

DDAS Accident Report

Accident details

Report date: 28/12/2007	Accident number: 448
Accident time: 07:45	Accident Date: 15/06/2006
Where it occurred: Se-326, Kharzun Village, Narai, Lija Mangal District, East Paktya	Country: Afghanistan
Primary cause: Field control inadequacy (?)	Secondary cause: Inadequate equipment (?)
Class: Excavation accident	Date of main report: 22/06/2006
ID original source: MA-02-2006	Name of source: UNMACA
Organisation: [Name removed]	
Mine/device: PMN AP blast	Ground condition: dry/dusty grass/grazing area rocks/stones
Date record created: 28/12/2007	Date last modified: 28/12/2007
No of victims: 1	No of documents: 3

Map details

Longitude:	Latitude:
Alt. coord. system: WGS-84	Coordinates fixed by: GPS
Map east: 69.36017	Map north: 33,844952
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

handtool may have increased injury (?)

visor not worn or worn raised (?)

inadequate equipment (?)

Accident report

[The report of this accident was made available in August 2007 as a PDF file. Its conversion to a text file for editing means that some of the formatting has been lost. The substance of the BoI report is reproduced below, edited for anonymity. The original PDF file is held on record. Text in [] are editorial.]

BOARD OF INQUIRY REPORT

DEATH OF [Demining group] DEMINER AT KHARZUN VILLAGE 15 JUNE 2006

General

On 29 Jun 06 the Programme Manager of UNMACA directed that a Board of Inquiry (BOI) be conducted into a demining accident that took place on 15 Jun 06 at Kharzun Village in Paktya Province, that resulted in the death of Mr [the Victim] a member of [Demining group] MCT No 31.

Members of the BOI were Mr [Name removed] (Area Technical Advisor UNMACA-Chairman), Mr [Name removed] (Operations Assistant AMAC Gardez - Member), Mr [Name removed] (Quality Management Assistant-AMAC Gardez-Member), and Mr [Name removed] (Field Officer [Demining group] Gardez-Observer).

The BOI members gathered at Gardez on 05 Jul 06 and conducted the investigation into the accident. During the investigation the PPE and the remains of the helmet and visor that were worn by the deminer were closely examined and several re-enactments were conducted to fully determine the cause and surrounding circumstances of the accident.

Details of the Incident

According to his Section Leader, Mr [the Victim] commenced work in his clearance lane at [Demining group] Minefield Task AF/0719/03130/016 at 06:00hr and worked until 07:00hr when he took his scheduled thirty minute rest break. He resumed clearance on the lane at 07:30hr and worked until 07:45hr when the accident occurred.

The deminer had worked in the task site for a total of 25 days, was familiar with the slightly sloping terrain where he was working and he was working well in the lead up period to the accident.



[Picture of the accident site, showing dry and stony ground.]

There were no witnesses to the accident except for the Section Leader, who was located at his control-point and who noticed two flashes in the vicinity of the accident.

After the explosion the team leader and medic attended the scene. The victim was lying [in] the clearance lane injured and he had been blown backwards from where he had been working. He had landed on his metal detector and his helmet and protective visor had been shattered to pieces due to the force of the explosion and the impact of debris dislodged by the explosion. The remains of the helmet and what could be found of the visor were also to his rear.

The deminer had sustained severe injuries to the left side of his face, to his left ear and to both eyes. He had badly injured three fingers to his right hand and his left hand was also injured.

Based on the position of the deminer, his equipment and the type of injuries he sustained in the accident, it was determined that he had been conducting prodding and had detonated something with large enough blast force to shatter his helmet and visor. [See Analysis.]

Initial Investigation

The Initial Investigation was conducted by AMAC Gardez Quality Management and [Deminig group].

The Initial Investigation Report contains the Accident Report, statements by the Team Leader MCT 31, Section Leader of Section 2 of MCT 31 and the medic who attended to the victim. Also included are the medical report, photographs of the accident site, the victim, and his equipment, and a site map showing the location of the accident.

The findings of the initial investigation were that the deminer had been conducting prodding when he detonated two PMN AP mines almost simultaneously. According to Mr [Name removed] of Gardez AMAC QM who took part in the investigation, there was evidence of PMN mines found at the accident scene.

It was concluded in the initial investigation that the deminer had detonated one PMN with his prodder and that mine had sympathetically detonated another PMN in close proximity. Their deduction is fully endorsed by the BOI as available evidence indicates to the presence of two PMN AP mines corroborating that conclusion. The protective visor is designed to sustain a blast that is of higher force rating than that produced by a single PMN mine. The protective visor in this instance was shattered to pieces and there were two seats to the explosion evident.

It was also concluded in the initial investigation however, that the deminer did not have his protective visor in the down (Correct) position. This conclusion is disputed by the BOI as damage to the exterior of the remains of the visor clearly shows that it had to be in the down position.

Conclusions

The following are the conclusions reached by the BOI:

1. There was no evidence of negligence, carelessness or misconduct by the victim or any other persons involved that led to or contributed to the accident.
2. The medical procedures and drills that were conducted were adequate and in accordance with accepted authorized procedures.
3. There was no evidence of drug use nor were any of those involved on medication.
4. Correct drills and procedures were conducted and instructions and safety procedures were followed.
5. All involved were well trained, well briefed and very familiar with the work site.
6. The command and control as best that can be assessed, was up to the required standard.
7. The weather at the time of the day that the accident took place was cloudy and dry and conducive to the work being carried out.
8. The victim was rested shortly prior to the accident and he was physically and mentally fit to undertake the work that he was doing.

9. It has been deduced that the deminer was using his prodder as a primary method for finding mines. In doing so, he disturbed the pressure mechanism of a PMN AP mine to his front. There was another PMN located within 200mm to 300mm to the left of that mine. The detonation of the first mine sympathetically detonated the second mine creating a blast that was much higher than that for which the visor was designed to protect against.
10. The blast also sent a large fragment through the visor which struck the front of the helmet. Until this point some protection was afforded to the face of the victim. The penetration of the fragment through the visor and onto the helmet accompanied by the excessive blast shattered and disintegrated the right side of the visor and blew the helmet into pieces. Both items were blown completely away and to the rear of the victim.
11. It is believed that the reason that the injuries sustained by the victim were primarily to left side of his face and head was that they were incurred when the helmet and visor were being blown from him as a result of the second mine blast to his left. During the detonation of the first mine milliseconds earlier, the visor and helmet had protected him as they were designed to do.
12. It is clear that the accident occurred because the victim was employing prodding drill and in the process the point of the prodder has disturbed the actuating mechanism of a PMN AP mine. It is well documented that there has been numerous accidents causing death and injury to deminers when this method is used. Often mines are not positioned as expected and the pressure surfaces of such mines can be contacted by the point of the prodder as it penetrates the ground resulting in actuation of the mine.

Recommendations

Recommendations of the BOI are as follows:

1. No disciplinary action should be taken against any of the personnel involved in the accident.
2. The practice of using prodding as a primary method to find mines should be ceased and an alternative method should be adopted such as the use of trowels. Many alternative demining hand tools are available commercially and when appropriate techniques are incorporated far safer subsurface searching would be possible.
3. Section leaders should be equipped with binoculars to allow them to achieve closer observation of the deminers working in clearance lanes. Because of safety requirements a section leader is not permitted to advance within 25m of a deminer who is working where there is a likely presence of AP blast mines. The safety distance is expanded to 50m if AP frag mines or AT mines are likely to be located. At present the section leaders do not have binoculars on issue to them. They cannot be expected to closely observe the individual work practices of the deminers in their charge at the required safety distances without the provision of binoculars or similar optical aids.

IMSMA data [derived]

[Some of the person(s) filling the forms had poor English and this has not been corrected.]

CASEVAC intentions

The injured received first medical aid from the relevant team medic but unfortunately after a few minutes the injured deminer has died.

The mine is exploded during the prodding at the minefield.

According to the team leaders statements when the deminer start his work after 15 minutes in that time I was busy with the control of the other parties of my team suddenly I heard the mine explosion.

In according to the relevant section leader's information this deminer was normally busy at his work (prodding). I turned to see my other breaching parties at this time he may kept his visor up during the prodding and suddenly the accident occurred them I immediately came to the accident point I saw he has gotten seriously injuries in his face and right hand fingers.

Description of damage to equipment: 1. Mine Detector, 2. Bayonet, 3. Helmet, 4. Visor, 5. PPE.

Site conditions (at the time of the incident/accident: the terrain was uneven, open hillside. The Soil was "medium" dry. The weather was mild. The vegetation was light grass.

Last QA inspection? Has not [been] conducted yet because this team is recently relocated from

South to South-eastern area therefore the last QA reports are with LINAAMC Jalalabad.

Team has been working since 1/06/2006. It was the fifth day of their current mission. Team works from 6:00 AM-12:00 PM with a 15 minute break every 30 minutes. The detector is use was the CIEA Mil-D1. The prodder is use was a "Russian made bayonet".

PPE use: The protective Jacket was used properly. The Helmet was on the head but his visor was up during the prodding. The helmet visor was not used properly.

IMSMA Conclusion

Has it's studied during the investigation of the incident and observing of the accident point the mentioned party work was faced to the mine belt in the task because there were several other mine incident points in the same area which are blasted before. In addition due to the below possibilities which can be causes of the mentioned accident:

1. It was the fault of the victim deminer that during the de-mining operation he kept his visor up which at the result cause his death.
2. Due to the weak command and control of the team leader because the party was faced to the mine belt he didn't advise all the deminers to be more sensitive and careless [presumably "careful"] during the operation in the task especially to this party.
3. The weak command and control of the relevant section leader to pay attention for the proper use of the visor and proper prodding of the ground in according to the procedure.
4. When we checked the area closely the injuries were on the face and eyes of the victim. Team leader had complaints from the control of Section leader and states that Section leader had not good control and deminer has not used the visor correctly. So it seems that deminer has used the visor upper position.

IMSMA Recommendations

1. In order to decrease the number of the demining incident and develop the efficiency of the demining operation out put, it's very necessary to pay attention for the safety of the field staff, and regular internal QA of the field operation.
2. The conducting of the refresher courses for the field staff should be considered.
3. Qualify and experience staff is to be deploy by the respectable organisation and the leadership of the demining teams.

4. Having of the good command and control is very necessary for the command group of the demining teams.
5. Proper and perfect briefings of the task by the respectable site offices are very necessary to the relevant team.

Victim Report

Victim number: 596	Name: [Name removed]
Age:	Gender: Male
Status: deminer	Fit for work: DECEASED
Compensation: Not made available	Time to hospital: Not taken to hospital
Protection issued: Frontal apron Long visor	Protection used: Frontal apron, Long visor worn raised (?)

Summary of injuries:

minor Foot

severe Face

severe Hands

severe Head

AMPUTATION/LOSS: Eyes

FATAL

COMMENT: See Medical report

Medical report

No formal medical report was made available.

Witness statement: "The deminer had sustained severe injuries to the left side of his face, to his left ear and to both eyes. He had badly injured three fingers to his right hand and his left hand was also injured."

Witness statement: "Left side of face, two eyes, three fingers of right hand were damaged and left hand has gotten injuries."



The only picture of the victim (above) shows a completely bandaged head.

Witness statement: "The victim has gotten the following injuries on his body: Left side of face, two eyes, one finger of right hand were damaged and left hand has gotten injuries beside that left foot has gotten fragment."

Related papers

MEMO convening Bol

Annex A To BOI-MA 02-2006, Dated 12 Jul 06

File: OPS 3.1.6

Date: 29 June 2006

To: ATA UNMACA Kabul

From: Programme Manager, UNMACA, Kabul

Subject: Board of Inquiry — [Demining group] Mine Incident Report ID No: SE-03

This memo serves to convene a formal Board of Inquiry (BOI), effective 31st June 2006, to investigate the circumstances into the death of [the Victim].

The convening instructions and Terms of Reference for the Board of Enquiry are attached to this memo. [Demining group] is invited to place an observer onto the BOI to assist in facilitating the process.

A copy of the [Demining group] Mine Casualty Report dated 22nd June 06 is attached for your information.

TERMS OF REFERENCE BOARD OF INQUIRY

References: A: MACA SOP Annex D to Ops 7.2; B: IMAS 10.60 Reporting Investigations

1. The following personnel are hereby appointed as Formal Board of Inquiry (BOI) to conduct an investigation of the circumstances surrounding an incident involving - Mr. [the Victim].

- a. Mr. [Name removed] ATA UNMACA Kabul: Chairperson
- b. Mr. [Name removed] Ops Assistant Sub-AMAC Gardez: Member
- c. Mr. [Name removed] QMA Sub-AMAC Gardez: Member
- d. Mr. [Name removed] Field Officer [Demining group] Gardez: Observer

2. The BOI is to investigate, without limits to its inquiry, the following incident:

- a. Serial No.: SE-03 2006
- b. Date/Time: 15th June 2006 at 07:45hrs
- c. Location: Kharzun Village, Laja Mangal District of Paktya Province
- d. Task No.: AF/0719/03130/016
- e. NGO Details: [Demining group] MCT No: 31
- f. Personnel involved: Mr. [Name removed] the victim

3. Your investigation and subsequent report is to cover the following:

- a. When, where and why the incident occurred.

- b. The cause, nature and extent of injuries received by people, as a result of the incident.
- c. The cause, nature and extent of damages to any program or private property.
- d. If the device was in a cleared area, you are to include the work timings for the period surrounding the incident. You are to include the time of commencement of work and working hours.
- e. The date of the last monitoring of the team involved in the incident and the results of that monitoring.
- f. The date of the last revision course for the team involved in the incident and if the member involved in the incident were present on that training.
- g. You are to attach photographs of any damaged equipment.
- h. Whether medical treatment and evacuation was adequate, or in any way contributed to further injury or death.
- i. Whether the death, injury or damage to equipment was contributed or caused by:
 - (1) Neglect, carelessness or misconduct by the member or other personnel involved.
 - (2) The use of drugs or medication.
 - (3) Non-compliance with orders, instructions or safety procedures.
 - (4) Malfunctioning of explosive devices or equipment used.
 - (5) Any shortfall in training of the personnel involved.
 - (6) Any weakness in the method of command and control.
 - (7) The prevailing weather conditions.
- j. Whether any immediate action is required to prevent a recurrence of the incident.

4. Your report is to make conclusions on the following:

- a. The key factors which may have contributed to the incident, including any shortfalls in training procedures, equipment or management.
- b. Whether there is evidence of any fault, neglect or carelessness on the part of the mine action agency and, if so, which personnel are responsible?

5. Your report is to make recommendations on:

- a. Modifications to training procedures.
- b. Modifications to equipment.
- c. Disciplinary or corrective action to be taken against mine action agency or personnel.
- d. Any other immediate or longer term action that should be taken to prevent such incidents from re-occurring in the future.

6. The following documents are to be attached to your report:

- a. Copy of these Terms of Reference
- b. Copy of Initial investigation
- c. Statements (translated) of personnel and witnesses
- d. Photographs of the site and a sketch map of the incident site

- e. Photographs of the involved personnel and any damaged equipment
- f. Any other supporting documentation

7. Your report is to be finalized and delivered to the UNMACA Chief of Operations no later than 15th July 2006.

8. It is important to note that these terms of reference are not intended to limit the scope of your investigation. You may include any relevant details you see fit.

STATEMENTS

Statement and Witness Report 1

[Section Leader, four year's experience.]

1. Please give information about your activities?
2. How and where the incident happened?
3. Give me information about the victim experience and personal life?
4. How long are you working in the mentioned minefield and how many mine have you found yet?
5. What numbers of mines have you found and or exploded on the day of incident and what type of mines?
6. In your opinion what was the main cause of the incident?
7. In your opinion were there any ways to prevent such incidents. If yes? What are they?
8. What were the injuries of the victim?
9. When the incident happened what were the activities of the victim?
10. What type of mine incident happened?
11. What demining equipment damaged during incidents?
12. When the incident has happened from the starting work of victim?
13. Any suggestion to prevent such incidents in future?

Answers:

1. My name is [Name removed] I joined the demining course in December 2000. And I started the demining work in 2001 in field. I was deminer for one year. And Section leader for four years.
2. In Task No: 016, 'Team No: 31, Section No: 2 and Party No: 1. During prodding the incident happened at 7:45 AM.
3. The victim was very good person had good relation with team members. He was working nicely. We had no problem with him and in his work.
4. We are working from 25 days in this task. We have found 10 POMZ mines in this task and have exploded them as well.
5. We have not found the mine on the incident day.
6. During the incident happening I was in Control point. When I saw two fires opened in the field.

7. How the type of mine was not known so the prevention of such incidents was impossible.
8. The victim has gotten the following injuries on his body: Left side of face, two eyes, one finger of right hand were damaged and left hand has gotten injuries beside that left foot has gotten fragment.
9. The victim was prodding that the incident has happened.
10. The incident has happened of two PMN mines.
11. During the incidents the following demining equipments got damaged: Telescope mil of mine detector was damaged because the victim has come over it. Visor damaged, bayonet has been lost and jacket has damaged as well.
12. He started the work at 6:00 AM and continuous till 7:00 AM and then breaks for 30 minutes and again He started the work at 7:30 AM that the mine incident happened at 7:45 AM.
13. No suggestion.

Questions and Answers:

14. According the manual of Visor it has resistant against PMN mines, but your Visor and Helmet were broken, so what are the cause of their breaking?

Answer: How the Visor can resist against one PMN mine and on our Visor two PMN mines were exploded, so this was the reason that they damaged.

15. What is the reason that your Visor has gotten damaged inside and the Helmet has smoke Inside?

Answer: How the cover of Visor has damaged therefore it has gotten smoke and dirt inside.

16. According of our observation we saw the victim as well. His left side of face, eyes and left ear were seriously harmed. And we checked the visor as well and its left side was not damaged, so tell has the Visor been used properly or there is any other reason?

Answer: I was in Control point. When I came these pieces of Visor were laid near the victim. Maybe he has made a mistake of not using the Visor correctly.

Statement and Witness Report 2

[Team Leader, experienced since 1997.]

Questions:

1. Please give information about your activities?
2. How and where the incident happened?
3. What were your activities and where were you during happening of incident?
4. Give me information about the victim experience and personal life?
5. How long are you working in the mentioned mine field and how many mine have you found yet?
6. What numbers of mines have you found and or exploded on the day of incident and what type of mines?
7. In your opinion what was the main cause of the incident?
8. What were the injuries of the victim?
9. What were the activities of the victim that the incident has happened?
10. What demining equipment damaged during incidents?

11. What type of mine incident happened?
12. When the incident has happened from the starting work of victim?
13. In your opinion were there any ways to prevent such incidents if yes? What are they?

Answers:

1. I joined the demining program in 1997. First I was deminer and then Section leader then Assistant Team Leader and from 2000 till now I am working as Team Leader.
2. When the operation started it was going normally well that the incident happened at 7:45 AM at Second Section, First Party.
3. During the incident happening I was in Control point and I was controlling the Section leaders and Parties.
4. The mentioned victim has started the demining work from 2001 his personal life is not bad he has his own house and some land in Zaghu village, Chaparhar District of Ningarnar Province.
5. We have worked total 150 hours which is 25 days in this task. We have found 10 POMZ mines and four 82 mm UXO in this task and have exploded them as well.
6. We have not found the mine or UXO on the incident day.
7. In my view the deminer has made mistake during prodding.
8. The victim has gotten the following injuries on his body: Left side of face, two eyes, three fingers of right hand were damaged and left hand has gotten injuries.
9. Unfortunately my attention was toward First Section's Party.
10. During the incidents the following demining equipments got damaged: Telescope mil of mine detector was damaged because the victim has come over it. Visor damaged, bayonet has been lost.
11. Two PMN mine were exploded in the incident.
12. He started the work at 6:00 AM and continuous till 7:00 AM and then breaks for 30 minutes and again he started the work at 7:30 AM that the mine incident happened at 7:45 AM.
13. How two PMN mines were exploded at same time the deminer was seriously injured and then died, but deminer by himself had no attention and Section Leader had wrong control.

Questions and Answers:

14. According the manual of Visor it has resistant against PMN mines but your Visor and helmet were broken, so what are the cause of their breaking?

Answer: During the incident two mines were exploded in front of deminer. When I entered the incident area the Helmet was laid broken. in my view the deminer had the visor in upper position and the Helmet has come from a higher distance and lay on stones, so therefore it has broken down.

15. What is the reason that your Visor has gotten damaged inside and the Helmet has smoke Inside?

Answer: How the explosions were very strong therefore Visor has damaged and helmet gotten smoke and dirt inside.

Statement and Witness Report 3

[Medic, experienced since July 2002.]

Statement / witness report Questions:

1. Please give information about your activities?
2. What were your activities and where were you during happening of incident?
3. Give me information about the victim's injuries?
4. When you reached the incident area and what you did for victim?
5. In your opinion what injury has caused his death?

Answers:

1. I graduated from Ningarhar Medical University in 2000. First I was working with HEWAD NGO as doctor then I have worked with AREA-CBMCP alter that I joined the [Demining group]-CBMFAP and till now I am with [Demining group]-Team No 31.
2. During the incident happening I was sitting with my all equipments in a selected place by Team Leader.
3. The victim has gotten the following injuries on his body: Left side of face, two eyes, three fingers of right hand were damaged and left hand has gotten injuries. And left ear was also injured.
4. After five minutes of incident happening I reached to the victim and started his basic treatment such as Air way, IV Lin. Turnaket, Analgesics. And then we started evacuation of victim to medical tent by ambulance. And we did the following for victim in medical tent: section, oxygen, Analgesics, dressing, Hydrocortisone, and Adrenalin.
5. In my view how the left side of face was totally damaged so he give his life and died.

Analysis

The primary cause of this accident is listed as a "Field control inadequacy" because the Victim was working with his visor raised and this error was not corrected. Other errors may also have gone uncorrected. The secondary cause is listed as "Inadequate equipment" because the Victim was using a short AK bayonet which has been known for more than ten years to be a dangerous tool to use when excavating mines (as recognised by the investigators).

The following observations about the Bol conclusions can be made:

Sympathetic detonation of PMN blast mines is not common. Mines are frequently not detonated by an explosive charge that is not in close enough contact with them, but which is still close enough to shatter the mine casing. The Section leader "noticed two flashes" which implies that there was a time lapse between flashes. It is probably that the deminer fell sideways after the first blast and initiated the second mine with the side of his helmet or head. There is no apparent temperature induced distortion of the visor, only shattering is apparent, This makes it likely that it was not directly inside the heat-dome associated with a TNT detonation.

The Chairman is unaware that while 5mm polycarbonate visors will withstand the blast from a PMN straight ahead at 60cms, a side blast may twist the visor and lead it to break. Two blasts would also explain damage both inside and outside the raised visor.



The damage to the visor and plastic helmet is shown above.

The right side of the helmet and visor are not present. According to the reports, it was the left side of the Victim's face and head that were severely damaged. Also, the PPE (poor B&W photograph) shows extensive staining on the top, concentrated on the right side, which seems to be blood. From this I infer that the medic (whose English is poor) confused left and right. No hospital report or certificate of death was made available against which to check which side of the Victim's head was affected. If this inference is correct, it supports the hypothesis that the victim fell onto a second mine with the left side of his face/head.

The suggestion from the Chief of Operations that "Section leaders should be equipped with binoculars" presumably refers to his belief that Section Leaders are not supposed to approach within 25 metres of the people they supervise. In all other major theatres, supervisors are allowed to approach those they supervise in order to see their work. Generally, the deminer should stop working when the supervisor approaches within a few metres.

The Victim's short AK Bayonet was "lost". The Bol Chairman was correct to suggest that the use of a safer/longer tool might have prevented the accident.