

# DDAS Accident Report

## Accident details

<b>Report date:</b> 28/09/2013	<b>Accident number:</b> 798
<b>Accident time:</b> 05:40	<b>Accident Date:</b> 17/08/2011
<b>Where it occurred:</b> Near Dusti, Kumsangir, Tajikistan	<b>Country:</b> Tajikistan
<b>Primary cause:</b> Inadequate training (?)	<b>Secondary cause:</b> Management Control Inadequacy (?)
<b>Class:</b> Excavation accident	<b>Date of main report:</b> 19/08/2011
<b>ID original source:</b> IMSMA: 01-2011	<b>Name of source:</b> [Demining group]
<b>Organisation:</b> [Name removed]	
<b>Mine/device:</b> PMN AP blast	<b>Ground condition:</b> Sandy, soft, steep slope, metal fragments
<b>Date record created:</b>	<b>Date last modified:</b> 28/09/2013
<b>No of victims:</b> 1	<b>No of documents:</b> 1

## Map details

<b>Alt. coord. system:</b> UTM WGS 84	<b>Coordinates fixed by:</b> GPS
<b>Map east:</b> 4 121 316 E [or 4 212 316]	<b>Map north:</b> 4 68 604 N

## Accident Notes

inadequate investigation (?)  
no independent investigation available (?)  
inadequate training (?)  
handtool may have increased injury (?)  
mechanical follow-up (?)

## Accident report

The report of this accident was made available in 2011 as an extended IMSMA report. The conversion into a DDAS file has led to some of the original formatting being lost. Text in square brackets [ ] is editorial. This record will be revised if more information becomes available.

### Demining incident description (from IMSMA report)

05:40 While conducting mine clearance activities in MF No: 6 TA was prodding trying to find the missing mine of the previously found mines in the area of operation. This due to the fact that the area is highly contamination of metal (caused by the work of MoD while operating the

mini mine-wolf in the area destroying old metal fence wiring) the way of clearance is conducted by manual excavation, followed by metal detector in several layers.

05:41 During the sampling of the cleared area the TA continued prodding (each 2 centimetres) into the clear and unclear area as an overlap and excavating any resistance on the prodder in the very loose sand. The TA had moved slightly down the lane trying to establish the whereabouts of the missing mine from the mine belt, while remaining in cleared area he was prodding into the unclear area (overlapping) on the other side of the mine marking tape. Only the left hand was used while prodding and because of the very soft sandy ground conditions no force was needed while prodding. The prodding depth was around 25-30 cm due to the soft ground conditions (using only the tip of the prodder). Without any prodding force a detonation took place causing 1 PMN AP to explode. The TA was thrown backwards approximately 2 metres into already cleared area still fully aware of the situation the TA immediately stops all ongoing demining activities, secures the area and starts the necessary communication.

05:42 All works stops in the mine field and all 4 [Demining group] teams are informed about the detonation and instructed back to the control point. Doctors/Medics arrived in the area of the TA and a first medical examination is being conducted on the TA and it is confirmed that he has not sustained any major injuries. The decision is then made to bring the TA back to the control point to give him first aid there. In the meantime the team leader secured the area of the incident that took place.

05:45 TA calls to CD [Name removed] to report that there have been an incident in the minefield. Thereafter TMAC are also being informed about what has happen in the minefield during the operations.

05:50 Medical care is continued to be given to the TA and he is fully checked out for any sustained injuries. It can be confirmed that he has sustained a minor cut in the left hand (caused by the ricocheting prodder) and sand in the eyes and maybe some broken ribs. The TA briefs the team on the situation and all none necessary staff are instructed back to their quarters in Dusti.

06:15 [Demining group Head Office] is being informed that there has been a mine incident in the mine field involving one of the expatriate staff.

06:30 CD [Name removed] departs from Dushanbe towards Dusti

08:40 CD [Name removed] Arrives at Dusti.

08:45 CD [Name removed] in contact with TMAC operations manager [Name removed] and a decision is being taken that it will be enough to do an internal [Demining group] investigation of the incident since there are only light injuries to TA this is also confirmed with the TMAC CQA [Name removed] who is at location in Dusti.

08:55 TA arrives to the local hospital in Dusti and is being examined by both a doctor and an eye specialist and both confirmed that TA has only sustained minor scratches and sand in his eyes plus two broken ribs.

The damages are:

- Small cut on skin inside left hand caused by the ricocheting prodder
- Sand in the eyes caused by the explosion of the AP mine. According to the doctors this will clear off completely in the next few days

- Small scratches on the skin on the left chin caused by the sand and the heat of the exploding mine.
- Two broken ribs.

09:32 CD [Name removed] in contact with the MA department [Head Office] and an update was given on the incident and current status.

09:50 TA is being released from the hospital in Dusti and taken back to his hotel for rest.

10:00 CD [Name removed] departs from Dusti to conduct the incident investigation in the minefield with the team leader [Name removed] and translator [Name removed] + 1 medic.

10:30 CD [Name removed] arrives in mine field and starts to conduct the incident investigation.

11:30 End of mine field incident investigation and return to Dusti.

12:00 CD back in Dusti and after consultation with doctors and TA decision is taken to end the working shift 4 days earlier due to the incident that has taken place. All [Demining group] staff will after closing down the operations and making necessary preparations for the shift break return to Dushanbe on the 18th of August 2011.

12:30 All staff in the field is brought together for a full brief and information of the incident that has taken place in the morning. Detailed information is given about what has happen during the day, status of the TA and the decisions taken to end the working shift. All staff members are also given the opportunity to discuss or ask any questions that they might have on the incident or any other work related issues.

18th August all staff reports back to Dushanbe. TA is taken to the hospital for a second opinion on the eyes and for checking of some back pain. It can be confirmed that the eyes has not sustained any damages and that problems suffered from the 'sandblast' will be fully healed within a few days. The back pain is confirmed to be 2 broken ribs sustained when falling backward from the blast of the mine.

Device that caused the demining incident: PMN anti-personnel mine

#### **Findings and description of incident site:**

The mine field is placed on a highly sloppy [sloping] area down towards the river Panj, the mines was approximately laid around 25 years ago. The mine belt has been found around 600 meters from the recorded site on the given maps. Many of the posted AP mines had been found in different position than their original position. The reason for this is the high sloppy area and loose sand which has caused the AP mines to move down towards the river. The angle of the mine belt is sometimes up to 75 degrees. Variable weather and ground conditions have influenced the changes in the mine belt. Another cause of the movement of the mines could be after the EOD procedures on closely found mines (sometimes less than 75 cms) that has been detonated 'in situ' in accordance with set standards and procedures within Tajikistan. Furthermore, lots of animal remains have been found in the same area where conducting operations, indicating that animals have been setting off mines. The various depths of the mines have also been changing over the years and the depth now varies from —10-60 cm's in the area.

With the conditions found in the Mine Field No 6 the conclusion of the investigation is that the specific mine might have been partially triggered by an animal or the movements over the years. It then only took another slight movement or pressure to set the mine off. This is a similar situation that can be found in areas where encountering cluster ammunition and

unknown position of the trigger underground. The recommendation would therefore be to avoid prodder as a tool in such a situation and only used mine detector and excavation tools (as in BAC).

## Victim Report

**Victim number:** 991

**Name:** Not made available

**Age:**

**Gender:** Male

**Status:** supervisory

**Fit for work:** yes

**Compensation:** Not made available

**Time to hospital:** 194 minutes

**Protection issued:** Not recorded

**Protection used:** Not recorded

### Summary of injuries:

minor Eyes; minor Face; minor Hand; severe Body

COMMENT: No medical report was made available.

### Analysis

The primary cause of this accident is listed as “Inadequate training” because the Victim was an expatriate Technical Advisor who was working inappropriately and seems to have been unaware of this fact. Conducting QA, he was prodding outside the cleared area and his body was in an unstable position (which allowed him to be blown backward and so break his ribs when landing – a unique injury amongst the DDAS accident reports). He also seems to have been unaware that prodding is the most dangerous way of locating mines (see the findings of the 2005 GICHD Study of Manual Demining in which the relative safety of varied demining methods is compared). Both he and the investigator also seem unaware that it is impossible to prod to anything like 20-30cm in loose sand (See Statistical Analysis and Experiments in Manual Demining, J.Trevelyan, UWA. 2003). To prod to 25cm would have required the use of excessive force (and not to prod to it would not have resulted in “clearance” to that depth). No picture of the prodder was made available, so its length remains unknown. To prod to a depth of 30cm at a 30 degree angle (required in the group’s SOPs) would have needed a prodder with a blade length in excess of 60cm and to force it into loose sand to that depth would have required a hammer. From this it can be reliably inferred that the Victim was working incorrectly and did not apparently know it, so his training had been inadequate.

The secondary cause is listed as a “*Management Control Inadequacy*” because the demining group’s management had appointed an inappropriately trained/prepared person to a senior field position. It is possible that the Victim was working as directed (or approved) when the accident occurred. His memory of events immediately before the accident may not be reliable.

The method used was inappropriate and this appears to have been recognised by the internal investigator who concluded that further use of the prodder should be avoided.

The investigation is listed as “inadequate” because no record was made of the PPE in use at the time. The Victim’s facial and eye injury implies that eye/face protection was not being worn or was being worn incorrectly (raised).

The ground in the area had been previously loosened by the Mini MineWolf. The use of ground engaging machines is known to disrupt mine patterns, move mines and damage mines. While the PMN design is not generally liable to a “staged initiation” that would render it more sensitive, it is possible that it had been unusually damaged by the machine or already had a significant weight resting on top of it when the Victim added pressure with his prodder.

The failure of the National Authority to conduct an independent investigation may be explained by the report that the Victim suffered no significant injury – which was later found to be inaccurate.