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### DDASaccident426

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# DDAS Accident Report

## Accident details

|  |  |
|--|--|
| <b>Report date:</b> 01/08/2006                                       | <b>Accident number:</b> 426                                  |
| <b>Accident time:</b> 08:25  | <b>Accident Date:</b> 03/07/2003                             |
| <b>Where it occurred:</b> Mowbr Al-Basara Army<br>Supply Base, Basra | <b>Country:</b> Iraq   |
| <b>Primary cause:</b> Unavoidable (?)                                | <b>Secondary cause:</b> Management/control<br>inadequacy (?) |
| <b>Class:</b> Demolition accident                                    | <b>Date of main report:</b> 10/07/2003                       |
| <b>ID original source:</b> [Name removed]                            | <b>Name of source:</b> [Name removed]                        |
| <b>Organisation:</b> [Name removed]                                  |  |
| <b>Mine/device:</b> Propellant                                       | <b>Ground condition:</b> not applicable                      |
| <b>Date record created:</b> 29/07/2006                               | <b>Date last modified:</b> 01/08/2006                        |
| <b>No of victims:</b> 1  | <b>No of documents:</b> 2                                    |

## Map details

|                                    |   |
|------------------------------------|---|
| <b>Longitude:</b>                  | <b>Latitude:</b>                        |
| <b>Alt. coord. system:</b>         | <b>Coordinates fixed by:</b>            |
| <b>Map east:</b> Long 47, 43', 35" | <b>Map north:</b> North Lat 30,26', 22" |
| <b>Map scale:</b>                  | <b>Map series:</b>                      |
| <b>Map edition:</b>                | <b>Map sheet:</b>                       |
| <b>Map name:</b>                   |   |

## Accident Notes

inconsistent statements (?)  
no independent investigation available (?)  
protective equipment not worn (?)  
inadequate training (?)  
inadequate communications (?)

## Accident report

An internal report of the accident was made available in 2005. The following reproduces the content with names and identifiers removed.

## **PRELIMINARY INVESTIGATION REPORT**

### **Incident:**

On the morning 3rd July 2003. [Name excised] a Team Leader and Explosive Ordnance Disposal (EOD) Supervisor for [the Demining group] was taking part in a clearance operation with [Name excised 2] and members of [the Demining group] EOD/Demining team at Mowbr Al-Basara Army Supply Base North Lat 30,26', 22" and East Long 47, 43', 35".

The task was assigned to [the Demining group] by the UN Mine Action Service, which was a under ground bunker with a large number of various calibre projectiles stored inside. To complicate matters, local people have entered the bunker in search of packing crates. Because of this, ordnance was strewn around the bunker. The locals also opened most of the projectiles shells and poured out the propellant on the ground, up to ankle deep through out the bunker.

The propellant was determined to be the most immediate problem. In order to safely access the rest of the ordnance in the bunker. [The victim] was tasked with the removal and destruction the propellant. And [Name excised 2] would continue to supervise the operations inside the bunker. A burn area was located 600m east of the bunker task site at Lat 30, 26', 40" Long 47, 43', 47" a dirt berm with three enclosed sides. [The victim] had burned twice before during the morning. An hour and half after the last burn [The victim] set up for the final burn of the day. After laying out the propellant to be burned. [The victim] sent the men helping him back to a safe area. He then started to lay out his burn train leading into the main propellant body, when he felt heat on the back of his arms and neck. He then ran for cover, but not before receiving 1st degree burns to the back of his arms, neck and both ears.

The medics were dispatched by radio, once the area was safe. [Medical doctor 1] reached [The victim] first. He discovered [The victim] had burns to the back of his body but was in little discomfort. He cut off the T- shirt and started to administer 1st Aid to the injuries. Then [The victim] was moved to the teams support area for further observation and treatment.

About this time [the Victim] was entering the task site, when he observed the fireball and the frantic radio traffic coming from the burn site stating there had been an accident involving [The victim]. [Name excised 2] called [Name excised 3 – the victim of incident 429] who then proceeded to the support site. He met up with [The victim] and [Medical doctor 1]. At this time [The victim] was starting to feel a little discomfort. [Medical doctor 1] discussed the situation with [Name excised 3] and [Name excised 2], and it was decided that [The victim] should be removed to the [the Demining group] office at Basra UN office. There he could get cleaned up in a cleaner and cool environment. So [The victim] was place in the ambulance and headed into [the Demining group] office with [Name excised 3] following in a Land Rover.

During this time [Name excised 2] shut down the task site. Which would have had to be done anyway, because the one trauma bag left with [Medical doctor 1] and [The victim]. So [Name excised 2] packed the team equipment and men and departed the area for the day.

Once back at [the Demining group] office, [The victim] was looked at more closely by [Medical doctor 1] and he now had a growing for concern about the burns around the ears. During this time [Name excised 3] made contact with myself [Demining group Location Manager] at the UNMAS officer and advised me about the situation. We both immediately returned to [the Demining group] Office. There it was noted that [The victim] was in a great deal of pain now. And it was decided to have him taken to the British Military Hospital (BMH). [Name excised 3] then went to the UN radio room to activate the Immediate Response Team (IRT) Blue light response time. Here it was discovered that the radio operator on duty was not familiar with the activation procedures of the IRT. And in the end [Name excised 3] departed the radio room without the activation of the IRT.

After the administration of a morphine injection to help with the pain [The victim] was transported along with [Medical doctor 1] and [Medical Doctor 2] by [Name excised 3] to the BMH. Were he was admitted for treatment where it was determined that he had received 4%, 1st degree burns to the back of his arms, his neck and both ear lobes.

### **Salient Facts:**

The following are salient facts involved with this incident:

- 1) During the time of the last burn, the temperature was extremely warm, in the high 40s with a wind blowing across the burn pit.
- 2) Propellant had been sitting out in the elements for a long period of time and had become unstable.
- 3) The burn had been used on two previous burns earlier in the morning.

**Conclusions & Recommendations:**

The following are conclusion and recommendations:

**Conclusions:**

- 1) The environment was a contributing factor. The hot weather and wind produced the right conditions for static electricity. Where an errant spark could light the propellant prematurely.
- 2) The propellant has been exposed to the environmental extremes, making it unstable and sensitive to the surrounding conditions and external forces such as friction and shock.
- 3) The ground being used for a previous burn operation that morning may have not had sufficient time to cool. And when the sensitive propellant was placed on this ground, it caused the propellant to ignite.

**Recommendations:**

- 1) That burning should only take place in the early morning when it's cool and the wind is much calmer.
- 2) Extreme caution must be taken when moving and laying out loose bundles of propellant. The friction caused by these movements must be minimized.
- 3) Using the same ground to do multi burns must be avoided if possible. If this is not possible then water down the burn site prior to doing any consecutive burn operations.
- 4) Never turn your back on the propellant. Always keep observation on the main propellant body and the burn train. That way any flare-ups will be seen early on, and an evacuation of the site carried out before personnel are caught in the ensuing fire.
- 5) That [Demining group] / UN Radio room confirm the correct radio procedures in an emergency situation and the requirements that each party has to comply with. UN Radio room should test IRT lines at least once a week.

**Summary:**

In summary, the incident of July 3<sup>rd</sup> brings to light the dangers facing EOD/Demining teams and individual members of those teams. While this incident was serious in its nature, it could have been much worse. Persons must remain vigilant while carrying out clearance operations and be aware of the surroundings, the environment and the condition of the items being destroyed.

The cause of the accident on July 3<sup>rd</sup> could have been any one of the factors listed above or a combination of all of them. And no one factor can be singled out as the sole reason this incident happened.

An SOP will have to drafted then adopted and approved by the UNMAS in which a Render Safe Procedure (RSP) is developed which takes into account the conditions of the propellants, the weather and the burn pits to be used and the Wait Time (WT) between individual burns in the same pit. And finally, the mass of propellant to be dealt with. The quantities being dealt with in Iraq have never been encountered on this type of scale on any other Clearance operation to date. Current EOD Burn Ops timings and amounts would be very difficult to employ successfully. Teams would become bogged down in burn ops alone with out even starting the actual UXO clearance op.

Radio procedures failed on several levels. Both, between the team members of [the Demining group] and the UN Radio room. This problem is easily rectified. [The Demining group] and the

UN Radio will conduct mutual training on procedures to be followed in case of an emergency. These procedures will then be practiced at least once a month by holding an exercise over the radio net. Coordination will be worked out between the [the Demining group] internationals and the UN Radio I/C. The IRT phones system is to be checked out at least once a week by the UN Radio room personnel and confirm it's operational.

Although the accident was a serious incident to both [the Demining group] and the EOD /Demining operations and all teams in general. I don't think any one factor or person can be held accountable for what happened. But a combination of all of the above factors combined together. EOD work by its very nature has risks that are inherent to it.

Signed: Demining group Location Manager, Basra, Iraq.

**Conclusions:**

- 1) The environment was a contributing factor. The hot weather and wind produced the right conditions for static electricity. Where an errant spark could light the propellant prematurely.
- 2) The propellant has been exposed to the environmental extremes, making it unstable and sensitive to the surrounding conditions and external forces such as friction and shock.
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Signed: Demining group Location Manager, Basra, Iraq.

### Victim Report

|   |                                       |
|---|---------------------------------------|
| <b>Victim number:</b> 569               | <b>Name:</b> [Name removed]           |
| <b>Age:</b> 37                          | <b>Gender:</b> Male                   |
| <b>Status:</b> supervisory              | <b>Fit for work:</b> yes              |
| <b>Compensation:</b> Not made available | <b>Time to hospital:</b> Not recorded |
| <b>Protection issued:</b> Not recorded  | <b>Protection used:</b> None          |

#### Summary of injuries:

minor Arms

minor Head

minor Neck

COMMENT: Propellant burns. See medical report.

#### Medical report

A full medical report from the British Military Hospital at Shaibe Airfield (near Basrah) southern Iraq is held on record. The medial report gives the victim's date of birth as 14/08/1965. He was treated for "5% burns, largely partial thickness" caused by "artillery propellant due to static explosion at approx 11 am".

Burns (1) Probably partial thickness from above to below elbow and down to wrists, ventral aspects with some blisteriong, both forearms.

(2) Back of neck with some blisteriong. Probably partial thickness.

(3) Behind both ears and tips of pinnas R and L - possibly subdermal full thickness.

An addendum on the following day reported that he was kept in hospital overnight and slept well. The medical expenses form was completed on the day following the accident, implying discharge. He required "alternate daily dressings with flamazine to all areas until healed". He was given 2-3 weeks off work to recover.

The photograph below shows the extent of the victim's injuries.



## Statements

### Statement 1

Accident Report 3rd July 2003: (Burning of propellant)

[Demining group] team was working on a site at Mowqa AL-Basrah cleaning out the ammunition bunker. My self [Name excised 2] and [Name excised 1] were the two supervisors on site.

Two propellant burns were conducted earlier that morning, about two hours apart. At about 10:50hr another propellant burn was to take place. During this time I was supervising inside the bunker when one of the deminers called for me to come out. When I got outside I found that the medics had left the support area to attend to [the Victim] who received burn wounds from a propellant burn . I asked what happened and [the Victim]'s reply was " it ignited while I was doing the propellant trail ". He was then treated by the medical staff and taken to Basra house. I then stopped work on the site. The gear was packed up and team returned to Basra house.

Signed

[Demining group] Team Leader

### Statement 2

During the morning of July 3, 2003, whilst accompanying [Name excised 3] on a recce we were required to visit a site that was being worked on by [Demining group] personnel. On approaching the site we noticed a large fiery flash coming from the direction of the work site. The distance from us to the flash sight was about 1km. Due to the radio traffic coming from the site it was obvious something unusual had occurred.

On arrival at the site it was learnt from the on site team member that one of the International Staff had suffered burns due to the explosion we had seen earlier. The casualty was dispatched to [Demining group] HQ Basra by Mamba with the team medic.

Due to shortage of drivers on site. I was required to remain. This I did. The on site Team Supervisor then continued with the clearance task. I remained at the site support area with the [Demining group] team personnel in this area along with the second team medic. Approximately ten minutes later after the team commenced work, it was brought to my attention by the team medic that he did not have a Trauma Kit pack on sight, and felt that work should cease. On hearing this I contacted [Name excised 3] by the radio and told him of the medics concern. [Name excised 3] at this stage was en route back to Basra. [Name excised 3] instructed me to inform [Name excised 2] to stop work. Immediately. The team was

working in the bunker with [name excised 2]. On entering the bunker, I observed [name excised 2] and crew stacking ordnance, approximately five minutes after delivering [the Victim]'s message the team emerged from the bunker with [name excised 2]. They then proceeded to clean up the work site for the day.

After loading the equipment we departed the site to return to [the Demining group] Basra House.

Signed: [Name excised 3] No position recorded.

### **Statement 3**

3<sup>rd</sup> July 2003

Time: 11:00

Location: Mowgo Al-Basara, [Demining group] Task Site.

Description: While approaching the work site, I saw a big fire ball from a distance. We stopped the car and waited for the fire to disperse. We then advanced toward the administration area. Unfortunately we discovered that [the Victim] was burned, but not very much. We understand the cause was self ignition of the propellants. The happy side of this was the speed of the National medics, reaching and treating [the Victim].

Treating [the Victim] the medics then moved [the Victim] back to the Basra Office.

Signed: [name removed]

### **Statement 4**

Statement of Medical doctor 1

On July 3, 2003 while we were at our site in the military facility of Mowga Al-Basara doing EOD work, I saw a flame of fire at about 10:50 a.m. And after that I heard the drivers calling on the radio and saying "emergency". Myself and [Medical Doctor 2] jumped into the ambulance and hurried to the site of the accident. I saw [the Victim] in a Land Rover, when we pulled up he came over to our ambulance. It was obvious to me he had been exposed to the flame. I proceeded to calm him down and assessed his general status. Cutting his T-shirt I then examined his burn areas. The burns did not seem serious to me and I started washing them and performing 1<sup>st</sup> Aid for the burns.

[Name excised 3] arrived on site and we discussed the condition of [the Victim] with each other. I told [Name excised 3] that he was not very seriously injured but that he'll have some pain. [Name excised 3] then asked [the Victim] about how he felt. [The Victim] replied he was "fine", so [Name excised 3] told me to take [the Victim] to Basra Office. We immediately took him there and I continued my care of the patient till we reached the office.

Once reaching the office I became very concerned about [the Victim]'s ears because of the amount of burns on them. I told [Name excised 3] of my concern. [Name excised 3] then talked to [Name excised], who started the process of evacuating [the Victim] to the British Military Hospital (BMH). This we did, and [the Victim] was admitted to the BMH for treatment.

Signed: [Medical Doctor 1]

### **Statement 5**

Statement of [Name excised 3]

Re Incident 3 July 2003.

As per my task plan for the day I was to visit the site where the team was conducting operations to drop of scrap material.

Upon pulling into the main gate of the old military complex I came across [Demining group] survey vehicles that were also entering the area. At the same time I saw propellant burning off in the distance, still about 1500m at this stage. I then heard some radio traffic involving Mamba 01 and HF 555 (medic), it was not detailed and I assumed the team had gone into a casevac exercise which had been planned for the day. I then pulled over and waved down the Mine Tech teams. I informed them that we were conducting propellant burns and in which direction. I also told them the team was carrying out casevac drills.

I then proceeded slowly into the site and tried to contact HF 557 and let him know I was entering the area. When we finally established communications with each other he informed that he needed a land rover and myself on site. I replied saying that I was two minutes away and would be there shortly. I then had an idea that something had occurred.

Upon arriving HF 557 informed me that there had been an uncontrolled propellant burn and that HF 558 had some minor injuries. I parked my land rover and went to the vehicle that HF 558 was in. I spoke to him and he informed me he was fine. I then spoke to the medical personnel who had treated him and [Medical doctor 1] informed me that he had suffered superficial burns and that he would be experiencing some pain. Taking into account the good condition that HF 558 seemed to be in I informed [name excised] to return to the office with him and then we would access him there. This proved to be a wrong decision on my part.

I then proceeded to unload my vehicle so I could catch up with the vehicle that was taking HF558 back to the office. I left HF552 on site to assist the team with the vehicle move back to Basra House. HF 552 shut down the site after my departure.

Upon my return to the office I again consulted with [Medical Doctor 1] who then informed that upon further examination he was concern with burns to the ears of HF558, it also became very evident that he was in a lot of pain. It was therefore a bad decision on my part to send him to the office and in hindsight he should have been transported straight to the BMH.

A decision was made to send HF 558 to the BMH for further diagnoses. He was given pain relief before the journey, and a cannula inserted in his left hand as a precaution. During this period I went into the radio room at Basrah House and asked them to contact the BMH to inform them of our arrival but stipulated that it was not an emergency. I got frustrated because the radio operator could not understand my English and he did not seem to have an idea how to go about contacting the British Military. I could not help but think that I was glad this was not an emergency.

Upon arrival at the British camp we had very little difficulty getting in the gate and the hospital staff took over the care of HF 558. I will be returning to medical facility with [Demining group] medical personnel shortly to allow them to do follow up on the medical care and any insurance requirements.

Signed: [Name excised 3], [Demining group] Supervisor

03/07/03 1345Hrs

## **Statement 6**

On Thursday the 3rd July 2003, at about 10:15 a.m. While me and [Medical Doctor 1] were resting after 10 minutes after doing a casevac drill to the team. I heard an explosion and looked to it's origin. And it was at the site the propellants are burned in our location, but surprisingly the Landrover and Mamba cars were so near to the site that it made us worry. And while we were asking ourselves what happened, I received a radio call from (the Mamba driver) telling me that there is an emergency and we have to go with the ambulance, so quickly we went (me and [Medical Doctor 1]) in the ambulance to the scene. Were we saw [the Victim] coming toward us in the Landrover. We rapidly took him to our ambulance and tried as rapidly as possible to assess his burns injuries which were involving his upper limbs, scalp and ears and the back of his neck. We've done our 1st Aid management by applying burn cream rapidly to the burned area after removing his T-shirt. And while [Medical Doctor 1] was managing [the Victim], I went by his Landrover to bring the drug kit from the support area of our location, where we were doing our casevac drill. On coming back with the drugs and our METHANE sheets. I saw the ambulance moving away and I met [Name excised 3] and

[name excised] walking back to my location telling me that [Name excised 3] gave his decision to return [the Victim] back to the [Demining group] Basara office to get rest.

I returned back to our support area to find out that the deminers and [Name excised 2] are going back to the location for continuing that day work. At that time I thought we are stopping work because the Trauma kit and the ambulance went with [Medical Doctor 1] and [the Victim]. I passed my concerns to [Name excised 2], but he did not pay attention to my worry. So I carried my concerns to [Name excised], who called by radio the team leader and told him. He told him to tell [Name excised 2] to shut down the location for that day.

We then went back to Basara office, on arrival we continued the management of [the Victim] and because of his burns involving the ears, the decision was made to take him to the BMH Shaeba Hosp. We took the patient (me and [Medical Doctor 1] and [Name excised 3]) to the BMH, and the patient was handed to the British Doctors on call.

Signed: Medical Doctor 2

## **Analysis**

Two very similar accidents involving some of the same personnel occurred within a week of each other in the same location. [See accidents 426 and 429.]

The primary cause of this accident is listed as “*Unavoidable*” because the spontaneous ignition of the propellant was not expected, and the Victim was operating in an approved way at the time. However, the absence of written SOPs for proven methods of disposal was a significant “*Management control inadequacy*”, which is given as the secondary cause. The failure of the MAC to investigate was also a serious *Management control inadequacy*.

It also seems that the site continued working without a trauma kit until the medic complained. Also, the emergency casevac radio procedures failed because the radio operator was not appropriately trained. These failings are recorded under “*Notes*”.