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Humanitarian Demining Accident and Incident Database

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DDAS Accident Report

Accident details

Report date: 17/03/2004	Accident number: 399
Accident time: 12:28	Accident Date: 12/11/2002
Where it occurred: Monte Alto, Nr Chokwe, Guija District, Gaza Province	Country: Mozambique
Primary cause: Field control inadequacy (?)	Secondary cause: Inadequate equipment (?)
Class: Missed-mine accident	Date of main report: [Not recorded]
ID original source: HL	Name of source: IND/MgM
Organisation: Name removed	
Mine/device: GYATA-64 AP blast	Ground condition: leaf litter soft woodland (bush)
Date record created: 04/03/2004	Date last modified: 04/03/2004
No of victims: 1	No of documents: 1

Map details

Longitude:	Latitude:
Alt. coord. system:	Coordinates fixed by:
Map east:	Map north:
Map scale: not recorded	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

partner's failure to "control" (?)
mechanical follow-up (?)
inadequate area marking (?)
inadequate equipment (?)

Accident report

The researcher carried out a risk-assessment for the testing of a new technology in this mined area, so knows something of the history and context. This accident occurred in a long defensive mine belt close to a railway line (not directly adjacent). The mines used were GYATA-64 AP blast mines, POMZ-2 and 2M fragmentation mines. At least one PP Mi-Sr bounding fragmentation mine was also found in the belt. The mines were laid at least 15 years before. Many GYATA-64s had allowed water in and corrosion of the leaf-spring holding up the pressure plate had made them very sensitive to any pressure. All the stake mounding POMZ mines had fallen over. Most tripwires had rusted away leaving only short lengths. Many of the MUV fuzes had corroded to the extent that their parts were fused together. Some fuzes had plastic bodies that had been destroyed in brush fires. But a few had stainless steel bodies and had not seized up.

A report from the National Demining authority (IND) has been made available (November 2003) and is awaiting translation. What follows is the demining group's internal accident report, edited for anonymity. The author wrote in English and where the construction was confusing it has not been edited.

[Demining group] INTERNAL REPORT

This is all internal investigation conducted by the Project Manager and the various supervisors and team leaders at the demining operation at Monte Alto project. The manner of operation was reconstructed, or as close as possible by the people involved to determine the cause of the accident. Up to now not a clear explanation of the incident can be made due to the reluctance to co-operate by one of the deminers, [Deminer No.2], which was in the same team as the injured person, [the Victim].

On 2002-11-12 the demining group went to the operational area to commence their daily task. [Name excised], our dog supervisor was supervising the operations in the absence of [Normal site manager] and the senior Mozambican supervisor, [name excised], Section leaders [name excised], [name excised] and [name excised], assisted him. [Name excised] is the section leader of the team where the accident occurred. Also helping with supervision in the minefield is the internal quality control supervisor [name excised].

Operations start at 06:00 and according to SOPs, before entering the minefield, all the detectors are being tested and calibrated if necessary. This is being done at a test area which consist of a metal free area wherein four Gyata mines are buried at the depth of 5cm, 10cm, 15cm and 20cm. Each deminer that is working the first shift does the testing of the detector under the supervision of the section leaders. On this day, two section leaders, [name excised] and [name excised] oversee this procedure and no faulty or unserviceable detectors were reported. All the detectors used on this day was serviceable and in good working order. The demining teams consist of a pair of deminers, each deminer work a shift of 25min. After 25min a whistle is being blown which are the signal for hand over to the next deminer. During the hand over, the deminers hand over the detector, personal protection equipment (PPE) and during this time a verbal briefing by the outgoing deminer are given to the incoming deminer. This is all happening in a period of five minutes before a second whistle signals the start of a new shift of 25min. After change over the new member of the team have to recheck the area being cleared by his predecessor before clearing the new area. During the course of the day, the assigned section leader do spot checks on the individual teams by means of manual verifying the areas cleared by the teams with the detector being used by the specific teams. The main supervisor is also doing spot checks during the day.

On 2002-11-12 the respective section leader [name excised] did a spot check in the working area of the [Deminer No.2]/[the Victim] team at about 09:30. At this time [Deminer No.2] already found two Gyata mines during his working shifts and this fact so far prove that the detector was in working order and capable to detect a Gyata mine. Lino Francisco could not find any irregularities when doing his spot check and he resumed his duties as section leader and oversees the rest of his section. As the safety distances is kept between the different working teams according to SOPs, the teams are not close to each other and the vegetation also obstruct view and it is not humanly possible for the section leaders and supervisors to monitor all the deminers at once.

At 12:25 the whistle for changeover was blown and the teams started the change over. This was also the change over for the last shift for the day as the demining operation stops at 13:00. During this change over [Deminer No.2] finished his duties for the day and [the Victim] was to work the last shift of twenty-five minutes. The change over took place and according to [Deminer No.2] all the equipment and PPE were handed over and a short briefing was done. He said that he left the working area. Before the second whistle was blown, that was suppose to be on 12:30 an explosion occurred in which [the Victim] was injured.

Two deminers nearest to the explosion, [name excised] and [name excised] took the stretcher that was nearby to assist the injured. Not one of these two persons or any other could actually see what was actually happening prior to the explosion. The injured was taken to the point where the Para-medics treated him and was then evacuated by car [ambulance] to Maputo.

The internal quality assurance supervisor, [name excised] as well as operations supervisor, [name excised] sealed off the area for further investigation. The Foerster mine detector was found unused in the area so no rechecking was done by the injured. The marking tape was also partially destroyed by the explosion and no clear indication could be found to determine exactly which area had been cleared or not and the raking marks into the uncleared area added up to the confusion of the area.

CONCLUSION

The facts given by the last person involved in the clearing and marking of the area, [Deminer No.2] is not clear at this stage after several attempts to get the truth from him. Maybe he feels he do not want to incriminate himself and he is not denying any malpractice from his side nor admit it. He has a history of lying on issues that happened before in the local village. [Name excised], who are from the same tribe as him also tried to get the truth from him but did not really succeeded.

[Deminer No.2] admitted on 22/11/2002 that he used the rake to remove dry leaves and other small vegetation that was lying in the uncleared area of the marking tape, but that the marking tape was still in place as he marked the area that he has cleared. When [the Victim] started to work he did not verify the area cleared by [Deminer No.2] as he is supposed to have done. The raking marks in the uncleared area could have confused him as to which area was cleared but the marking tape that was left by his partner should have not been ignored. To me however it is clear that the mine was missed, because if the cleared lane was properly cleared and overlapped with the prescribed 10cm in the SOPs, this accident would not have happened. The Foerster mine detector is a very good detector but if there is a lack of concentration or carelessness of the person that handles it, it is worthless. Each demining team can have a supervisor present all the time but if procedures are not followed and the deminer is not responsible, accidents like this will happen again.

SAFETY MEASURES TAKEN

1. Strict supervision on the transporting, handling and testing of the mine detectors, inside and outside the minefield.
2. All the safety procedures as according to SOPs will be enforced and no mercy will be given to anyone that is not abiding by this rules.
3. The internal quality assurance team to ensure that it is safe will verify all base lines and safe lines as soon as possible.
4. The demining teams will be split so each deminer has his own area to clear within the block that has to be cleared for example if the block that have to be cleared is 40m x 40m each deminer will have his own 20m x 40m area to be cleared. This will put the responsibility to concentrate on the deminer on himself and not his partner to ensure the area is cleared.
5. All the change over of shifts and hand over equipment such as PPE etc. will be done in the safe lanes, which are declared safe by the internal quality control teams.
6. Spot checks will be done as much as possible by the supervisors and section leaders.

7. Every deminer will wear PPE all the time on his shift; this means body armour as well as visor.

8. When the marking tape are straightened, the area will be verified by mine detector to ensure proper overlapping has been done and that the marking tape is not being moved into an uncleared area.

I sincerely hope that the extra measures taken will prevent any other accidents and in most of this cases human error, lack of concentration and carelessness is the cause of accidents that leads unfortunately to the loss of life and limbs.

Signed: Project Manager

[Poor quality photocopied photographs of the area showed mature trees with undergrowth and leaf litter. The victim's visor and frontal apron were in the photographs.]

Victim Report

Victim number: 514	Name: Name removed
Age: 27	Gender: Male
Status: deminer	Fit for work: yes
Compensation: not made available (insured)	Time to hospital: 3 hours
Protection issued: Long visor Frontal apron	Protection used: Long visor, frontal apron

Summary of injuries:

INJURIES

minor Hand

minor Leg

AMPUTATION/LOSS

Leg Through knee

COMMENT

See medical report.

Medical report

A medical report made by a specialist trauma doctor in Maputo City was made available. It stated:

“At arrival to hospital his left leg was amputated below the knee, the remaining parts of the lower leg were badly damaged so that a through-the-knee amputation had to be performed, following the rules of war surgery the wound was left open. He also had several superficial wounds on the right leg and his right thumb, these were debrided and dressed.”

“The following day he was treated by changing of the dressings and antibiotics and pain killers. His wounds cleaned up gradually and could be closed on 27th November 2002 by suturing the stump on the left leg and by split skin grafting the wounds on the right leg. The wounds were healing well, the patient could be dismissed from hospital on 6th December 2002, walking on crutches.!

“He shall come back for changings of the dressings twice a week until the wounds are completely healed, which should take around 2 or 3 weeks. Around 3-4 months after the accident one should be able to start to adjust a prosthesis on the stump.”

Signed: Orthopaedic surgeon, 10th December 2002.

A director of the Demining group reported in 2003 that there had been problems with the Lloyds backed insurance brokers over the provision of a prosthetic (the full cost of which was not covered). He said that the victim had been continuously on the payroll and was then working as a radio operator.

Analysis

The primary cause of this accident is listed as a “*Field control inadequacy*” because the Victim and his partner were working in breach of SOPs and without adequate supervision. The demining group Directors recognised (see Related papers) “mistakes in marking”, a failure of the Victim to QA his partner’s work and stated that a contributory factor was “the raking of adjacent uncleared area”. The secondary cause is listed as “Inadequate equipment” because the use of a garden rake to remove dead vegetation outside the cleared area removed any visual indication of which areas had been adequately cleared. The issue of a rake is questionable because the mined area included POMZ tripwire fragmentation mines and while none were found upright and with intact wires, the rake could have pulled broken wires or have caught on the fuze-pins.

The demining group involved used mechanical assets to cut undergrowth in front of their deminers and had several such machines near the site. It is not known whether these machines had been used in the area where the accident occurred. The normal method of vegetation removal is “mulching” which leaves a carpet of cuttings on the ground, and may explain why rakes were issued to the deminers involved in this accident.