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DDAS Accident Report

Accident details

Report date: 12/07/2013	Accident number: 797
Accident time:	Accident Date: 15/11/2011
Where it occurred: Ajdabiya at Al-Haniyah Ammunition Storage Area (ASA)	Country: Libya
Primary cause: Other (?)	Secondary cause: Other (?)
Class: Missed-mine accident	Date of main report: 16/11/2011
ID original source: None	Name of source: Demining group
Organisation: [Name removed]	
Mine/device: Fuze	Ground condition: Ammunition Storage Area route (verge) wet
Date record created:	Date last modified: 12/07/2013
No of victims: 1	No of documents: 2

Map details

Longitude:	Latitude:
Alt. coord. system:	Coordinates fixed by: GPS
Map east: E 020° 12' 42.14"	Map north: N 30° 40' 58.39"
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

mine/device found in "cleared" area (?)
protective equipment not worn (?)

Accident Report

Access to the report of this accident was made available by the demining group involved in 2012. It is reproduced below, edited for anonymity.

UNMAS report

JOINT MINE ACTION COORDINATION TEAM
[UNMAS] BENGHAZI REGIONAL OFFICE
REPORT FOR ACCIDENT INVESTIGATION BOARD OF INQUIRY – EAST001/2011

Report on ERW accident that occurred in Ajdabiya at Al-Haniyah ASA on 15th November 2011 in which a [Demining group] Ambulance Driver was injured.

References: [Demining group] SOPs; [Demining group] contract with UNOPS; IMAS 2011

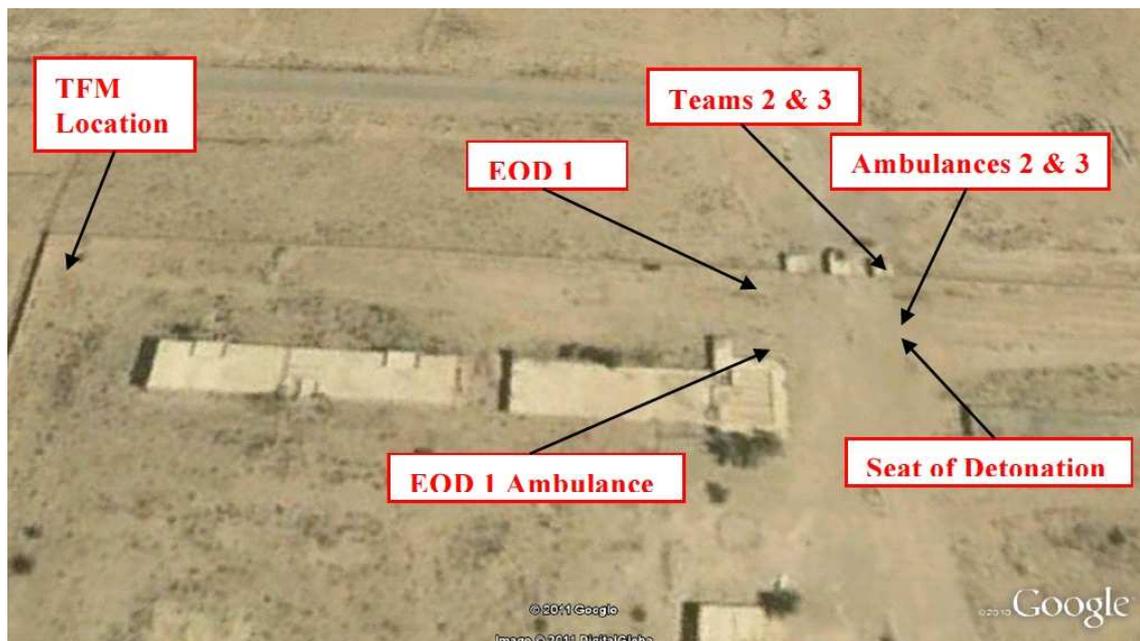
Introduction

In accordance with the International Mine Action Standards (IMAS), the JMACT Regional Office in Benghazi carried out an external "Accident Investigation" following the ERW accident that occurred at [Demining group] clearance site in Ajdabiya.

This is a comprehensive report by JMACT into the ERW accident that occurred on the 15 November 2011. Based on the investigation, [Demining group]'s internal report, the statements from [Demining group] personnel (Annex A), visit to the accident site and the photos from the accident site, this accident is considered preventable.

The information provided by [Demining group] to the [UNMAS] JMACT - Benghazi in the "IMSMA Accident Report", attached as Annex B is confirmed. The accident occurred at approximately 0858hrs on 15th November 2011, inside the military camp/ASA at AL-Haniyah. Seat of detonation's coordinates are: N 30° 40' 58.39" and E 020° 12' 42.14". Annex C details a map of the general area. [Held on file.]

It should be noted by all parties that as per reference "C" above, "The aim of the demining incident formal investigation is to identify problems or opportunities to improve the safety and quality of the demining process. It is neither a criminal investigation nor an investigation to assist in the assessment of a current or possible future insurance claim".



[Accident site]

Events leading up to the Accident

[Demining group] team EOD 1 resumed the clearance at Al-Haniyah ASA on the 12th November 2011 under the supervision of the TFM Mr. [Name removed]. At the time of the accident two additional teams were present on-site to conduct on-job-training after the end of their theoretical and practical basic BAC training prior to their deployment in Brega and Ras Lanouf in accordance with reference "B" above.

In the morning of 15th November [Supervisor TFM] arrived with his team (EOD 1) to the ASA at 08:00. After few minutes he received a call from the International Site Supervisor (ISS) Mr. [Name removed] informing him that he is coming with the two new teams to carry out on-job-training for them prior to their deployment in the field. The two teams arrived to the ASA at 08:25. The ISS instructed the two teams to stay inside the rooms at the entrance of the ASA; he also instructed the two ambulance drivers to park inside the ASA. At the moment of the explosion, the locations of different personnel and the three ambulances at the accident scene were as per the "photo 1". [See photo above.]

At the time of the accident, more than 25 [Demining group] staff from three different teams including BAC searchers, medics and drivers, in addition to three ambulances, were inside a circle of less than 30 meters in diameter. The accident seat was inside this circle. See "photo 2".

From previous days' clearance inside the ASA, a quantity of scrap metals and ERW was removed and has been temporary stored at the entrance of the ASA. At the moment of the explosion, EOD 1 BAC searchers and TL were working on separating scrap metals from ERW in order to transport the ERW to the CDS later.

Ambulance driver [the Victim] was waiting beside his team's ambulance and talking with the medic [Name removed].
Photo 2

Events following the Accident

At approximately 08:58hrs an uncontrolled detonation of unknown item occurred on the ground between the feet of driver [the Victim]. Directly he and the medic [Name removed] rushed behind their team's ambulance in unconscious response to the fear caused by the sound and blast of explosion.



[The 'crater' on a wet sand road. It is a light scar on the ground indicating a very small device near the surface.]

The medic noticed blood on driver [the Victim]'s body under his right knee, right hand, face and right ear; he asked him to sit on the ground. At the same time, the EOD 1 team medic [Name removed] who was sitting inside his team's ambulance came with his medical kit and started first aid for the casualty.

The EOD 1 TFM [Name removed], who was taking GPS reading approximately at 200 meters from the seat of accident, arrived quickly and observed the first aid. At the same time, he called the ISS and the senior TFM [Name removed] to inform them about the accident.

After first aid, the casualty was transported to Ajdabiya Hospital for further treatment. This took place at 09:11 hrs.

On the arrival to the hospital, the casualty was inspected by a doctor who confirmed that no severe injuries exist. The casualty received the required then got released.

As a result of both the on-site first aid and the treatment at the hospital, few small fragments were removed from the casualty's right leg, right hand, face and right ear.

Following the accident, Ms. [Name removed] ([Demining group] PM) passed to JMACT-Benghazi [UNMAS] at 09:40 hrs the initial information about the accident in Al-Haniyah. In turn JMACT-Benghazi passed the information to JMACT HQ in Tripoli.

[Demining group] conducted an internal accident investigation and prepared the required report.

On 16 November, the JMACT visited Ajdabiya and carried out an external accident investigation including the visit to the accident scene and interviews with the casualty and other witnesses.

Photos 3, 4 and 5 below show the seat of detonation.

Driver [the Victim] confirmed for the BOI that he did not leave the area next to the ambulance. He also stated that he did not pick up anything from the ground and he did not notice that he stepped or pushed any items by his feet.

Photos 6 and 7 show the location of ambulances of BAC teams and location of EOD 1 at the moment of the accident.

During the investigation, the boots that driver [the Victim] had at the time of the accident were examined and a 4 x 8 mm fragment was found inside the insole of the left boot.

Photos 8 and 9 show the fragments found during the investigation.

VIEWS OF THE ACCIDENT SCENE

Photo 4

Photo 6

Photo 9

Work History of the Casualty

Driver [the Victim] newly commenced his employment with [Demining group]; he stated that he did not receive any safety training or any kind of education/awareness about the risk of mines and ERW.

Past History of the Area

Al-Haniyah military base and ASA were used by former Libyan Army. During the last events in Libya, AL-Haniyah ASA was reported to be bombed by NATO in March 2011. As a result, a large number of ERW was spread all over the area inside and outside the perimeter of the camp.

[Demining group] team EOD 1 started the clearance inside the ASA few months ago then due to other high priority tasks the team suspended the task and moved to other locations.

On 12 November 2011, the team resumed the clearance inside the ASA under the supervision of new TFM [Name removed].

On 14 November 2011, two newly trained teams joined EOD 1 for on-job-training. The day of the accident was the second day for the two new teams on this site.

Geography and Weather

Al-Haniyah ASA task site is located in an open area in a desert-like surrounding (altitude is 5 meters±), to the South of Ajdabiya town. It is located at approximately 8.5 Kms from Ajdabiya

city center. Access to the site is via a tarmac road from the main Ajdabiya - Brega road. The main gate is at 3.2 Kms from the main road.

There are no forested areas within the immediate region. The weather at the time of the accident was fine and sunny with a temperature of approximately 17 to 20 degrees Celsius.

Site Layout and Marking

The site layout is not clear and proper marking prior to the accident did not exist; same was the post-accident marking.

Management Supervision and Discipline

[Demining group] clearance site was supervised by an International TFM who reports to the Technical Operations Manager (TOM). The TFM was in overall charge of Al-Haniyah task site. One International Site Supervisor (ISS) was in direct charge of the two teams under on-job-training but was not present on-site at the time of the accident. There are no reports of disciplinary action being taken against [Demining group] personnel on the Al-Haniyah task.

Quality Assurance and Quality Control

[Demining group] Internal Quality Assurance (QA) is normally achieved through a system of on-site checks by an International senior TFM or by the TOM to ensure adherence to IMAS and [Demining group] SOPs. No Internal QA Evaluation was conducted on the site after the resumption of clearance on 12 November 2011.

Communications and Reporting

Communications in-between Al-Haniyah task site and [Demining group] base location is maintained via the use of the Cell phone and Sat-phone systems. On site communications in-between teams is maintained via VHF handheld radios.

On the day of the accident, the site had proper and appropriate communications and managed to pass all relevant accident information back to [Demining group] base in Ajdabiya then to [Demining group] HQ in Benghazi, which in turn passed the information to the JMACT in a timely manner.

Medical Details

Driver [the Victim] suffered small lacerations to his right legs (under knee), right hand (below elbow), face (right side) and right ear. [Demining group] EOD 1 team Medic [Name removed] administered medical treatment and stabilization on-site to driver [the Victim]; casualty evacuation by road to Ajdabiya civilian hospital then took place.

On arrival at Ajdabiya hospital, driver [the Victim] was transferred to the Emergency Department where additional medical treatment was administered and the necessary treatment was performed prior to him being released. Annex D is the medical/sick report from Medic [Name removed] (medic of the casualty's team).

Personnel

A list of some personnel who were present at the accident site and their duties is detailed at Annex E. Written statements from [Demining group] personnel involved in the accident can be found in Annex A and [Demining group] internal report is Annex F. [Annexes not included.]

Dress and Personal Protective Equipment (PPE)

At the time of the accident, driver [the Victim] was not wearing any protective apron and protective visor as his duty as a driver does not require that, and he was supposed to be

located with his ambulance at a medical point away from the clearance site and previously confirmed clear and safe.

Details of Item Involved

Unfortunately the information gathered during both internal and external investigations, as well as the fragments removed from the casualty's body and boot or found at the scene do not allow an accurate determination of the item that exploded when the accident occurred.

Account of Activities

The following is a description of the events before and after the accident. The information from the investigation forms the basis of the description of events:

15 November 2011

0800hrs – EOD 1 arrived to the site.

0810hrs – ISS [Name removed] called TFM [Name removed] and informed him that he is coming with the two BAC teams to join EOD 1 on the site.

0825hrs – Teams BAC 1 & 2 arrived to Al-Haniyah site.

0830hrs – ISS [Name removed] instructed the two teams to stay inside the room at the ASA entrance and the two ambulance drivers to park at the location described above, and then he left the site to refuel other vehicles.

0858hrs – Uncontrolled detonation next to the BAC 1&2 ambulances parking.

0905hrs – Accident information passed to [Demining group] base in Ajdabiya.

0911hrs – Casualty on route to Ajdabiya Hospital after on-site first aid and stabilization.

0940hrs – [Demining group] informed JMACT - Benghazi Operations Coordination Officer of accident.

0942hrs – JMACT - Benghazi Operations Coordination Officer informed JMACT HQ in Tripoli of accident.

1030hrs – Casualty is discharged and departed the Hospital.

1500hrs – JMACT received the IMSMA "Accident Report" from [Demining group] senior TFM.

16 November 2011

0830hrs – JMACT Ops Coordination officer departed Benghazi in route to Ajdabiya.

1015hrs – JMACT Ops Coordination officer arrived to [Demining group] base in Ajdabiya.

1030hrs – JMACT Ops Coordination officer received a copy of [Demining group]'s internal investigation report.

1100hrs – BOI departed [Demining group] base to the accident site.

1115hrs – BOI arrived to the accident site and carried out the required actions.

1215hrs – BOI left accident site to move to [Demining group] base in Ajdabiya.

1230hrs – BOI arrived at [Demining group] base in Ajdabiya to interview the casualty and the medic.

1330hrs – JMACT Ops Coordination officer left [Demining group] base in Ajdabiya to move to JMACT - Benghazi.

1520hrs – JMACT Ops Coordination officer arrived at JMACT - Benghazi.

Conclusions

Based on the investigation, the statements and visit to the site, the BOI concludes the following:

a) The type of item that exploded cannot be confirmed, neither the direct reason of activation. It is likely to be a fuse of light ammunition but exact type is unknown.

b) There was a surface detonation of the item; evidence shows that the colour of the soil surrounding the seat of detonation changed due to explosives.

- c) The vast majority of the blast effects were directed away from driver [the Victim] due to his body position in relation to the direction that the detonating wave was travelling. This in turn actually reduced the seriousness of the injuries he sustained from fragmentation.
- d) The on-site stabilization and treatment of the casualty was conducted in a professional and expedient manner.
- e) The passage of information in between the accident site and [Demining group] base location was good with all information being passed in a timely manner.
- f) The BOI agrees with and accepts [Demining group] Accident and IMSMA Reports. The site layout including the location of ambulances parking, safety and security distances between working site and medical point were not in accordance with IMAS and [Demining group]'s SOPs.
- g) The location where ambulances of BAC teams were parked was not confirmed clear and safe on the day of the accident. The reason why the dangerous item was there is either because the location was not previously cleared, or the item has been relocated from dangerous area by unknown person including the possibility of being moved there by looters.
- h) Driver [the Victim] did not receive any safety training or any kind of education about the risk of mines and ERW when working at a clearance site.
- i) The required post-accident marking of the accident site was not carried out in accordance with IMAS and [Demining group]'s SOPs.

Recommendations

The following are recommendations based on the BOI conclusions:

- 1) [Demining group] teams shall strictly follow the organization's SOPs with regards to the safety distance and the site layout.
- 2) Any on-job-training in the future shall be formally included in the training schedule and get approval by JMACT.
- 3) [Demining group] shall conduct basic safety training for all drivers and medics with special focus on their duties and safe behavior on a clearance site.
- 4) A period of refresher/confidence training shall be conducted with [Demining group] Team EOD 1.
- 5) In case of accidents in the future, the post-accident marking is required and shall be in accordance with IMAS and [Demining group]'s SOPs.

The conclusions detailed in this report should be distributed and discussed among all [Demining group] Operational Field Staff.

Signed [Name removed]: Ops Coordination Officer, Joint Mine Action Coordination Team – Benghazi Regional Office

Annexes: [Held on file]
Witnesses Statements.
IMSMA Accident Report.
Map of the general area.
Medical Report.
List of [Demining group]'s personnel interviewed.
[Demining group] internal Investigation Report.

Victim Report

Victim number: 990	Name: [Name removed]
Age:	Gender: Male
Status: medic	Fit for work: yes
Compensation: Not made available	Time to hospital: Not recorded
Protection issued: None	Protection used: None

Summary of injuries:

INJURIES: minor Face; minor Head; minor Legs

COMMENT: See Medical Report

Medical report

An attached PDF file of an IMSMA report (with no ID) showed an “Error retrieving value” and blank entries. It is held on record.

A demining group medical report was made available and is held on record. Although in English, it is largely illegible. It does record the patient being stitched on his right knee and as being “fit for work or given three days leave under medical supervision.

The investigation records that [the Victim] “suffered small lacerations to his right legs (under knee), right hand (below elbow), face (right side) and right ear... As a result of both the on-site first aid and the treatment at the hospital, [a] few small fragments were removed from the casualty’s right leg, right hand, face and right ear.”

Related papers

Witness statements, largely in Arabic, are held on file.

The Demining group’s internal accident report is reproduced below, edited for anonymity.

At 0905hrs a report came in from TFM [Name removed] that an accident has happened at the ASP in Ajdabiya.

TFM [Name removed] immediately instructed the team to treat and move the casualty to the nearest hospital and informed the CD accordingly at 0919hrs.

TFMs [Name removed] and [Name removed] then deployed to the ASP (which is an active BAC surface clearance site). On arrival we found that the casevac had been conducted as per SOP and the patient was already in hospital.

We then proceed to the accident site and took the necessary pictures, primary investigation and questioning of people involved/near the accident.

After the inspection we stood the teams down and relocated to the hospital to enquire about the wellbeing of the patient. The patient was looking normal bar a few plasters on his face arms and legs.

We were informed by the [Demining group] doctor that there were no severe injuries. A few metal fragments remain in the patients' knee. The doctors at the hospital deemed it unnecessary to remove these. A statement of the accident was taken in Arabic from the patient and will be attached to the final report.

Witness statements were obtained from those that witnessed or were involved in the factors surrounding the incident. Once the personnel involved had been interviewed the search team were stood down and training team returned to their routine program.

The medics treated the wounds on site using basic first aid as the injuries appeared to be superficial.

According to witness reports, the accident occurred: in a cleared area (road often used and no evidence of ERW). On arrival at the site that morning, all personnel were instructed by the ISS to not to leave the buildings until his return from refuelling vehicles. The TFM was conducting a site GPS survey and at the time of the incident, was on the opposite side of one of the buildings.

It is suspected that the accident was caused by some flash/spit fuse probably from a RPG, as to how it was activated is still a mystery. It is assessed that the item functioned as the casualty passed over it in mid stride. The pattern of injury is consistent with the left leg being behind the seat of the explosion and the right leg potentially being level with it. Witness statements suggest that the casualty was looking over his left shoulder as the explosion occurred; this is consistent with the injuries experienced to his right cheek and ear.

It is assessed that the explosive weight of the item in question was no more than a couple of grams, due to the size of the seat of the explosion and the light injuries inflicted. The fragments seen at the seat would also support a light weapon fuse similar to that found in an RPG type weapon.

Initial report:

At approximately 0855hrs 14 Nov 2011 [the Victim], Ambulance Driver UN OPS Team attached to WRA BAC Team [Demining group], was involved in a small explosion. The explosion caused fragmentation injuries to legs, his left forearm, his right cheek and his right ear.

On arrival at the site, the ambulance had been parked in the area designated by the TFM and [the Victim] had ventured deeper in to the site, however not outside the designated admin area. At some point he turned around and started walking towards the ambulance, all the time talking to his colleagues, who were behind him to the left. "Mid-stride" an explosion occurred between his legs. The seat, sound of the explosion and minor injuries sustained indicated a small explosive weight of the item in question. It is assessed that the most likely item to be potentially a RPG 'spit back' type fuze. Fragments at the scene support this hypothesis as they were thin metal strips.

Immediate first aid was applied to the wounds sustained by the on- site medic and the casualty was transported to the local hospital. X-rays indicate several small metal fragments entered his right leg around the knee. It was deemed unnecessary by the doctors to surgically remove the fragments and the casualty was released shortly thereafter.

The area concerned is the admin area of a Libyan Army Ammunition Supply Point that had also been used to store a large quantity of "ready for use" munitions.

Two storage points in the area had been bombed by NATO, causing extensive UXO 'throw out' of live, partialled, burned out and deflagrated munitions.

The surface is compacted sand.

The recent weather has been wet and the sand was wet at the time of the incident. The seat of the explosion was located in an area regularly driven over by vehicles.

Analysis

The Primary and Secondary cause of this accident are listed as "Other" because the accident occurred in an open area used for vehicles and people for some time. The device may have been "missed" during earlier clearance or could have been placed during the time that the demining group were away from the site (for political reasons their work was delayed).

There were several obvious problems with the UNMAS investigation. The investigators appear to have felt obliged to find a cause and make corrective recommendations despite there being little evidence in support of their conclusions.

First, the UNMAS investigation found that the accident was "preventable" but this was probably an error. Given the UNMAS approved BAC techniques being used in the area, the accident was not obviously preventable. In a "throw-out" area around an extensive ammunition dump that had been cleared using visual BAC procedures, subsurface hazards will not be found. Following rain, a damaged and movement sensitive fuze may be subject to initiation by a pressure on the ground that would not have influenced it beforehand. That the demining group presumed that an open area which had previously been "safe" was still "safe" was not an error.

Secondly, it is not clear why the UNMAS investigators concluded that "The vast majority of the blast effects were directed away from [the Victim] due to his body position in relation to the direction that the detonating wave was travelling. This in turn actually reduced the seriousness of the injuries he sustained from fragmentation." The Victim was injured by fragments (not the blast wave) low on his legs and high on his head, mainly on his right side, so the UNMAS conclusion makes no sense at all. It seems that the device detonated alongside him on his right (and minor left leg injury was caused by fragments from the right). The Demining Group's internal investigation found that witness said that his head was turned to the left at the time, so his ear and his face took fragments that might otherwise have blinded him.

Thirdly, the UNMAS investigators identify a training error because a medic was not trained in the potential hazards. As long as the Medic was not allowed to enter a known hazardous area at any time, it is not clear why the medic should have been so trained. It may have been a Demining Group SOP requirement. Even if it was, such training would not have prevented the accident which, as far as is known, did not involve the medic deliberately interacting with the device.

The opinion of those conducting the work about the nature of the device involved is considered more likely to have been accurate than the opinion of the UNMAS investigators who do not justify why they did not accept the identification of the demining group.