DDAS Accident Report

Accident details

Report date:	21/01/2008	**Accident number:**	496
Accident time:	12:55	**Accident Date:**	08/07/2007
Where it occurred:	Camp Moorhead, Rishkhor Village, Char Asyab District, Kabul province	**Country:**	Afghanistan
Primary cause:	Inadequate equipment (?)	**Secondary cause:**	Field control inadequacy (?)
Class:	Excavation accident	**Date of main report:**	15/07/2007
ID original source:	CA-126	**Name of source:**	UNMACA
Organisation:	[Name removed]		
Mine/device:	Fuze	**Ground condition:**	dry/dusty grass/grazing area hard
Date record created:		**Date last modified:**	21/01/2008
No of victims:	1	**No of documents:**	2

Map details

Longitude:		**Latitude:**	
Alt. coord. system:	WGS 84	**Coordinates fixed by:**	GPS
Map east:	E 69 08 34 8	**Map north:**	N 34 24 49 9
Map scale:		**Map series:**	
Map edition:		**Map sheet:**	
Map name:			

Accident Notes

inadequate equipment (?)

inadequate investigation (?)

handtool may have increased injury (?)

inadequate metal-detector (?)

pressure to work quickly (?)

squatting/kneeling to excavate (?)

visor not worn or worn raised (?)

use of pick (?)

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 report is reproduced below, edited for anonymity. The original PDF file is held on record. Text in [ ] is editorial.

Demining Accident Investigation Report

File: OPS-27I 21-A/ 07

To: Chief Of Quality Management, UNMACA

From: Area Manager UNAMAC Kabul

Date: 15th July 2007

Subject: Demining Accident Investigation Report

Attached please find the investigation report along with supporting documents of the demining accident (CA-126) happened on [the Victim] deminer of [Demining NGO] on 08 July 2007 at 12:55 hours due to explosion of Fuse, which injured deminer' left hand fingers.

Eng. [Name removed] OPS Associate and Eng. [Name removed] OPS Assistant AMAC Central have conducted the investigation. Findings and recommendations are mentioned in the report, forwarded for your information and further action.

IMSMA Demining Investigation Report

Unknown device, Fuse 23 mm, was detonated while excavating.

History of the Minefield: Task No 663 is located at Camp Moorhead, Rishkhor, Char Asyaib District, Kabul Province. Total size of the area is 8597 Sqm required surface check and subsurface clearance.

In those areas where client needs to build houses, they need 1m depth to be clear by demining. Rest of the area team using Schonstedt and large loop detector in case of any reading, reading spot is being investigated till elimination of signal.

As the area was military front much fighting had been taken place in the mentioned area. Besides that after September 11, coalition raids hit it.

Core Engineering (SSG) requested clearance of these areas while they would like to use the area for training purposes and reconstruction of some installations.

Description of the incident/accident: At around 12:55 hrs accident happened on [the Victim] while he was investigating the signal. Team leader was controlling other lane, which was at his 200 in distance from [the Victim's] lane. Section leader was controlling other section at his 50 m distance.

Equipment/property damage: the Victim's Visor has a small scratched dot, which is not considerable.

[The accident site is shown below.]

Site conditions: The terrain was described as flat and open. The soil was hard and dry. The weather was clear, calm and mild. The vegetation was heavy grass and “Rocky”.

Team and task details: The team has been working at the site since 6th July. They worked from 07:00 to 15:00 each day. They took two half-hour breaks, one at 10:30 and one at 13:00. They were using the Schonstedt, Large loop and F3 Detector. They used a “small pick for excavation”. The team’s last leave was 26-Jun to 02 July.

Medical reaction time: The paramedic was at the accident site in 1.5 minutes. The casualty was in the ambulance three minutes later. The ambulance took 20 minutes to drive from the accident site to the hospital (15 km). The last CASEVAC drill was conducted on 3rd July 2007.

Conclusions

1. Deminer has worn PPE and Visor, which saved his life and reduced further injuries.

2. Ground Surface was hard and grassy so, in such area deminer should be more cautious while doing investigation of any signal, because applying more force then required on hard ground would cause accident.

3. As his left hand fingers received injuries, and he was used to work normally with right hand. So. it reveals that the injured person was using his both hands. With right hand using detector and with left hand checking the signal.

4. Both statements of team leader and section leader show that none of them was controlling the deminer.

5. The supervision of command group was weak. It is very necessary for the command group to control and give guidance to the team members

Recommendations

Followings are team recommendations:

1. In hard ground and grassy ground the deminer should not use more pressure during using any excavation tool which would cause accident, instead they should be more cautious and carefully while investigating the signal.

2. Using water for soften the area is recommended prior to the work commencement.

3. In hard and grassy ground command group should brief team members of any possible danger related to such area.

4. Command group need to monitor team's activities and guide them if they required.

5. Any signal should be considered as a danger regardless of weak signal or strong. We have to deal with it in safe manner.

6. Hurrying would cause accident most of the time.

7. After indicating a signal by detector deminer should first put away detector then start investigation with the hand, which he is used to work otherwise, he could not control his activities properly.

Internal Memo

File: QM/10-11

To: Chief of Operations, UNMACA Kabul

From: Chief of Quality Management, UNMACA Kabul

Date: 30 July 2007

Subject: Demining Accident Investigation Reports of [Demining NGO] Team-02

Occurred in Rishkhor village of Char Asyab district, Kabul province

With reference to demining accident investigation reports of AMAC Kabul, dated: July 15 2007

We endorse the recommendations of the investigation officer as a preventive measure and would like to add the following point:

Team command group should ensure that the deminers are practicing safe and standard procedures while working on a signal. They are also to ensure that proper supervision is in place throughout the operations that is why team command group is. It is also believed that the deminer got aggressive during excavation and started digging with two hands, he failed to maintain his hands balance, so hit the fuse and set it off.

Internal accident report

From: [Demining NGO]

Subject: Accident at [Demining NGO] Task Site 663/106

10/07/07

Please find attached the initial report. This is in follow up to telecon [Names removed] yesterday evening.

Best regards

Country Program Manager [Demining NGO] Afghanistan

INITIAL ACCIDENT REPORT INTO INJURY SUSTAINED BY [Demining NGO] DEMINER [the Victim] — TEAM 2 SECTION 4 ON THE 8th JULY 2004 AT CAMP MOORHEAD

BACKGROUND

[Demining NGO] Deminer [the Victim], has been working for [Demining NGO] since 2004. [The Victim] is currently a part of Team 2 Section 4 and works under [Name removed] (his Section Leader). He and his Section have been involved in clearance work on [Demining NGO] Task 663 / 106 (Camp Moorhead) since the 5th of July. Since then, he and his Section have been tasked to clear an area of land within Zone B - Part H of the site. The site is being cleared (by Battlefield Area Clearance — BAC) using [Demining NGO]'s approved SOPs. The site is being cleared under instructions from the Client — who in this case — is SSG Prosima.

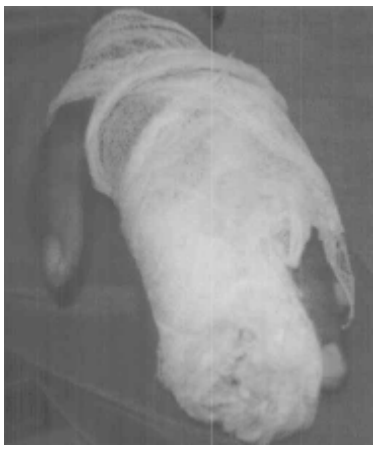
The area being cleared is on the site of a large divisional Military Base which was previously involved in fighting between the Taliban and Coalition forces back in 2002. This particular part of the site has revealed, in the last few days, a number of UXO in the form of Artillery and Mortar Fuzes, 23mm HE and AP Cannon ammunition as well as a TM46 AT Mine (unfuzed) as well as various sized SAA.

ACCIDENT DETAILS

At approximately 1255 hrs [the Victim] was excavating onto a contact indicated previously by his detector when there was an unintended explosive event resulting in [the Victim] suffering minor abrasions to his left hand and dust in his eyes. His Team Leader [Name removed] was standing approximately 50m away and on hearing the explosion called a stop to all work in the area and went to the assistance of [the Victim]. [Name removed] was the first person on the scene, followed closely by the Section Leader who was also approximately 50m away and who had been monitoring another member of the Section, stationed to the left of [the Victim].

They saw that [the Victim] was still conscious and asked him if he was injured in any way. He responded by saying he was okay but that his left hand was sore and bleeding and that he also had some dust in his eyes. As he was still conscious and lucid he was immediately walked to the First Aid station to the rear of where he was working. He was immediately treated by the Medic who applied a dressing to his hand and administered some fluids to intubate the eyes. His condition was monitored for a few minutes and he was then put into the ambulance by the medic and the site Doctor and evacuated from the site at 1303 hrs.

[Victim’s injured hand]



He was taken to the nearest recognised medical facility at Asteqaal Hospital, as per the safety Health plan, arriving there some 17 mins later at 1320 hrs. He was seen by a physician who examined the hand, reapplied the dressing and suggested he go to another facility to have his eyes checked out. He was subsequently escorted to Que Hospital where his eyes were examined. He was released from here and later taken back to the [Demining NGO] compound

where he remains now. His condition is described as comfortable and he is not in any immediate danger according to the Doctors who examined him.

ACCIDENT INVESTIGATION

Shortly after the accident all work stopped on the site. This order was passed on to all by the Supervisor in charge — [Name removed]. A message was passed by [the Supervisor] to the [Demining NGO] ups Officer — [Name removed] and the PM for the site — [Name removed]. Also informed were [Name removed] (Demining Manager DM) and [Name removed] (Country Manager CM).

Once it was known that an accident had happened and that the casualty was being medically evacuated to the hospital, the CM appointed the DM to start an initial investigation as to the possible cause of the accident.

Stage I - The Ops Manager and DM then departed for Camp Moorhead and arrived there approximately 1430hrs. When they arrived they met up with [Name removed] (Supervisor) who quickly briefed them up on the above events. They travelled to the immediate area of the accident and met [Name removed] and [Name removed] who then led them to the accident scene.

Stage 2 - Unfortunately although the immediate area of the explosion had been marked, all [the Victim]'s tools and equipment had been moved to a different part of the Zone. His PPE had also been removed to an area to the rear of the Zone so only a red flag marked where the accident had occurred. Nevertheless it was clear as to where the explosion had taken place.

Picture 1 and 2 shows the immediate area and what appeared to be a small crater approximately 5 cms deep and approximately 20cms wide.

Crater thought to be caused by explosion.

Stage 3 — A check of the crater area revealed some small Aluminium fragments found within the soil in the crater. There were no signs of burnt residue in the crater or its surroundings nor did the ground have any real odour traces present. (This may indicate two things. The first is that the explosive charge was not a great amount — possibly a few grams at the most. The second is that the explosive event whilst capable of making a small crater did not have sufficient energy to scorch the ground. This may indicate that whatever caused the explosion

may not have been in direct contact with the ground but perhaps was just under the grass or surface of the ground).

A quick visual search of the immediate grassed area by [Name removed] prior to the accident team's arrival revealed 3 fragments which appear to be Aluminium. Picture 3 [removed] shows these fragments. These fragments may have come from the same object as the smaller fragments found by the Investigating team. The 3 pieces were between 4 and 10 mms long with various degrees of thickness (approximately 4 to 5 mms thick).

Stage 4 — [The Victim]'s tools and equipment were then examined for any signs of explosive residue or damage. It was noticed that there was a small contact mark on the tip of one of the tools thought to have been used by [the Victim]. Unfortunately this mark did not get picked up by the camera but could indicate a point which was in close proximity to the explosive event, indicating that [the Victim] was indeed excavating with this tool when the accident occurred. A check of the Deminers PPE revealed that apart from a few spots of blood on the neck area the vest had not been penetrated by any of the fragments from the blast. The Helmet did show a strike mark on the right hand side of the visor area, and whatever made the indentation managed to penetrate through the affixed appliqué but did not penetrate through the polycarbonate material. Pictures 4, 5 and 6 show the PPE and Helmet in some detail. [Pictures removed.]

Close up of strike mark on R/H side of visor, below.

Stage 5 — A check of the detector used by [the Victim] revealed that it was in good working order. The detector — (a Schonstedt ML 1) was not damaged in the accident. This type of detector does not "indicate" on Aluminium but rather on ferrous type objects. (Another Schonstedt was used to look for any further fragments but did not indicate on the smaller fragments noticed in the soil earlier by the team).

Conclusion

From the evidence gathered at the scene or presented to the Accident team whilst they were present, the following is now thought possible.

1. The Deminer was excavating towards the source of a signal when the accident occurred. The source of the signal may not have been the same as what caused the accident, as the locator used is not normally capable of finding objects made predominately of aluminium. The Deminer may therefore not have known that this was the case and may have caused the

object to explode whilst attempting to remove the soil from in front of it — on his way to a different signal.

2. The object which caused the explosion was probably some sort of Aluminium object (possibly a Fuze from an RPG round, judging by the size and thickness of the 3 fragments found by [Name removed]. Although the NEQ of the object is not known, the fact that the fragments did not have sufficient energy to penetrate the Body Armour (PPE) or Helmet may indicate an Explosive weight of 2 to 4 grams rather than say in excess of 5 grams, but this is pure guesswork on the part of the lead Investigator and based on his own extensive experience of accidents worldwide.

3. The PPE and Helmet were being worn correctly. There was no damage to the Body Armour and the Deminer, whilst suffering from sore eyes due to the dust projected by the explosion (and a few small pot marks to the skin where some fragments have forced their way up between the visor and PPE), did not suffer any cuts to the skin or damage to the eyes. Although the visor surface was struck by a fragment in one place, that fragment did not penetrate through the visor material.

4. The SOPs appear to have been followed both by the Deminer as well as the people on the ground regarding accident procedures. All work stopped on the site approximately 1 minute after the accident. There are a total of 8 Sections working on the whole site area at any one time, indicating that communications were used correctly and that the radio channels were being listened to by all Section Leaders / Team Leaders.

5. The soil in the vicinity of the crater is not very hard and this may support claims from the Deminer that he was not using excessive force whilst excavating. However as he wasn't being observed at the time of the explosion by anyone else, excessive force cannot be ruled out at this moment in time. Certainly some other excavations were examined that the Deminer had previously worked on not long before the accident, which seemed to show he had been excavating in the right manner.

6. Casevac drills were correctly implemented and followed. Medical treatment was swiftly applied and was appropriate to the level of the injuries sustained.

7. The Supervisor’s logbook shows that the daily brief given at the start of each day included mention of Detector use, UXO recognition and Excavation drills.

8. Previous [Demining NGO] records support the fact that Section 2 of Team 4 has not long ago spent several days on the training ground on refresher training.

Recommendations

1. That work stop on the site until an external agency such as the UNMACA have conducted their own separate investigation into the cause of the accident.

2. That all staff on the site are put through a short refresher training on how to excavate contacts.

Signed: [Demining NGO] Demining Manager

Dated: 08 July 2008

INITIAL DEMINING ACCIDENT REPORT

File: 027/ 22/ /07

To: Chief of Operations UNMACA

1. Initial demining accident report

2. Location: Reeshkhor area, Charasyab district of Kabul province, [Demining NGO] BF No. 663

3. Date and Time of Injury/Incident: 08.07.07, 1250 hrs.

5. Description of Injuries. Slight injuries on his left hand

6. Treatment given at site: He has been taken to Isteqlal Hospital after dressing and treatment in this hospital at 1600 hrs on 08.07.2007 arrived to [Demining NGO] clinic.

7. Current Condition of Casualty. His condition is good and he is under treatment.

8. Casualty priority: N/A

9. How incident/casualty occurred (include full details of incident if inquiry did not occur on an authorized minefield survey or clearance task):

The deminer was excavating onto a signal suddenly the explosion occurred.

10. Evacuation Route and Destination. Reeshkhor = Isteqlal Hospital in Kartai 3 = [Demining NGO] clinic

11.Any other information: [Demining NGO] has verbally reported to MACA Operations, then at the following day AMAC received the information of accident from ALAC-I. As soon as we were informed, we assigned an investigation team consist of AMAC OPS associate and assistant and send them the accident area.

LESSONS LEARNED SUMMARY

OF DEMINING ACCIDENT OCCURRED ON [Demining NGO] DEMINER ON JULY 08 ,2007 AT RESHKHOR OF CHARASYAB

INTRODUCTION:

As a result of a demining accident on [the Victim], deminer of [Demining NGO], T-02 at 12:55 hours on July 11, 2007 in task # 663/106 located at Reshkhor village, Charasyab district of Kabul province, investigation team was convened by UNAMAC Kabul to conduct the investigation and find out the main causes of the accident.

The accident caused slight injuries on left hand of the deminer.

SUMMARY:

The task is located on the site of a large military division which was previously involved in fighting between the Taliban and Coalition forces in 2002. [The Victim] deminer was excavating the signal in a grassy and hard ground, while suddenly the accident happened. As he got slight injuries in his left hand he was conscious and after receiving first aid was carried to Istiqlal hospital.
As the accident area was checked by investigation team, it was found that the accident was due to detonation of a small UXO.

CONCLUSIONS:

The following points were found by investigation team:

- Deminer has worn PPE and visor, which saved his life and reduced further injuries to him.
- Ground surface was hard and grassy, so in such area deminer should be more cautious while doing investigation of any signal, because applying more force then required on hard ground would cause accident.
- As his left hand fingers received injuries, and he used to work normally with right hand, it reveals that the injured person was using his both hands, with right hand using detector and with left hand checking the signal.
- Both statements of team leader and section leader show that none of them was controlling the deminer.
- The supervision of command group was weak. It is very necessary for the command group to control and give guidance to the team members.

RECOMMENDATIONS:

The following points are to be considered:

- Refresher training with focusing on prodding and excavation drill is recommended to be conducted for the team to prevent further wrong practice.
- In hard and grassy ground the deminer should not use more pressure during using any excavation tool which would cause accident; instead they should be more cautious and careful while investigating the signal.

Using water to soften the area is recommended prior to work commencement.

In hard and grassy ground command group should brief team members of any possible danger related to such areas.

Command group need to monitor team's activities and guide them if they required.

Any signal should be considered as a danger regardless of weak signal or strong, the deminer should deal with it in safely manner.

After indicating a signal by detector, deminer should first put away the detector to safe or cleared area then start investigation of the ground with hand tool, otherwise he could not be able to control his activity and will endanger his and others life.

Signed: Chief of Operations, UNMACA Kabul

Victim Report

Victim number:	657	**Name:**	[Name removed]
Age:	28	**Gender:**	Male
Status:	deminer	**Fit for work:**	presumed
Compensation:	Not made available	**Time to hospital:**	25 minutes
Protection issued:	Frontal apron Long visor	**Protection used:**	Frontal aron, Long visor

Summary of injuries:

minor Eyes

minor Face

minor Hand

COMMENT: See Medical report.

Medical report

Memorandum: To Country Manager Medical Unit

Date: 08-07 2007 Incident report

On Sunday 08-07-2007 at 12:50 pm [the Victim] TD#304 Deminer of Team No 2 Section No 4 during his work in Reshkhor project injured by UXO Explosion. He got injury in his four finger of left Hand in his face and his Both eyes injured. So he has some fragment in his Both eyes and his face.

Both [Demining NGO] Medics [Names removed] provided first aid Assistants.

The injured was taken to Istaqlal hospital after dressing and treatment in this hospital

The injured referred to Noor eye hospital for further treatment. At 04: 00 pm 08 -07-2007 the injured arrived to [Demining NGO] Clinic his health condition was good and he is under treatment now.

Signed: [Medical doctor]

STATEMENTS

Statement and Witness Report 1: the Victim

Explain the following questions.

Q1: Explain how the accident happens as eyewitness?

A 1: I was working on my Lane with Schonsdat detector suddenly accident happened and then I found myself under medic treatment. At 12:55 hrs.

Q2: Was detector touched with UXO caused accident and tell me what device it was?

A2: I left my detector and start work with small pick meanwhile I hit the ground accident happened, it was fuse.

Q3: In which position accident occurred on you and how deep the UXO was buried?

A3: It was buried almost 5 cm deep and I was working with my left hand.

Q4: What was the reason behind the accident and what is your recommendation to avoid such accent tin the future'?

A4: Since morning I was working in the area and I did not find any things. I tried to work a little bit faster and search more area to increase productivity. To avoid such accident section leader should not force deminer to work faster, I hurrying in any work resulting bad events specially in demining. In vegetated area priority should be given for removal of vegetation.

Signed and dated: 12/07/2007

Statement and Witness report 2: Section leader team #02, section 04

Explain the following questions.

Q1: How the accident happened?

A1: I was controlling party no 04 meanwhile I heard explosion voice and then we evacuated [the Victim] the injured deminer from battlefield with the help of two deminers to the safe spot.

Q2: When did accident happen and what was the reason behind the accident?

A2: At 12:55 hrs accident happened I do not know the reason behind the accident.

Q3: What tool the injured deminer was using during his work?

A3: He was working with small pick.

Q4: Could you tell us what was type of UXO caused accident and also tell what types of UXO team found previously in this site?

A4: I think it was Fuse and we have found 23 mm UXO, projectile in vicinity of the area.

Q5: In how much time you reached to the injured person and did he wear PPE and visor and also tell us what part of his body received injuries?

A5: I reached with 3 minutes and he worn all his PPE and visor, his left hand fingers received injuries.

Q6: As you were responsible to control deminers, explain how and which position deminer were and what tools he was using for investigation of signal when accident occurred and was he using the small pick correctly?

A6: He was at kneeling position and scripting the ground, as ground surface was hard meanwhile he touches the fuse caused accident.

Statement and Witness Report 3: Medic team #04

Explain the following questions.

Q1: Where was your location at accident time and what you have done for the patient?

A1: I was at around 100 m away from injured person, injured person was evacuated and I applied first aid assistance to him.

Q2: How was the patient condition after accident and also tell us about his current health condition?

A2: His left hand got some slight injuries and his health condition was normal and currently he is fine.

Q3: Please explain what medical assistances you have done for the patients including first aid?

A3: I have applied first aid help to him which took 2 minutes then he was shifted to Istiqlal hospital, after some treatment he was discharged from hospital and sent to office and he is currently in our office clinic under treatment.

Q4: Except his left hand injuries, is there any other fraction or injuries on his body?

A4: There was some scratches on his face too, no fraction on his body.

Statement and Witness Report 4: Team Leader

Explain the following questions.

Q1: How the accident happens?

A1: I was controlling other next to the mentioned section which accident occurred on it. While I heard voice of explosion I found realized that it happened on [the Victim] and reached myself to the accident spot with the paramedic. Paramedic start application of first aid. I informed site supervisor and announcing break for the rest of the team. After first aid application injured person was shifted to hospital by team ambulance.

Q2: How far were you from the accident spot?

A2: 200 m away.

Q3: How long first aid application and his transportation to the hospital did take?

A3: First aid application took 3 minutes and his transportation took 20 minutes.

Q4: What is the start and time for daily work and for how long team are taken breaks?

A4: At 7:00 hrs work is commence and 15:00 hrs is our end of work and we have two times break at 10:300 hrs and 13:00 hrs.

Q5: When did team do CASAVAC drill?

A5: On 03 July.

Q6: What fault of the deminer caused accident from your point of view?

A6: As signal was weak, deminer might think of it not seriously which caused accident.

Q7: As per procedure the area was visually checked then by detector in case of any signal requires investigation of the mentioned signal. Do you think deminer carelessly have investigated the signal?

A7: Yes first visual check then using detector for any signal. In case of signal the spot requires sub surface check. I do think he might have done some thing wrong caused him the accident.

Q8: Have you taken any photo of the injured person?

A8: We do not have permission to use camera as it is military area, but I have used mobile phone and took some photos of the injured deminer after explosion.

Statement and Witness Report 5: Deminer Section 04 team no 2

Explain the following questions.

Q1: Explain how the accident happens as eyewitness?

A1: I was working on my own specified lane while accident happened I and another deminer went to the accident spot and evacuated the injured person to the safe area where he received first aid assistance and then he was shifted to hospital by team ambulance.

Q2: As an expert deminer what fault of the injured deminer caused the accident and also tell us if deminer worn PPE and visor or not?

A2: As the ground was hard it might have hit object caused accident. He did wear PPE and Visor.

Q3: What part of injured person has got injuries?

A3: His fingers got some minors injuries the rest of his body was all right.

Analysis

The primary cause of this accident is listed as “Inadequate equipment” because the deminer was working with a Schonstedt detector which was not capable of locating the device that the investigators believe he found. The locator is intended to be used to find large ferrous metal at depth, and was inappropriate for use where small aluminium fuzes might be found.

The secondary cause is listed as “Field control inadequacy” because the investigators found that the field control at the site was weak.

The “Inadequate investigation” listed under “Notes” refers to the fact that the independent investigators failed to note that the locator was unsuitable, (the internal investigators noted this) and that the Victim had suffered eye injury. He was taken to an eye clinic to ensure that the injury was not serious. By implication, his visor must have been partly raised.

The use of the locator in an area where other similar fuzes had been found was irresponsible.

Despite the small size of the device, the victim suffered hand injury. This may have been because the tool he was using was unsuitable (not blast resistant and designed for purpose). Both the detector and the hand-tool were inappropriate equipment.