

DDAS Accident Report

Accident details

Report date: 19/05/2006	Accident number: 308
Accident time: 10:05	Accident Date: 20/06/2000
Where it occurred: Kaniaskan MF, Halabja district, Said Sadiq	Country: Iraq
Primary cause: Field control inadequacy (?)	Secondary cause: Management/control inadequacy (?)
Class: Missed-mine accident	Date of main report: 30/06/2000
ID original source: AJ/JJ/HH	Name of source: UN/JJ/ELS
Organisation: Name removed	
Mine/device: Type 72 AP blast	Ground condition: agricultural (recent)
Date record created: 19/02/2004	Date last modified: 19/02/2004
No of victims: 1	No of documents: 2

Map details

Longitude:	Latitude:
Alt. coord. system: MAG/S/0062 MF	Coordinates fixed by:
Map east:	Map north:
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

squatting/kneeling to excavate (?)
inadequate medical provision (?)
inadequate investigation (?)
safety distances ignored (?)
visor not worn or worn raised (?)
inadequate equipment (?)

Accident report

A UNOPS MAP Board of Inquiry was instigated and the following BOI report provided. For unexplained "political" reasons, the original report was not provided. What was provided had

been heavily "censored". The original UNOPS BOI report was provided from another source and is reproduced under Related papers. The following censored report has been edited to allow it to read smoothly. See also Related papers.

The BOI visited the site on 21/06/00.

The victim had been employed as a deminer for "nearly 2 years". His last refresher/retraining course had been in January 2000.

The working area had formerly been a confrontation line. The land was "flat to mildly undulating agriculture land (wheat)". The accident occurred approximately 250 metres from the task site Control point, at a point where "the wheat is fairly dense which makes the task of looking for mines very difficult".

The victim had just returned to work after a rest break. He was engaged in clearing using normal manual clearance methods with a metal detector, a small hand trowel and a bucket. He was wearing a helmet and visor and a ROFI frontal apron. The victim was clearing away dirt from two detector readings. At about 10:05, during the transfer of spoil from the excavations to a bucket behind him, the victim dropped soil from the trowel. The soil landed in a non-cleared area and detonated a Type-72 anti-personnel blast mine.

The casualty received blast injuries to his face with Impregnation of multiple foreign bodies to his face and both eyes. His right eye was lost and his left eye damaged.

The victim ran out of the lane past his number two into a cleared area about 80 metres away where "he was finally stopped and given initial first aid treatment. The casualty was then transported directly to emergency hospital where he was stabilized."

"There was minor damage to the casualty's vest, and although repairable due to bloodstains will probably have to be destroyed. There was also minor blast damage to the helmet and visor but this should be repairable."

Conclusion

The investigators concluded that the victim was wearing his PPE (visor and vest) correctly.

"It is the opinion of BOI that the accident could not be attributed to any neglect carelessness nor misconduct of any individual or group. There was also no evidence whatsoever of any misuse of drugs, alcohol, or medication involved. All personnel involved complied with all applicable orders instructions and safety precautions."

Recommendations

The BOI made the following recommendations:

- a) That no disciplinary action is taken against any member of the contractors staff.
- b) That serious thought be given to where the deminer places his bucket whilst in the process of removing spoil.
- c) The process of removing soil from an excavation to a bucket is to be conducting in the kneeling position, and within the confines of the clearance lane - no part of any deminers tools, equipment or body should be above uncleared ground.
- d) That either that Tetrarinc vests or a less cumbersome version be trailed for possible introduction, or the Rofi vests be modified some how to offer better neck protection
- e) That authority to transfer a Manual Clearance Contractor patient be delegated to the appropriate in country representative of that organization and that the Manual Clearance Contractor and safety supervisor be solely responsible for all transference and evacuation procedures. This should be especially so in the case of a life threatening injury (this should also apply to both in and out – off – country evacuations). The board recommends that PM of Manual Clearance Contractor (in side the country) being negotiations with HQ of Manual Clearance Contractor (out side country) to rectify this matter.

See Related papers. Appendices referenced in the report were not made available.

Summarised Statements from the Team Leader, Site Commander, Witnesses and the victim were not made available.

Victim Report

Victim number: 388	Name: Name removed
Age:	Gender: Male
Status: deminer	Fit for work: not known
Compensation: not made available	Time to hospital: not recorded
Protection issued: Frontal apron Helmet Short visor	Protection used: Helmet; frontal apron

Summary of injuries:

INJURIES

severe Eyes

severe Face

AMPUTATION/LOSS

Eye

COMMENT

No medical report was made available.

Analysis

The analysis of this accident was hampered by the fact that the full report of the Board of Inquiry, including statements of witnesses, was not made available through UNOPS. When it was sourced from elsewhere, it was found that UNOPS had failed to provide the medevac facilities that their contract with the demining group obliged them to provide (see Related papers). A desire to conceal this may be the reason for the BOI to be withheld. The MAC's failure to honour its contract (and the apparent ignorance of the investigators regarding the MAC's obligations) constitute a serious "*Management/control inadequacy*".

The primary cause of this accident is listed as a "*Field control inadequacy*" because the victim was working in an unsafe manner (whatever he was doing) with his visor raised and this error went uncorrected.

"There was minor damage to the casualty's vest, and although repairable due to bloodstains will probably have to be destroyed. There was also minor blast damage to the helmet and visor but this should be repairable."

The members of the BOI should be advised that ALL PPE damaged in an explosive accident should be destroyed, not repaired.

The BOI explanation of the events leading to this accident is unconvincing. The force required to detonate a Type-72 is 5-10kg – which would require a rather large lump of soil to be dropped from a great height. As exposed Type-72s age, their rubber tops decay and dirt gets inside, often making them more difficult to initiate. It is possible that the mine had been damaged by previous fire in a peculiar manner, but it is hard to see how that would make the Belville spring inside more sensitive.

The Board of Inquiry's conclusion that the victim was wearing his visor correctly is made without evidence and is also unconvincing. The visor must have been at least partly raised for the wearer to sustain such severe eye injury.

Related papers

Access to the following accident report was denied by MAC officers for unexplained "political reasons". It was supplied by another source. The "political reasons" may be explained by the MAC's failure to comply with the provision of their contract with the Demining group regarding medical provision (see Reference at the end of this file). The following has been edited for anonymity.

UNOPS BOARD OF INQUIRY ON A MINE ACCIDENT IN KANIASKAN MINEFIELD, IN SAID SADAR

Introduction

1. On 20 June 2000, a mine accident occurred in the Kaniaskan minefield (MAG1510062). The accident happened at approximately 1005 hours.
2. On 20 June 2000 a Board of Inquiry (BOI) was appointed to investigate the accident, with [a UNOPS representative] and [a representative of the Demining group] instituted as the members of the Board.

Process of Investigation

3. The BOI formally convened on 21 June 2000, during which time the board collected prepared written statements and conducted separate interviews with personnel who were involved in the accident.

Initial Investigation

4. As well as a Board of Inquiry being convened an initial investigation was ordered on 20 Jun 00, to take place on 21 Jun 00. The investigation team consisted [the same BOI members].
6. The victim, was interviewed by the Initial Investigation team at the Sulaimaniya Emergency Hospital on 21 Jun. Although in some degree of pain [the Victim] appeared to be alert and coherent and had little difficulty relating the events leading up to and including the accident. The initial investigation report is attached.

Geography

7. The accident occurred in the Kaniaskan minefield, in the Halabja district. The site is approximately 10 km south west of Said Sadiq village. The area is a former confrontation line. The task is on flat to mildly undulating agricultural land (wheat).
8. The location where the accident happened is approximately 250 metres from the task site control point. The wheat is fairly dense which makes the task of looking for mines very difficult.

Tasking

9. The [number excised] Mine Clearance Team was conducting manual demining operations.

Supervision

10. The task was supervised by [the ex-pat Demining group] Group Supervisor.

Communications

11. Communication was two way between the task site and UNOPS in Sulaimaniya. At the time of the accident all means of communication were functioning effectively.

The Mine

12. The mine in this accident is the Type 72, a Chinese-made Anti-Personnel blast mine. Characteristics are as follows

- a. Weight: 0.14kg
- b. Diameter: 78.5 mm
- c. Explosive: 51 gm net explosive weight

Leave/Stand-down

13. The last official leave period for the deminers was 14 - 16 Jun 00.

Work Timings

14. Work commenced that day at 0600 and concluded for 24 hours after the accident, as per [Demining group] SOP 1, para 1.3.7. As stated in the victims' interview, he had finished a rest period prior to commencing work.

Damage

15. There was minor (blast) damage to the victims' vest and although repairable, due to blood stains will probably have to be destroyed. There was also minor blast damage to the helmet and visor but this should be repairable also.

Quality Assurance

16. QA is conducted internally every day; however, the last time that external QA was conducted was 8 Jun 00.

Kit and Equipment

17. All deminers at the time were wearing protective equipment i.e. vest and visor and said kit was worn correctly. The damage caused to the victims' personal protection equipment as a result of the accident has been described already in para 15. Medical equipment was available, with the medic, approximately 50 metres from the site and an ambulance was in the area approximately 200 metres from the accident site, in the admin area.

18. There was no damage caused to the mine detector or other tools and equipment besides that already mentioned.

19. It is the opinion of the board that had the vest provided better protection around the neck then there is a possibility that the victims' injuries may have been further reduced. In attachment "L" the current "Rofi Industries" vest is compared to two examples of "Tetranite Armour Systems" vests. The difference in neck protection is obvious; however it should be noted that the Tetranite vests are considerably more cumbersome, and after a period of time the "bib" actually folds down through normal wear and tear thus offering minimal protection.

Medical Treatment/Medevac

20. The BOI has deemed that all medical treatment (at all stages) and medical evacuation procedures provided by [the Demining group] personnel were adhered to and performed in a proficient and timely manner, with little or no problems apart from insurance company clearance (see "conclusions"). It should be noted that GS 2 carries out regular casualty evacuation exercises. There was an initial delay in treatment, but this was due to the casualty being unable to be located as he was not in the lane (where everyone initially looks) but actually running out of the minefield to a clear area approximately 80 metres away. It was in this area that the victim was finally located and given first aid treatment.

21. The patient was then transported directly to Sulaimaniya Emergency hospital where he was stabilised, and operated on. Three days later (24 Jun 00) he was transferred to Baghdad. The issues requiring addressing as indicated in the report have been dealt with by the [Demining group] Health and Safety Supervisor, with the individuals concerned (see medical report from [Demining group] Health and Safety Supervisor attached).

Revision/Refresher Training

22. All teams in all South Sector locations conducted the appropriate revision/refresher training within 24 hours of the accident occurring. The training that was conducted covered the following subjects;

- a. Confirmation of emergency procedures
- b. Working within the 120 centimetre clearance area
- c. Placement of equipment within cleared area;
- d. Extraction and removal of material from the clearance lane (i.e. from excavation to bucket).

Account of Accident

23. This account is assembled from statements and interviews taken from witnesses.

24. At approximately 1000 hours [the Victim] moved into the clearance lane to relieve [his partner], the No 1. As part of the change over drill [the partner] briefed [the Victim] on the area he had cleared, which included two small excavations where a reading was obtained with the Minelab.

25. After the handover was conducted, [the partner] left [the Victim] and proceeded to move out of the lane. It was at this time that the accident occurred. [The partner] was approximately six metres away from [the Victim] and moments after the detonation [the Victim] ran past [his partner], out of the lane and into a cleared area about 80 metres away where he was finally located and given initial first aid treatment.

26. At the time of the accident, [the Victim] was proceeding to clear away the dirt from the two excavations so as to have a clearer area to work in. It was during the transfer of spoil from the excavations to the bucket (which was behind [the Victim] at that time) that the accident occurred. NB: The mine was outside the clearance lane. The detonation occurred approximately 35 centimetres to the right hand outer edge of the clearance lane. [The Victim] was not investigating a "find" or a mine or UXO at the time of the accident.

CONCLUSIONS

Cause of the Accident

27. It is the opinion of the Board of Inquiry that the accident cannot be ascribed to any neglect, carelessness nor misconduct of any individual or group. There was also no evidence whatsoever of any misuse of drugs, alcohol or medication involved. All personnel involved complied with all applicable orders, instructions and safety precautions.

28. During the investigation it became apparent that there were three possible scenarios that could be ascribed to the actuation of the mine. They are as follows;

- a. Most Likely: It is most likely that during the transfer of soil from the excavation to the bucket that a portion (i.e a lump) of soil dropped off the deminer's trowel and on to the mine, thus causing the initiation;
- b. Conceivable: It is conceivable that the mine was initiated by a small animal, possibly a rodent, running over it and this is a possibility given that the mined area is in a wheat field where rodents are normally commonly found. This also concurs with the victims' statement as he thinks he saw a small animal on the ground immediately prior to detonation. However, he also states that he was not sure if it was an animal or the dirt from the trowel hitting the ground; and
- c. Possible: It is possible that the mine spontaneously detonated. This would be due to the area being previously burnt, thus the tops of the mines being exposed through fire damage. Also, after the fire damage, deterioration would be swift due to the extreme weather conditions (both hot and cold), and the amount of time the mine has been in the ground. It should also be noted that there have been incidences of sympathetic detonations during destruction of mines in situ in that particular minefield.

29. The Board, however, giving careful consideration to all three aforementioned scenario 5 has come to the conclusion that the most likely scenario i.e. the mine actuating through dirt spilling from the deminers trowel on to it, is the correct one.

30. Although the deminer was not in the process of clearing an indication or investigating a mine, but preparing his area to commence his shift, the fact remains that the out-going

deminer should have been at the required safety distance before any type of clearance operation or procedure had commenced.

31. More attention needs to be paid to the placement of tools and equipment within the clearance lane. It was apparent that while the deminer had taken the trouble to place his equipment down in a tidy and efficient manner, there was a portion of gear lying outside the lane markers (1 .2m sticks).

32. The Board concludes that the accident may not have happened if the victim had the bucket in front of him whilst transferring the soil. The board also concludes that had this been so and the victim was kneeling instead of standing, his injuries would have been considerably reduced.

33. There was the potential for a delay in transference of the victim to a specialist eye unit in Baghdad as [the Demining group] had to wait for insurance company approval prior to moving the patient. This delay must be addressed to pre-empt this happening in the case of a life threatening injury. It should be noted however that the Sulaimaniya Emergency doctor was against moving the patient at all for at least seven to 10 days.

RECOMMENDATIONS

34. The Board of Inquiry recommends the following;

- a. That no disciplinary action is taken against any member of the contractor staff;
- b. That serious thought be given to where the deminer places his bucket whilst in the process of removing spoil;
- c. The process of removing soil from an excavation to the bucket is conducted in the kneeling position, and within the confines of the clearance lane - no part of any deminer's tools, equipment or body should be above uncleared ground.
- d. That either the Tetranike vests or a less cumbersome version be trialled for possible introduction, or the Rofi vests be modified somehow to offer better neck protection.
- e. That authority to transfer [Demining group] patients be delegated to the appropriate in-country representative of that organisation and that the [Demining group] Health and Safety supervisor be solely responsible of all transference and evacuation procedures. This should be especially so in the case of a life threatening injury (this should also apply to both in and out - of - country evacuations). The board recommends that PM [Demining group] begins negotiations with HQ [Demining group] (London) to rectify this matter.

Reference UNOPS contract

The following extract of the demining group's contract with UNOPS was appended.

Medical Support Arrangements/CASEVAC Procedures

46. The UNOPS Programme Coordinator is responsible for establishing a Casevac and medevac system in accordance with the division of responsibilities in Annex A. The Contractor to ensure he has a qualified medical supervisor holding a current recognized international medical qualification in theatre.

47. As far as practical the Contractor is to adhere to the International Standards for Humanitarian Mine Clearance - Medical. Variations on the International Standards for Humanitarian Mine Clearance are to be approved in advance by the UNOPS Project Coordinator on advice from the UNOPS Sector Manager.

48. One trained medical orderly shall be available for each demining team and survey team. The Contractor shall ensure that every medical orderly has an ambulance or a safety vehicle capable of carrying a stretcher, which during duty hours is used for no other purpose.

49. UNOPS shall provide casualty evacuation to all of the Contractor's international and national staff to a hospital within Northern Iraq, and shall provide medical evacuation to all of the Contractors international staff to Baghdad and on to an acceptable medical facility within

Amman, Jordan or to Diyarbakir, Turkey. Any medical evacuation to a third country will be the responsibility of the Contractor.