction of injury to a great extent and limited it to only fractures and avoided possible amputation. The photograph of the damaged mine boot worn by [the victim] is attached.

[This is a picture of the kind of boot worn.]



[This is the picture of the BFR boot worn during the incident – as attached to the report.]



K) Medical attendance/ treatment and evacuation of the casualty were adequate.

l) Actions of [the victim], a team leader, were in accordance with the SOP.

m) Injury to [the victim] was due to accidental reasons.

Victim Report

Victim number: 566	Name: [Name removed]
Age: 48	Gender: Male
Status: supervisory	Fit for work: yes
Compensation: SL Rs 611142.8	Time to hospital: 45 minutes
Protection issued: Long visor Frag jacket	Protection used: Long visor, Frag jacket

Summary of injuries:

INJURIES

severe Foot

COMMENT

See medical report

Medical Report

No medical report was made available. The following diagnosis was made by the Medical Officer of Government Hospital, Mannar.

- "a) laceration of the distal part of the sole of the right foot and multiple lacerations at the roots of the toes.
- b) Fractures of bodies of all the metatarsals of the right foot.
- c) Fractures of the proximal phalanges of the 1st to the 4th toes of the right foot.
- d) Dislocation of the ankle with talus slipping forwards."

In a 2006 email exchange with the demining group management (on record) the victim's date of birth was given as 23rd November 1955. "was operated four times in India after 8th Aug 2004. Subsequently he was given physiotherapy treatment also." The victim "received SL Rs 611142.8 from Sri Lanka Insurance Corporation Ltd" in compensation. "He has started a 'bakery items' shop in his place of residence".

Analysis

The incident is listed as a "*Handling accident*" because the victim was moving the live mine when the accident occurred. The primary cause is listed as "*Victim Inattention*" because it seems that the victim stumbled, dropping the mine as he did so. When attempting to recover his balance he stepped on the mine.

The mine contains 30g Teteryl as its main charge. It was on the surface of ground described as "hard" and "dry". It is possible that the blast vented from the sides and so the exposed position of the mine may have contributed to the unexpectedly reduced injury. None the less, it is possible that the presence of the boot helped to limit injury.

That said, it is also possible that wearing the raised boot (with limited ground-surface "feel") led the victim to stumble in the first place. See DDASaccident342 for the result when another mine boot detonated a mine with a similar explosive content when the mine was below ground.

The incident is recorded as having had an "inadequate investigation" because no independent investigation was carried out.