

DDAS Accident Report

Accident details

Report date: 22/01/2004	Accident number: 27
Accident time: 10:30	Accident Date: 23/05/1997
Where it occurred: Maluana village, Maluana district, Maputo Province	Country: Mozambique
Primary cause: Inadequate survey (?)	Secondary cause: Management/control inadequacy (?)
Class: Other	Date of main report: 30/06/1997
ID original source: ADP-8/DG	Name of source: ADP/CND/IND
Organisation: [Name removed]	
Mine/device: PMN AP blast	Ground condition: route (dirt)
Date record created: 22/01/2004	Date last modified: 22/01/2004
No of victims: 1	No of documents: 2

Map details

Longitude: 32° 39' 49" E	Latitude: 25° 30' 06" S
Alt. coord. system:	Coordinates fixed by:
Map east:	Map north:
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

victim ill (?)
protective equipment not worn (?)
no independent investigation available (?)
inadequate medical provision (?)
inadequate equipment (?)

Accident report

A copy of an internal accident report and a report made by the National demining authority were made available in November 2000. The following summarises their content (edited for anonymity).

The mined area was approximately 10 metres wide and circled Maluana defensively. The ground was loose and sandy with a covering of "close brush up to 1.8 metres high" and a few trees of "moderate height". The mines were not laid in a recognisable pattern. The area had been fenced and strands of barbed wire remained marking the edges of the mined area. The area to the North of the minefield had not been used by the locals as a source of firewood, although they could not say why they did not go there. On inspection following the accident an old military boot with blast damage was found there, adding further evidence that the minefield had been extended in that area.

An investigation was made by the Deputy Director of the National MA authority and a UN QA officer. They found that the victim had stepped on a PMN on a disused track and suffered traumatic amputation to his left leg below the knee, injuries to his eyes and "small wounds" on his right leg.

He received first aid within 4 minutes and was evacuated by "road platoon vehicle and ambulance" arriving within "1.5min" [presumably 1.5 hrs].

A Technical advisor's report noted that conflicts in the reports made it uncertain at what time the accident had occurred, but that it was first reported by radio at 10:30 when a CASEVAC was requested.

The victim had just finished one lane and moved his tools to the start of a new lane when he checked the time and realised he had two minutes before there was a shift change so he decided to go to the toilet. He told a deminer in a lane 30 metres away that he was feeling unwell and was going to ask the section Commander to be "stood down" as soon as he had been to the toilet.

The victim went down the cleared lane and stepped into a "supposedly clear area". He moved into the centre of a clump of bushes to find a place to defecate, then stepped on a PMN. He suffered a "traumatic amputation of his left leg at the knee", small wounds on his right leg and "possibly impaired sight" in both eyes.

First aid was applied at the site and the victim stabilised [deminers "extracted" the victim a distance of three metres into his finished clearance lane first] then the victim was stretchered to the safety vehicle and started the journey to Maputo. It was met by the demining group's ambulance en route to Maputo and the victim transferred (the ambulance left Maputo when the call for MEDEVAC was received).

The victim arrived at hospital "approximately 65 minutes" after the accident [conflict in reports].

The demining group's SOPs required that they start two metres from the inside of a defensive minefield and stop five metres outside the outer edge. This was being done. The survey technique involved driving survey lanes through the mined area at 50 metre intervals and this would not have guaranteed that the extension to the fenced area was found. The survey of the minefield had not mentioned minefield depth or the remains of fences (some parts of fence were missing). When the tactical value of the land was considered, the investigator believed that he could see that it overlooked the main road North, was two kilometres from a military camp and so was considered potentially tactically "vital". He thought it probable that RENAMO had launched probes into the area and that the minefield had been reinforced to cover an attempted breach. The investigator suggested that tactical appreciation be added to future surveys.

The demining SOPs required deminers to use a toilet area, but at the time the area was simply anywhere convenient outside the mined area. The survey had failed to locate a third fence. ".the actions of an individual were to blame, not procedures or equipment".

The investigator continued "The deeper issue of tactical appreciation may be beyond the Survey Sections and some Operations Field Supervisory Staff..." Surveyors should strive for accuracy.

The deminer in the adjacent lane confirmed that the victim has said he was going to ask for sick leave.

The paramedic said that the accident occurred at 10:25.

The victim stated that his accident occurred at 11:30 when he had taken three steps forward of the end of his lane into the clear area and on the fourth step activated the mine.

Conclusions

The investigator determined that the accident occurred because "the realisation that mines could exist on the enemy side of the minefield was either ignored or forgotten....the actions of an individual were to blame, not procedures or equipment".

The demining SOPs required deminers to use a toilet area, but at the time the area was simply anywhere convenient outside the mined area. The survey had failed to locate a third fence. The investigator went on "The deeper issue of tactical appreciation may be beyond the Survey Sections and some Operations Field Supervisory Staff..." Surveyors should strive for accuracy.

Recommendations

The investigator recommended that:

- Deminers be discouraged from using toilets on the "enemy side" of a minefield
- Changes to survey practice be made to "chase" discovered wires.
- All sites should have a latrine and SOPs amended to reflect this.
- Deminers should be warned of the "dangers of moving outside the surveyed minefield".
- The North of the minefield should be surveyed immediately.
- Survey procedures should be "examined".
- Survey mapping procedures should be revised to identify area of perimeter fencing, and tactical appreciation be considered for inclusion in "the Survey function".

The Chief UN Technical Advisor to the demining group concluded that the deminer was feeling unwell and stepped into an unknown area to "relieve himself". The victim believed he was acting properly. Areas of ambiguity in the SOPs "reinforces our actions to re-write and re-issue them".

Victim Report

Victim number: 41	Name: [Name removed]
Age: 33	Gender: Male
Status: deminer	Fit for work: yes
Compensation: US\$3,360	Time to hospital: 1 hour 30 minutes
Protection issued: Safety spectacles	Protection used: none

Summary of injuries:

INJURIES

minor Hearing

minor Leg

severe Eyes

severe Face

AMPUTATION/LOSS

Leg Through knee

COMMENT

See medical report.

Medical report

The paramedic reported that he gave the victim "75ml of pethidine IM and 1000ml of Hamacel IV" at the site and he was evacuated immediately.

A brief medical report from the demining group's staff doctor made on the 27th May 1997 stated that the victim "suffered the following injuries:

Amputation and complete destruction of the left foot and lower [unintelligible] third of the lower leg.

Injuries of the eyes;

Left eye: Complete [unintelligible], foreign bodies in the Cornea, traumatic cataract.

Right eye: Foreign bodies in the cornea.

Four smaller wounds around the eyes containing foreign bodies.

Several small wounds, particularly on the right leg, caused by small fragments.

At arrival to hospital his general condition was good. Around one hour after arrival he was subjected to a through-the-knee amputation of the left leg, [unintelligible] debridements and suture of his [unintelligible] wound and cleaning of his eyes. His general condition is satisfactory. His wound after the amputation is clean and can probably be closed in a few days to one week. His eyes are recovering. He can see reasonably with his right eye but the left eye still is not much better."

A further medical report by same doctor on the 10th of June 1997 stated that:

"His wound on the stump of the left leg was closed by a secondary suture on 6th June 1997. At inspection the wound looks clean and probably will heal under the next few weeks.

An operation of his left eye is scheduled for 12th June 1997. It is planned to remove the traumatic cataract and an implantation of an artificial lens.

After having complained about problems with his ears, he was examined on 6th June 1997 by a specialist with an ear microscope. His ears were cleaned and his condition improved. Audiometry is still to be done this week."

The victim's DOB was given as 25/04/64.

Analysis

This accident is classed as "Other" and the Primary cause "*Inadequate survey*" because the method of survey allowed a mined area to be missed. The victim followed normal practise and accepted the quality of the survey, so (despite the investigator's opinion) no blame can reasonably be attributed to him.

The secondary cause of this accident is listed as a "*Management/control inadequacy*" because the approved method of survey allowed a mined area adjacent to the minefield to be believed clear. The survey method was inadequate and this failing was (in part) recognised by the group's own investigation when the Chief UN Technical Advisor to the demining group concluded that areas of ambiguity in the SOPs "reinforces our actions to re-write and re-issue them". The methods of survey, recording and survey training have been subsequently extensively revised, so confirming that the methods in place at the time of this accident were inadequate.

Despite this, the accident investigator held the victim responsible for moving into an area outside the minefield and outside the area scheduled to be cleared. Rather obviously, if the minefield is declared clear but mines adjacent to it are left, civilians with confidence in the clearance will risk being injured. This raises the obvious question, is it better for a deminer to "find" a missed mine or the general public?"

The demining group's failure to have an ambulance at the site was an example of an inadequate medical provision.

The "inadequate equipment (?)" noted refers to the issue of industrial safety spectacles as PPE.

Related papers

The victim's employment contract was on file, showing that he was born on 25/04/64.

An out-of-scale computer generated sketch map of the area showed a third fence added - bulging outward - outside the perimeter of the double fenced minefield.

A hand drawn sketch map of the entire minefield was on file. The "waypoint log" of the area cleared was on file. An EOD team task completion record (demolition of 4 POMZ-2M and 5 grenades) was on file.

The victim was a member of a platoon operating since 23rd May 1997 – that had cleared 115,741m², 215 AP mines, 1 AG mine and 42 UXOs. Since starting work at the site they had cleared "45 mines of Soviet origin and found no booby traps or devices to hinder search.