

DDAS Accident Report

Accident details

Report date: 15/02/2011	Accident number: 591
Accident time: Not recorded	Accident Date: 15/10/2010
Where it occurred: DA-SS-2091, Kapoeta, Eastern Equatoria	Country: Sudan
Primary cause: Unavoidable (?)	Secondary cause: Management/control inadequacy (?)
Class: Demolition accident/handling	Date of main report: 29/01/2011
ID original source: UNMAO	Name of source: UNMAO Sudan
Organisation: [Name removed]	
Mine/device: No.4 Israel AP blast / frag	Ground condition: not recorded
Date record created:	Date last modified: 15/02/2011
No of victims: 1	No of documents: 2

Map details

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

Accident Notes

inadequate equipment (?)
no independent investigation available (?)
inadequate medical provision (?)
protective equipment not worn (?)
visor not worn or worn raised (?)

Accident report

The first report of this accident made available in January 2011 in a “summary of BoI recommendations. The second was made available in an “Accident summary”. Both are reproduced below. Text in square brackets [] is editorial. Press reports add detail so are included.

Summary of BoI:

On the 15th of October 2010 a demining accident occurred on site DA-SS-2091 in the Kapoeta locality of Eastern Equatoria where the international TFM sustained fatal injuries due to an uncontrolled detonation which occurred whilst his excavating/preparing a No4 AP mine for demolitions in situ. After initial medical care, the seriously injured TFM later succumbed to his wounds while on the Kapoeta airstrip under the attention of medical personnel awaiting air evacuation to more suitable medical facilities. For additional information regarding this BOI and full report see reference H [reference not made available].

Press report

October 19, 2010 (JUBA) - A United Nations-led inquiry has started into the death of a British national working with the [Demining group] who died after an explosion in Kapoeta, capital of Eastern Equatoria state Friday 15 October.....

[The Victim] had been involved in clearing mines for four years.... [The Victim] was clearing mines near the town of Kapoeta on Friday when he was critically injured in the explosion.

The 52-year-old from Portsmouth died several hours later, his employers, [Demining group] said.

The Foreign Office confirmed that a British national had been killed in South Sudan and said it was offering consular assistance.

No-one else was injured in the explosion.

The technical field manager... was formerly a diver for the Royal Navy and had been involved in mine clearance for the humanitarian organisation for four years.

Most recently he had been leading teams of trained Sudanese mine clearance workers in removing landmines threatening communities in and around Kapoeta.



A huge minefield was laid around the town of Kapoeta

"There is no doubt that over the last four years [the Victim]'s work with [Demining group] has saved countless people's lives, and for that we will never forget him."

Kapoeta - about 160 miles (260km) east of the capital Juba - is in southern Sudan's Eastern Equatoria, which borders Uganda and Kenya in the south, and Ethiopia in the east.

During fighting there, a huge barrier minefield was laid all around Kapoeta, according to the [Demining group].

Summary of accident

SUMMARY OF ACCIDENT INVESTIGATION OF [Name removed] [Demining group] TFM

On Friday 15 October 2010 at approximately 12:00pm [The Victim] [Demining group] TFM, was involved in a demining accident in a dangerous area in Kapoeta Southern Sudan. As a result of the accident [the Victim] suffered traumatic amputation to both hands, severe injury to his lower legs as well as loss of his right eye.

According to his team, [the Victim] entered a clearance lane to excavate around a No 4 AP mine in order to prepare the mine for demolition in situ. Whilst in the process of excavating next to the mine, [the Victim] caused the mine to detonate, which then resulted in his injuries. It is confirmed [the Victim] was wearing his PPE correctly at the time of the accident.

[The Victim] was given immediate first aid on site by the team medics and was then evacuated by ambulance to a local clinic in Kapoeta. The clinic in Kapoeta has very basic facilities with very limited medical supplies and does not have a functioning operating theatre. In the meantime [Demining group] personnel were making arrangements for an evacuation by air ambulance from Kapoeta airfield to Nairobi. Although an offer of evacuation by UNMIS helicopter to Juba was made, this was initially declined by [Demining group] as their first preference was evacuation to Nairobi. It was not until it was determined that the air ambulance to Nairobi was going to take an unreasonable amount of time to mobilize and arrive to Kapoeta, was the UNMIS helicopter option then pursued, this was approximately one hour and twenty minutes after the accident.

The time taken for LTNMIS to mobilize the helicopter was approximately one hour and ten minutes after notification, it then took another one hour and fifteen minutes to fly from Juba to Kapoeta. The helicopter landed at Kapoeta airfield some three hours and forty five minutes after the accident, and the air ambulance landed forty minutes after the helicopter. As the helicopter was landing and due to his injuries and lack of adequate medical treatment, [the Victim] went into cardiac arrest whilst on the airfield. Despite concerted efforts to revive [the Victim] by doctors on board the helicopter and soon after by the flight doctors with the air ambulance, he was pronounced dead one hour later. The autopsy report later stated his death was as a result of external hemorrhage due to his injuries.

Lessons Learnt

The fuse mechanism of the No 4 AP mine can be particularly sensitive to disruption when excavating in close proximity to it. Therefore all effort is to be made to excavate to the back of the mine only and remain away from the fuse mechanism. Moreover, only the minimum amount required to place an explosive charge close to the mine is to be excavated and at no time is contact to be made with this mine. Moreover, the No 4 AP mine is to be treated as a no-touch mine and should always be destroyed in situ.

Every effort is to be made to evacuate casualties as quickly as possible to an adequate medical facility. Although evacuation by air ambulance to a Level III medical facility outside of Sudan may seem the best option at the time, this decision needs to be balanced with a number of factors; such as, the severity of the injuries suffered, the time needed to mobilize an air ambulance, the time needed to get the air ambulance to the casualty and then the time needed to get the casualty to the Level III hospital. Therefore the better option may be to mobilize an in-country CASEVAC first, get the casualty to a Level II medical facility in-country,

stabilize and then if necessary MEDIVAC the casualty to a Level III medical facility at a later date.

Ultimately [the Victim] died as a result of loss of blood. Blood substitutes could have prolonged [the Victim]'s life in this situation, and although these have been trialed they are a little way from passing testing and so are not yet safe for use in the field. There are still technical issues regarding the haemoglobin toxicity and therefore the US Federal Drug Administration has still not approved their use. Studies indicate that the patients end up experiencing major kidney problems or heart attacks after using the blood substitutes. Therefore the only emergency solution for loss of blood in the field at present is still intravenous fluids, normal saline or ringers lactate and then evacuation by quickest means possible.

[Name removed] Chairman of BOI 2010/05, Deputy Team Leader, Standing Mine Action Capacity UNMAS, Geneva, 16 November 2010

Victim Report

Victim number: 775	Name: [Name removed]
Age: 52	Gender: Male
Status: supervisory	Fit for work: DECEASED
Compensation: Not made available	Time to hospital: Not made available
Protection issued: Frontal apron Long visor	Protection used: frontal apron, visor worn raised

Summary of injuries:

INJURIES: severe Legs

AMPUTATION/LOSS: Eye; Hand Both

FATAL

COMMENT: No medical report made available

Analysis

The primary cause of this accident as *Unavoidable* because it is possible that the Victim was working to approved SOPs when the accident occurred. The secondary cause is listed as a *Management control inadequacy* because the Victim was not wearing a visor (or not wearing it correctly) when the accident occurred and this error was not corrected because the Victim was the senior representative of management at the site.

The injuries allow some inferences to be drawn about the Victim's position at the time of the blast. He suffered "traumatic amputation to both hands, severe injury to his lower legs as well as loss of his right eye". This indicates a squatting position with both hands reaching down to the mine. Contradicting the conclusions of the investigators (who may have been concerned about insurance provision) it is not possible that the Victim was wearing his visor correctly if he lost an eye. There has to have been a direct line between the detonation and his eye, so at the very least his visor was raised enough for him to look out beneath it as he worked. An

image shown in the press reports showed the Victim standing among unexploded ordnance without PPE, so it is possible that he was not wearing PPE at the time.

Given the unusual extent of the injury, it is possible that this Israeli No.4 AP blast mine had a fragmentation layer fixed to the top. If not, it seems that the victim's legs and hands were unusually close to the mine.