DDAS Accident Report

Accident details

Report date:	12/02/2008	**Accident number:**	564
Accident time:	08:10	**Accident Date:**	21/01/2008
Where it occurred:	MF: VA 369, Katpagapuram, Vavuniya District, Northern Province	**Country:**	Sri Lanka
Primary cause:	Field control inadequacy (?)	**Secondary cause:**	Victim inattention (?)
Class:	Excavation accident	**Date of main report:**	12/02/2008
ID original source:	VAV/08/001	**Name of source:**	[Name removed]
Organisation:	[Name removed]		
Mine/device:	P2Mk2 P4Mk1 AP blast	**Ground condition:**	grass/grazing area
Date record created:		**Date last modified:**	12/02/2008
No of victims:	1	**No of documents:**	2

Map details

Longitude:		**Latitude:**	
Alt. coord. system:		**Coordinates fixed by:**	
Map east:	E 0162182	**Map north:**	N 0395389
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

disciplinary action against victim (?)

handtool may have increased injury (?)

no independent investigation available (?)

squatting/kneeling to excavate (?)

visor not worn or worn raised (?)

Accident report

The report of this accident was made available in February 2008. Its conversion to a DDAS file means that some of the original formatting has been lost. The substance of the report is reproduced below, edited for anonymity. The original file is held on record. Text in [ ] is editorial.

Internal Accident report

Ref: VAV/08/001

21 January 2008 in Katpagapuram Vavuniya district

1. INTRODUCTION

This accident report has been written in accordance with the [International demining NGO] SOP 15 (Accident investigation).

1.1 The accident occurred at approximately 8.10 am on Monday 21st January 2008 at [International demining NGO] demining site, located in Katpagapuram in the Vavuniya District of Northern Province of Sri Lanka (E 0162182 N 0395389). The team has works in this heavily minefield since 66 days and has recovered more than 945 AP mines. There were no direct witnesses to the accident.

1.2 According to the deminer statement: He starts his work. At 6.45 AM. After short break for 15 minutes from 7.30 to 7.45 he restart his work and found an AP mine approximately at 7.55 AM .The mine was RSP by the team Leader and he restart his work after few minutes his detector indicate a signal and after pin pointing the signal he use the prodder and start excavating the ground with his shovel. While he was excavating his visor fall down and simultaneously he activate the buried mine with his shovel. (See statements Annex B).

2. GENERAL INFORMATIONS

2.1The accident crater was approximately 47 cm in front of the base stick, and ground checked by the deminer. The crater has a depth of 9 cm and a diameter of 18 cm. This indicate that the mine was buried below the surface. Excavation of the crater revealed fragments of a Pakistanis P4 Mk1 antipersonnel blast mine (Technical Details of P4 MK1 Anti Personnel Mine on Annex D)

2.2 The mine was activated by the shovel hold by the of the deminer's right hand. The casualty sustained laceration and foreign body perforation on his right hand and foreign body projections in his left eye and all over his face. The surgeon who conducted an exploratory procedure found foreign objects in the left eye and decide to transfer [the Victim] to an eye specialized service in Anuradhapura Government hospital. The deminer was transported by road by the Vavuniya Government hospital at 10.30 AM (See medical report Annex E).

2.3 There was no damage caused to any [International demining NGO] equipments or private property. The visor (outside/inside) part has no damage or alteration resulting to the blast or projection of plastic parts from the mine body or soil. Only the deminer's shovel was damage due to the blast. The results of the blast and projection of explosive dust, soil and plastic are visible on the superior right parts of the PPE collar protection

[The PPE after the accident is shown below.]

2.4 T [The victim] had successfully completed the [International demining NGO] basic deminer course on December 2002 and had participated to Deminer refresher courses in: January 2004, February 2005, January 2006, January 2007 .Recently from 07 January to 11 January 2008.

2.5 Deminers had started work at the site at 6.45am. The accident happened at 8.10 am. There had been 1 rest period from 7.15 up to 7.30 am. The morning is a relatively cool part of the day. The next scheduled break for the deminer was a 30-minute break at 8.30am –9.00 am for breakfast.

2.6 A DMAO QA evaluation was conducted on 16 January 2008.

2.7 1 ambulance and 2 trained medics with fully equipped trauma kit were available on site. The medic and ambulance reached the deminer within approximately 4 minutes of the detonation. He was immediately given first aid and evacuated to Vavuniya Government Base Hospital, in accordance with the casualty evacuation drill. The medic acted professionally, quickly and in accordance with his training.

2.8 The area where the deminer was working is a heavily mine area. Mines are laid in 4 lines in a regular T shape pattern with approximately 0, 85 m intervals between mines. The mines are mostly buried at 3 to 5 cm bellow the surface

2.9 The weather was good at the accident time no strong wind or heavy temperature was reported. There is no evidence of, or reason to suspect, that drugs, medication or alcohol contributed towards the accident.

2.10 The deminer had no known health concerns prior to the accident. During the refreshing training In January 2008 he has passed a complete medical check given by surgeon working in Vavuniya government hospital .Nothing special was reported

2.11 Drinking water is available at the site. All deminers have water available and are encouraged to drink as much as they need. Deminers are supplied with breakfast package

delivered in the minefield by [International demining NGO] office. Covered rest areas are established throughout the minefield.

3. TECHNICAL INFORMATIONS

3.1 The Deminer had 5 years experience he had in the past showed his lack of adherence of the [International demining NGO] SOP and was reprimanded two times in 2004 and 2006.

On 03 September 2004 [the Victim] had received a warning letter from [Name removed] [International demining NGO] Project Leader due to no satisfactory working standards in the minefield

On 28 February 2006 [the Victim] had received a warning letter from [Name removed] [International demining NGO] Project Leader. [The Victim] was seen by [Name removed] excavating without visor inside his working lane in the minefield. [The Victim] was immediately removed from the minefield and sends home for 2 weeks (No paid status) and had a week refreshing training under close Team Leader supervision.

3.2 The day of the accident the Section Leader was not present the Team Leader was supervising the team. The National supervisor was not aware of the absence of the Section Leader and was temporary not at the site at the accident time.

3.3 The Deminer stated that his visor fall down from his head while he was excavating. The observation of the adjustable visor head band shows his serviceable condition. The excavation hole where the deminer was working was slightly downhill with an minor heart Mont located on the left side of the base stick

The deminer was on kneeling position and slightly downhill due to the ground condition if the visor was not properly wear and had fall he would had fall close to the excavation hole and consequently would have been damage by the blast resulting the detonation of the activated mine.

General view of the accident site

3.4 The visor was inspected and it was observed that no fragmentation pieces or any part of mine body or soil or foreign object have hit the outside or inside part of the visor. The position of the adjustable head band show that if the visor was wear at the accident time it was in an incorrect position.

3.5 14 similar visors used by the team were tested as follow: Deminer wearing protective jacket on knelling position and moving there head up and down and left and right several time and none of the wearied visor had fall from the deminers head.

3.6 The inspection of the working lane shows the following no respect of deminers basics drills described on the [International demining NGO] SOP part 5 manual mine clearance:

The vegetation was cut up to 74 cm in front of the base stick

The excavation was carried out 47 cm in front of the base stick without any initial hole or trenches dig 10 cm back from the signal source. The excavation was carrying out directly on the top of the signal source.

View of the vegetation cut up to 74 cm and the AP mine blast crater 47 cm in front of the base stick

Close view of the mine blast crater no initial trench or hole can be observed

4. CONCLUSIONS

4.1 The day of the accident the Team Leader did not report to the Supervisor the absence of his Section Leader. The Team Leader was alone to supervise 7 experienced deminers .The National Supervisor was temporary out of the site at the accident time.

4.2 It is obvious that a series of non-compliance with SOPs contributed towards the accident of Deminer [the Victim].

4.3 The vegetation cutting and the excavation drills were carry out outside the authorized working area in front of the base stick (maximum 50 cm Reference [International demining NGO] SOP 5 chapter 5.3 Basics drill)

4.4 The mine was activated by a pressure directly applied by the shovel during the excavation on a moderately hard ground. No initial hole or trenches was dig 10 cm back from the signal source in order to reach the probable mine location by his side.

4.5 [The Victim] was working on a mine line with T pattern with regular intervals between mine. He probably get over confident and assume that the mine found earlier was the first mine of the T pattern and probably assume that the signal he was currently investigate and excavate was not a AP mine.

4.6 The visor was not worn properly and probably not worn during the excavation. The face and eye injuries would not occur if the visor was worn during the excavation.

5. RECOMMENDATIONS

5.1 The complete team will receive one day refreshing training on basic drills. The accident site will be visited and comments on accident and recommendation will be addressed to every staffs by [International demining NGO] Operation Manager before restarting operation.

5.2 Operator working on a clearly defined mine line pattern will be regularly rotated and be place in areas with low mine density in order to avoid over confident attitude.

5.3 The Team Leader will receive additional training on reporting event and absentees and minefield management by National Supervisor and Operation Manager.

5.4 Disciplinary action will be taken against [the Victim] and will go up to dismissal measure as soon his health status permits to do so.

Signed : [International demining NGO] Operations Manager

PRELIMINARY INVESTIGATION REPORT

KATAGAPURAM 21 January 2008

Part 1 – Description of the Incident

1. Organisation Name: [International demining NGO] Sri Lanka Team No: MAT 4, Vavuniya

2. Incident Date: 21 January 2008: Time: 08 10 AM

3. Location of accident: Northern Province. District : Vavuniya, Village: Katpagapuram: Project or Task No: VA 369

4. Name of Site Manager or Team Leader: Mr.[Name removed]

5. Type of incident: Uncontrolled detonation of a mine/UXO

6. Device was detonated by: Deminer

6a. Device detonated while: Excavating

7. Location of incident: Katpagapuram [International demining NGO] working site

8. Narrative: The deminer was working on a mine line and have previously found a mine and was excavating a signal with his shovel during his excavation work the deminer detonate a buried mine.

Part 2 – Injuries

9. Did the incident result in any injuries? Yes

10. List people injured and nature of injury: [The Victim] Deminer; Left eye, Right hand

Part 3 – Equipment damages

11. Did the incident result in any damage to equipment or property? No.

13. List damage to equipment or property owned by a member of the public or the government. Include contact details of the owner or responsible person. None

Part 4 – Explosive hazard

14. Provide details of mines/UXO/ other devices that were involved in the incident: Buried AP (Blast) Mine identified by Fragments found.

15. State specific device (if known): Type P4 MK1, Qty 1

16. Comments (include measurements of any crater resulting from the explosion)

The area is located inside an identified and regular mine line. The mine pattern is a T shape constituted by 4 AP mines. The soil is constituted by vegetal soil, with no or slight metal contamination. Soil condition is slightly hard due to dryness.

The crater was located 47 cm away from the base stick some parts of plastic body of the mine was found inside and around the crater.

it appear that the excavation was carry out without initial hole started 10 cm back from the signal source .The deminer was probably not wearing his visor during the excavation.

Part 5 - Site conditions

16. Ground/Terrain was “medium” and uneven. The weather was clear and hot. The vegetation was light grass.

Part 6 – Team and task details

17. Last QA monitoring inspection of team: QA by DMAO VAV 17.01.08

18. Qualifications of Deminer(s) involved in the incident

Basic deminer course 12/02

Deminer refresher training 01/04

Deminer refresher training 02/05

Deminer refresher training 01/06

Deminer refresher training 01/07

Deminer refresher training 01/08

19. How long had this team been at this site? 66 Days: working on the day? 1 and ½ hours

20. Detector type: Minelab F3

21 Hand tool / Prodder: Type: [Not recorded, garden trowel.]

22. PPE Visor

23. Comments

No damage on the visor (outside/inside) resulting to the blast or projection of plastic parts of the mine body or soil. The results of the blast and projection of dust/soil and plastic are visible on the superior right parts of the PPE collar protection.

Part 7 - Medical & First Aid

24. Medical treatment required: Yes

25. Medical support at incident site: Medic X 2. A Stretcher and Ambulance were used.

26. Was a Mine Incident Drill carried out? Yes

27. Time and distance data:

a. Time from incident to initial First Aid (at site): minutes 5

b. Time spent at site administering treatment: minutes 15

c. Time from evacuation at site to arrival at field medical facility or local hospital: 7 km, 7 minutes

d. Time spent at local hospital administering treatment: 10 minutes

e. Time evacuated from local hospital to final medical treatment facility: 30 km, 1 hour

Part 8 – Reporting procedures

28. Reported by [Name removed] to [International demining NGO] HQ by Email on (date) 21 June 2008 at (19 00 PM SLK local time)

29. Report compiled/translated by: [Name removed], Date 21.01.2008

Victim Report

Victim number: 738 **Name:** [Name removed]

Age: 39 **Gender:** Male

Status: deminer **Fit for work:** not known

Compensation: Not made available **Time to hospital:** 27 minutes

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

Long visor

Summary of injuries:

minor Eye

minor Face

severe Hand

AMPUTATION/LOSS: Eye

COMMENT: See Medical report.

Medical report

The casualty sustained laceration and foreign body perforation on his right hand and foreign body projections in his left eye and all over his face.

From IMSMA medical form:

Victim’s age: 39. Severe injury

Sketch indicates laceration injury to right hand/finger and left eye, Fracture of the right foot/toes.

From General hospital Vavuniya:

[The Victim] was admitted on 21.01.08 under Bed Head ticket No. [Removed] to the Preliminary Care Unit at General Hospital Vavuniya with –

1. L/eye corneal laceration with foreign body

2. R/eye superficial tiny FB+

3. Laceration over R/hand

He was transferred to Teaching Hospital A'pura on the same day for further management.

Signed: Acting Medical Superintendant

[The foot injury recorded on the IMSMA form is ignored as a probable entry error. Later enquiry let to information that the Victim's left eye was "lost".]

STATEMENTS

Statement of National Supervisor

Date: 21.01.2008.

On the 21st of January, 2008 at 7:15 am I reached our working control point at Katpagapuram and met Mr. [Name removed] as a Team Leader who is monitoring the teams in the field MAT-4,MAT-5 , and made the necessary arrangements and returned to the office at 7:30 am. When I was going to the workshop to take the food for the team, I heard the accident through the medic [Name removed] over the radio. He said me that [the Victim] was injured by the mine. After the radio message I went to the field immediately. When I reached the field, the first aid and necessary treatment had been given by the medic and they arranged to send the casualty to the hospital by the [International demining NGO] ambulance. I followed the ambulance and admitted in the hospital. When I went to the field at 7:15 am at the beginning of the work, I have not known about the "MAT-4" Section Leader [Name removed['s absent, still the accident was happened today.

Signed: National Supervisor, [International demining NGO], VA

Statement of Operations Assistant

Date: 22nd January 2008.

On 21st January 2008 I came to office at 7:00am in the morning and around 8:16am the radio operators (Mr.[Name removed]) received the telephone call from field and he informed me that there was a mine accident in Katpagapuram Minefield.

After few minutes around 8:18am I contact Team Leader [Name removed] by phone and he told me that Deminer [the Victim] was injured in the mine field around 8:10am and the causality was getting first aid treatment in the rest area with our paramedics.

After around 8:25 I pass the message to Operation Manager by telephone, during this conversation I was not really sure about the exact injuries on the causality's eye.

At 8:29am I informed DMAO (To IMSMA assistant [Name removed])

At 9:05 am I saw the casualty in the PCU (Personal Care Unit) of the Hospital. In this time our team-medic ([Name removed]), and two other deminers ([Names removed]) also were stand close to the [the Victim]'s bed.

After I started to talk with [the Victim] about the situation, and he told me that, while he was working on the mine field, his visor was fall down in the ground, at the same time the mine was detonated due to the excavation by hand shovel, which means while the visor was falling down from his head, the mine was detonated by the hand shovel.

Again I asked him "While the mine was exploded, did the visor was in your head or Not?

And he replied to me "No".

And I asked him "Why the visor was not in your head?

He replied "Because the visor was fall down due to the PPE".

When he told this statement I have recorded with my Mobile Phone and I have 3 witnesses. And all of the witness accept the [the Victim]'s Statement.

Above all statements are true of my best knowledge.

Signed: Operations Assistant: 21.01.2008.

Statement of the Team Leader

On the 21st of January, 2008 at 6:30 am, I reached our working control point at Katpagapuram, after that the briefing had been given by my self. At 6:45 am the work started and I informed about our Section four's Section Leader's absent through the medic Mr [Name removed] to the office. Due to the Section Leader's absent I monitoring the section four's deminers. At 7:30 am we took a 15 minutes short break. After the short break we started the work again at 7:45 am. At 7:55 am I cleared a mine from [the Victim]'s own present field location. After that clearance I went 75m away to monitoring other deminers. Sharply At 8:10 am I heard a blasting sound in the field of [the Victim]'s working site and I have moved to that location quickly. During that time [the Victim] was coming with the blood in his right hand and face. We brought him to the safety place with the help of [Name removed] and [Name removed]. At 8:15 am I handed over to the medic [Name removed] for the necessary treatment

Signed: Team Leader

The Deminer's Statement 1

Date: 21.01.2008.

On the 21st of January, 2008 at 6:45 am, our field work started at Katpagapuram. [The Victim] was working 10m away from me.

At 8:10 am I heard a blasting sound in the field. Mr.[The Victim] was injured and he came out of the mine field with wound. After that I and other deminers were carrying to the ambulance with the guide and help of the Team Leader. We handed over the casualty at 8:35 am at Vavuniya General Hospital.

Signed

The Deminer's Statement 2

Date: 21.01.2008.

On the 21st of January, 2008 at 6:45 am, our work started at Katpagapuram mine field. At 7:30 am to 7:45 am, we got short break and again the field word started at 7:45 am. After the shorten period I heard a blasting sound in the field. After that I stopped my work and view the incident place. When I saw, [the Victim] was coming out of the line. He kept the visor in safety place and got down to the ground. I carried with the help of [Name removed] and [Name removed] to the rest area on the stretcher to hand over to the medic with [Name removed]'s guide.

Signed

Analysis

The primary cause of the accident is listed as a "Field control inadequacy" because the Victim was working in breach of his SOPs and without wearing his visor and his error was not corrected. His Section Leader was absent, so the Team Leader had assumed responsibility for supervising that section. This may have led the Victim to think that he would not be observed as closely as usual.

The Victim had been given written warnings for previous breaches of SOP that included the failure to wear his visor. This was reported by an ex-pat site visitor and a written warning issued, but there is no record of the Victim's supervisor being warned for his failure to control the deminer effectively. If there were reasons for that failure that could not be resolved, the Victim should have been dismissed earlier.

The secondary cause is listed as "Victim Inattention" because it seems that the Victim was over-confident and believed that the signal could not be a mine, so dug directly on top of it without wearing his visor. Given the previous warning letters on record, he must have known that he was breaking rules as he did so.

The gardening trowel he was using broke up in the blast, and placed his hand dangerously close to the initiation. The small explosive charge in the mine probably explains why he did not lose his hand or fingers. The failure to provide appropriately blast resistant excavation tools is a significant "Management control inadequacy".