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### DDASaccident018

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*Humanitarian Demining Accident and Incident Database*

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# DDAS Accident Report

## Accident details

|  |   |
|--|---|
| <b>Report date:</b> 22/01/2004                       | <b>Accident number:</b> 18                              |
| <b>Accident time:</b> 08:30                          | <b>Accident Date:</b> 14/05/1998                        |
| <b>Where it occurred:</b> Macuburi, Nampula Province | <b>Country:</b> Mozambique                              |
| <b>Primary cause:</b> Unavoidable (?)                | <b>Secondary cause:</b> Inadequate training (?)         |
| <b>Class:</b> Excavation accident                    | <b>Date of main report:</b> 17/05/1998                  |
| <b>ID original source:</b> NB/AI/PC                  | <b>Name of source:</b> CND/IND/HT (field)               |
| <b>Organisation:</b> [Name removed]                  |   |
| <b>Mine/device:</b> PMN AP blast                     | <b>Ground condition:</b> ditch/channel, metal fragments |
| <b>Date record created:</b> 12/01/2004               | <b>Date last modified:</b> 12/01/2004                   |
| <b>No of victims:</b> 1                              | <b>No of documents:</b> 2                               |

## Map details

|                                 |                                |
|---------------------------------|--------------------------------|
| <b>Longitude:</b> 38° 53' 41" E | <b>Latitude:</b> 14° 39' 36" S |
| <b>Alt. coord. system:</b>      | <b>Coordinates fixed by:</b>   |
| <b>Map east:</b>                | <b>Map north:</b>              |
| <b>Map scale:</b>               | <b>Map series:</b>             |
| <b>Map edition:</b>             | <b>Map sheet:</b>              |
| <b>Map name:</b>                |                                |

## Accident Notes

inadequate medical provision (?)  
long handtool may have reduced injury (?)  
inadequate training (?)  
use of pick (?)  
squatting/kneeling to excavate (?)  
inadequate metal-detector (?)

## **Accident report**

The demining group were operating in two-man teams with a one-man drill at the time. One deminer carried out all tasks including detection while his partner rested and "controlled" him by correcting any errors he saw. The demining group issued frontal protection and their drills assumed the deminer would kneel or squat while excavating.

A mine accident report (in Portuguese) dated 17<sup>th</sup> June 1998 was written by the Mozambican MAC Quality Control Officer and made available. The following summarises its content. The demining operation started on 5<sup>th</sup> May 1998. The demining site was a defensive trench measuring 1000m by 1.5m, which was mined on each side to a distance of 10-15m with PMN mines. Vegetation had grown to a height of more than a meter. The victim was working with an Ebinger 420 but there were so many metal fragments in his lane that it became impractical, so he put the detector to one side and used excavation methods instead.

It was while excavating with a "demining trowel" [see Analysis] at 08:30 that he detonated an anti-personnel mine, leaving him with "slight" injuries to his left hand and right thigh (it is presumed that the latter was caused by the handle of the "trowel"). The victim was blown onto his back and the trowel was found much further away. The victim was approximately 0.8m from the mine, and the crater was taken to indicate that it was buried to a depth of about 20cm.

After the accident the victim was "prone on the ground". He was carried by stretcher to the control point for first aid. He left by Landrover for Nampula Provincial Hospital at 08:45, arriving at 10:35. Prior to the accident the victim had found a PMN which was tilted to point North. The second mine was in the same position.

## **Conclusion**

The investigators concluded that the mine was a PMN (inferred from the presence of other PMNs) and that it was initiated by the pressure of a "trowel". They felt that the mines being positioned on their side indicated that either the minelayer was incompetent/in a hurry, the mines were deliberately laid to make demining difficult, or the mines were moved by rainwater. After analysis of the victim's injuries and what was left of the "trowel" (the handle was not found at that time) it was decided that the mine was on its side in the ground. The investigators considered that the use of a Landrover (not equipped as an ambulance) was both unsuitable and a breach of the group's SOPs – especially because it was a long journey over poor roads.

## **Recommendations**

The investigators recommended that "security measures" to protect deminers from booby traps and trip wires should be improved. Also that alternative techniques of detection and excavation should be used in areas where the ground had a high metal content, and that a programme for retraining deminers on excavation techniques must be initiated. They also decided that demining should be carried out approaching from the opposite side to that which the mines were intended to be encountered. Finally, vehicles used as ambulances should be modified to carry two stretchers, one fixed and one suspended, so that casualties could be evacuated to the nearest hospital in a more comfortable and safe manner.

## Victim Report

|  |   |
|--|---|
| <b>Victim number:</b> 30                                   | <b>Name:</b> [Name removed]                               |
| <b>Age:</b> 19   | <b>Gender:</b> Male                                       |
| <b>Status:</b> deminer                                     | <b>Fit for work:</b> yes                                  |
| <b>Compensation:</b> not made available                    | <b>Time to hospital:</b> 2 hours 10 minutes               |
| <b>Protection issued:</b> Long visor<br>Short frontal vest | <b>Protection used:</b> Short frontal vest,<br>Long visor |

### Summary of injuries:

#### INJURIES

minor Hand

minor Leg

#### COMMENT

No medical report was made available. The Victim's DOB was 26/08/78

### Analysis

The primary cause of this accident is listed as "*Unavoidable*" because it seems that the victim was working appropriately (according to the group's SOPs) when the accident occurred. If he was excavating right up to the mine, that implies that he was inadequately trained in the use of the tool, so the secondary cause is listed as "*Inadequate training*".

The "enxada head" found blast damaged [see Related papers] refers to a short handled African hoe or pick – so the tool used was not a conventional "trowel" but the hoe used by this group (and others) for excavation.

The photograph below shows an African hoe - called an "enxada" in Portuguese speaking areas. The handle is 60-90cms long (2-3 feet) long.



The use of the "enxada" (hoe) may seem inappropriate but in difficult ground conditions a similar tool is often found necessary. The length of the tool probably prevented serious hand injury - although its breaking into parts during the blast may have led to other injury.

## Related papers

An internal demining group "Accident report" prepared for the MAC was on file. The report in the required format included no detail of the injuries. It stated that the accident occurred while clearing metal-contaminated ground. Attached photographs showed loose sandy soil with tall grass. The report stated that the accident occurred at 08:30. Within three minutes the victim was being treated by a medic. At 08:45 an evacuation vehicle left for Nampula hospital arriving at 10:40.

A "draft statement" was made by the Nampula programme manager on behalf of the demining group. In this it is stated that after the accident the victim's detector was found behind him, his visor was in the uncleared area and "not very damaged", his jacket was "in very good conditions and only the front pocket is teared". "I ..remember...I saw something like a small metal fragment stiff on his jacket". The victim was blown back and to the side into a cleared area partly outside his working lane. The victim was taken to Nampula with the programme manager, the supervisor, two medics, a deminer for blood donation, and a driver.

The demining group held an internal accident investigation on 17<sup>th</sup> May 1998. Their investigators concluded that all aspects of minefield and administration were of a high standard. The mine was confirmed as a PMN (from striker, spring and casing fragments). The mine was laid on its side facing North towards a likely enemy approach and fortuitously away from the victim. This was inferred from the observations that the victim's visor and apron suffered no blast damage, and that grass on the North of the mine was blown flat (and not elsewhere). An "enxada head" was also found 50cm from blast seat and showed blast scarring on rear – which was seen as corroborating evidence for the above conclusion. [See Analysis for an explanation of the "Enxada" head.]

The internal investigation concluded that the accident was not caused by the actions of the victim, his supervisor or to weaknesses in the SOP "which have seen the safe clearance of in excess of 2,500 anti-personnel blast mines using the excavation technique over the past 4 ½ years". The cause of the accident was the way the mine was laid – a technique that the group had not encountered during clearing 4,700 mines in Mozambique. It was decided that "if any mines etc are discovered in an unusual position, all clearance should be suspended until the situation can be evaluated".

In an informal interview with the organisation's Mozambique Operations Manager on 16th December 1998, he explaining that the deminer had chosen not to continue as a deminer when he had recovered. He left the group's employ with a "golden handshake" of a "few hundred US\$".