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# DDAS Accident Report

## Accident details

<b>Report date:</b> 09/12/2019	<b>Accident number:</b> 825
<b>Accident time:</b> 07:41	<b>Accident Date:</b> 29/11/2016
<b>Where it occurred:</b> Area 6, NDO-235 S, Demashqiye Village, Demashqiye Province	<b>Country:</b> Lebanon
<b>Primary cause:</b> Field control inadequacy (?)	<b>Secondary cause:</b> Management/control inadequacy (?)
<b>Class:</b> Excavation accident	<b>Date of main report:</b>
<b>ID original source:</b> 11/2016	<b>Name of source:</b> RMAC-N
<b>Organisation:</b> [Name removed]	<b>Ground condition:</b> grass/grazing area; hard; rocks/stones
<b>Mine/device:</b> GYATA 64 AP blast	<b>Date last modified:</b> 09/12/2019
<b>Date record created:</b>	<b>No of documents:</b> 1
<b>No of victims:</b> 1	

## Map details

**Alt. coord. system:** UTM 736509-3695776 **Coordinates fixed by:**

## Accident Notes

disciplinary action against victim (?)  
squatting/kneeling to excavate (?)  
long handtool may have reduced injury (?)  
inadequate area marking (?)  
inadequate training (?)

## Accident report

A report of this accident was made available by the national mine action authority in 2019. Some of the original formatting has been removed along with some photographs but the original report is held on file. The substance of the report is reproduced below, edited for anonymity. Text in square brackets [ ] is editorial.

REGIONAL MINE ACTION CENTRE - NABATIYEH (RMAC-N)

BOARD OF INQUIRY (BOI) INVESTIGATION REPORT, Ref No. 11/2016

Report Category: Incident: DEMINING: MINE

Cause: Uncontrolled detonation of mine/UXO by: Human

Report Compiled By: [Name removed], RMAC-N Chief of QA, RMAC-N and [Name removed], RMAC-N Ops officer

Location: Demashqiye, Date: 29thNovember 2016

Casualty(s): Human

Agency Involved: [International demining organization]

## 1. Introduction

In accordance with National Mine Action Standards (NMAS), the Chief of RMAC-N [Name removed] issued a Verbal Convening Order on Tuesday the 29th of November 2016 for an accident investigation Board of Inquiry (BOI).

The board members are [Name removed], RMAC-N Chief of QA and [Name removed] RMAC-N Ops officer.

This is a comprehensive report by the Board of Inquiry (BOI) into the RMAC Accident that occurred on the 29th of November 2016 which is based on the RMAC-N investigation, statements from [International demining organization] personnel involved in the accident and evidence from the accident site.

The accident occurred at 07:41 hrs (local time) on the 29th of November 2016 in Area 6, NDO-235 S Coordinates 736509-3695776 which is located in Demashqiye village.

The BOI is an impartial investigation conducted by the RMAC-N on behalf of the Lebanon Mine Action Centre (LMAC). The primary objective of the BOI is to examine evidence in order to conclude the cause of the accident and make recommendations for the prevention of further accidents.

## 2. Executive Summary

On the 29th of November 2016 at [International demining organization] task NDO-235 S, an uncontrolled detonation of a GYATA 64 AP mine occurred while [International demining organization] MTT 1 deminer [the Victim] was working in his lane (11 minutes into his second shift) and led to an injury.

The injuries sustained by [the Victim] resulted in the amputation of his left pinky finger, and severe wound in his left index finger, burns in his left wrist, severe wound in his right forearm and some minor wounds and scratches in the front area of his legs.

Based on all available evidences, the BOI team concludes that the accident occurred with the deminer while he was conducting manual excavation in his clearance lane (an un-cleared area).

There is conclusive evidence to suggest that incorrect procedures contributed to the accident and it is concluded that [the Victim] was not working in accordance with [International demining organization] Lebanon SOP and National Mine Action Standards (NMAS) at that time.

The RMAC-N BOI investigation team considers that it is conclusive that the accident was preventable.

## 3. Location of Accident

Task no./Team no.: NDO-235 S, Area 6 – MTT 1

Demashqiye village, Demashqiye Province, UTM 736509 – 3695776, Map ref: Satellite image

**4. Date and Time of Accident:** 29th of November 2016, 07:41 hrs (local time).

**5. Reported By:** [International demining organization] Operations Manager, [Name removed]

**6. Reported To:** RMAC-N, [Name removed], Chief of RMAC-N

**7. Person(s) Involved:** [International demining organization], [the Victim], Deminer/searcher, ID Number 5210

**8. Investigation Team:** [Name removed], Chief of QA, RMAC-N; [Name removed], Ops Officer, RMAC-N; and [Name removed], CLO, LMAC.

**9. Date and Time of Investigation:** 29th of November 2016, 08:10 hrs (local time) and 30<sup>th</sup> of November 2016, 10:30 hrs (local time)

## 10. Execution of the Investigation

### Approach to Site

The accident site is located at IMSMA Task number NDO-235 S which is located in Demashqiye village. The RMAC-N investigation team, [name removed] Chief of QA and RMAC-N CLO [name removed] drove to the accident site. [Name removed] drove to the hospital.

The RMAC investigation team arrived at the control point. He ensured that the site was secured in accordance with the NMAS and in preparation for the arrival of the investigation team. After a site briefing and arrival formalities, the team began the investigation. The BOI team approached the accident location and met FOM [name removed] and MTT 1 SS [name removed] at the site.

Process: Visual, Verbal.

## 11. Evidence

### 11.1 Ground

#### Accident Site

The location of the accident was on the western side of NDO-235 S. The area consists of a low slope uphill terrain with few rocks and stones in the area. The land is not cultivated but sometimes used as grazing for goats.

The location of the accident was in the beginning of the lane being cleared by the deminer [the Victim] conducting manual full excavation technique.



Location of the accident

### Marking

Marking in general on the task was in accordance with NMAS and [International demining organization] SOP, except for [the Victim]'s lane where it's obvious that the base stick was put

there right after the accident (the base stick is not broken, has no scratches even no dust from the explosion on it).



### **Crater**

The crater [was] located just following the base stick and at the left side next to the detector. The crater created by the explosion is about 20 cm depth and 40 cm in diameter as shown.



### **11.2 Vehicle(s) and Equipment**

**Ambulance:** One ambulance and medic was located at NDO-235 S at the time of the accident.

#### **Deminer Tools**

The Mine Lab F3 detector was located on the right side of the blast crater and no damage happened to it. The Mine Lab F3 was turned on when the BOI team arrived; it was tested at the site and proved to be functional and previously calibrated to site test pit.

The excavating tool ( prodder) was found 12.5 m away from the explosion place.



#### **Items damaged**

The excavating tool (prod) which was found 12.5 m away from the explosion location was severely bent as shown.

The deminer working glove was shattered due to the explosion.

#### **Personal Protective Equipment (PPE)**

The deminer's PPE was damaged as follows [Pictures held on file]:

Some fragmentations and rips in the vest. [damage not visible]

One single fragmentation in the visor. [Visor clouded by light fragmentation]

#### **11.3 Explosive Ordnance involved in accident**

The type of explosive ordnance involved in the accident is believed to be one GYATA 64 Hungarian AP Mine (contains 300 g of TNT); team has found to date 46 x GAYATA 64 located at depths varying from surface to 10 cm depth.

#### **11.4 Casualty Information: Deminer /Searcher [the Victim]**

**Casualty's position:** According to the injury and to the statement of the deminer, he was kneeling conducting manual full excavation using the excavating tool (prod) when the mine exploded.

#### **Description of Injuries**

Deminer /Searcher [the Victim]

The deminer sustained:

- Amputation of his left pinky finger at the middle bone level.
- Severe wound in his left index finger.
- Burns in his left wrist.
- Wound in his right forearm.
- Minor wounds and scratches in the front thighs area of both of his legs.



[Other pictures held on file.]

### 11.5 Interviews

The following [International demining organization] personnel were interviewed by the RMAC-N BOI team on 29th and 30th of November 2016 at NDO-235 S and at Najde Hospital

- [Name removed], MTT1, Deminer/Searcher
- [Name removed], MTT1, Supervisor
- [Name removed], MTT1 Deputy Team leader
- [Name removed], MTT1, Deminer/Searcher
- [Name removed], MTT1, Deminer/Searcher
- [Name removed], MTT1, Team Leader
- [Name removed], MTT1, Medic

### 12. Accident Details (Circumstances / Sequence of Events)

NDO-235 S is a minefield known to contain 3 different types of mines: GYATA 64 AP - TM 46 AT - PRB M3 AT. The 3 different types of mines mentioned above were located and destroyed at the site.

Due to presence of PRB M3 AT Mine which is low metal content, the initial clearance methodology was full manual excavation to 20 cm depth. After several trials executed by [International demining organization] TMEU and RMAC QA section, the detector Mine Lab F3 fitted with black cap proved it can easily detect the PRB M3 AT Mine at 13 cm depth.

Therefore and upon request from [International demining organization] trying to improve the team's productivity the clearance plan was amended as follows: First 10 cm are cleared by full manual excavation and second 10 cm are cleared sub-surface by the detector as mentioned above; Covering clearance to 20 cm depth as per NMAS.

When asked about what happened the injured deminer and the rest of the team said that they were given orders by the SS to sweep the detector above surface before starting with the full excavation for the first 10 cm; Which is not mentioned neither in clearance plan nor in the amendment.

The following information are based on an assessment of the evidence obtained by the RMAC-N BOI team at the accident site and from witnesses' statements.

#### **Chronology of Events** (According to witness statements and site documentation)

29th of November 2016:

06:05 Arrival at the site. Morning brief by SS and Detectors tests. The team split into 3 groups, one group monitored by the TL [name removed], the second by Deputy TL [name removed] and the third by Deputy TL [name removed].

06:30 Start of operations.

07:20 First 10 minutes break.

07:30 Operations start again.

07:41 Accident occurs

07:44 SS [name removed], who was close to the accident location, informed the team to stop operations and assist with the evacuation. [International demining organization] base and RMAC-N informed about the accident; the Medic left CP heading to the evacuation point. Deminers [name removed] and [name removed] provided first aid until arrival of medic. Medic arrived to evacuation point. Bleeding was stopped, wound was bandaged.

07:47 Medic applied IV and stabilized the casualty getting him ready to be moved to the hospital.

07:56 Ambulance left the site evacuating the casualty to Al Najde Hospital, Nabatieh.

08:12 Ambulance arrived to Najde Hospital.

08:15 RMAC-N Chief of QA [name removed] and RMAC-N CLO [name removed] arrived to the site.

08:24 [International demining organization] TOM [name removed] arrived to site.

08:30 RMAC Ops Officer [name removed] arrived to the hospital.

09:55 RMAC-N Chief [name removed] arrived to accident site.

The investigation was followed up by a visit to the hospital to take the statements of the casualty and Medical report on the 29th of November 2016 by [name removed], [name removed] and [name removed] [the investigating team].

### **12.1 Medical Assistance and Evacuation (procedure, treatment, equipment)**

On the 29th November 2016, there was one medic [name removed] at task NDO-235 S who was positioned with the ambulance and driver at the control point during clearance operations.

At 07:41 hrs an explosion occurred. The medic did not hear the explosion from the CP but he was called on the radio by the SS. Immediately, The Medic was led to the accident location finding one casualty on the ground, he conducted first aid and stabilization procedures with the deminers [name removed] and [name removed].

According to the statements from [International demining organization] personnel at the site, the time taken for the casualty to reach the hospital of Al Najdeh-Nabatiah from the minute the accident occurred was approximately 30 minutes.

### **12.2 Geography and Climate**

The area of the accident site is located in Demashqiye village. The task site is on a slightly rocky area with light vegetation. At the time of the accident the weather was cloudy, slightly windy and cold. Visibility was good.

### **12.3 Communications**

[International demining organization] MTT 1 utilized handheld VHF Radios for internal team



communications. Communications between the team and the RMAC-N were maintained by VHF radio. The team also had access to mobile phones.

#### **12.4 Command and Control**

The [International demining organization] team composition was in accordance to their SOP; previous internal and external QA reports had indicated good command & control at all levels.

#### **12.5 Quality Assurance and Quality Control**

##### **External QA**

Between the period from the 03rd December 2014 to date a weekly basis RMAC-N QA inspections were conducted at NDO-235 S.

**Accreditation:** [International demining organization] MTT1 received a renewal for the full accreditation on January 2016.

**Training:** The last training for the team had occurred after the Ramadan break in July 2016.

#### **13. Details of Non Compliance to Agency SOP / NMAS / IMAS**

The following points are clear and obvious evidence of breach of [International demining organization] SOP / NMAS:

1. The marking system at the lane where the accident occurred (absence of base stick).
2. Clearance methodology implemented by the SS was not mentioned neither in the clearance plan nor in the amendments made to it.
3. Supervision by the DTL and SS both being close to the injured deminer and not paying attention to the absence of the base stick and to the clearance methodology.
4. Contradiction in the statements of the injured deminer; where he told RMAC BOI team that he did the detector sweep on the first 10 cm before conducting manual excavation on the other hand he told [International demining organization] TFM that he only did detector sweep after manually excavating first 10 cm.

**14. Task Status:** Current: Start Date (3 December 2014), Suspended Date (29 November 2016).

#### **15. Background Information**

NDO-235 S is a MF task within the task dossier issued to [International demining organization] by the RMAC-N. NDO-235 S is a MF laid during 1978 by Palestinian militia.

#### **16. Conclusions**

From the evidence gathered the board concluded the following:

- a. An uncontrolled detonation of a GAYATA 64 AP mine occurred with the deminer during conducting manual excavation.
- b. The searcher was kneeling in his lane, not using the base stick, apparently he was checking the surface using the F3 detector to remove all the signals and then conduct the excavation which could make it easier and faster for him.
- c. Obviously the detonation was caused by mistake due to wrong excavation technique; this contradicts with [International demining organization] SOP and NMAS as for full manual excavation.
- d. SS adopted procedures not mentioned in clearance plan.
- e. Marking procedures in the searcher's lane are not according to NMAS and [International demining organization] SOP.

- f. The investigation shows weaknesses in supervision and confusion about the clearance plan.
- g. The casualty evacuation from the site to the hospital was carried out in a timely and professional manner.
- h. PPE (body armour and visor) were worn in compliance with [International demining organization] SOP/NMAS.
- i. During investigation RMAC BOI team received full cooperation from [International demining organization].

The accident is considered to be conclusive as preventable.

### 17. Further Actions and Recommendations

- a- Two days refresher training to be conducted for all [International demining organization] clearance teams covering manual excavation drills, the use of the detector, the right marking procedures, command and control and procedures taken after an accident on site.
- b- Closer and accurate supervision from all levels to ensure there is strict adherence to task Clearance Plan, [International demining organization] SOP and NMAS.
- c- A written warning to be issued to team members [International demining organization] MTT 1 (site supervisor, deputy team leader and the injured deminer).
- d- Operations to discuss with [International demining organization] their options or recommendations about continuing clearance on this site.

Report Written and Agreed By: [name removed], RMAC-N, Chief of QA

Seen/agreed by RMAC-N Chief of OPS, [name removed], RMAC-N chief of Operations

Seen/agreed by the chief of RMAC-N, [name removed].

### Victim Report

<b>Victim number:</b> 1043	<b>Name:</b> [Name removed]
<b>Age:</b>	<b>Gender:</b> Male
<b>Status:</b> deminer	<b>Fit for work:</b> not known
<b>Compensation:</b> Not made available	<b>Time to hospital:</b> 30 minutes
<b>Protection issued:</b> Long visor; Vest	<b>Protection used:</b> Vest; Long visor

**Summary of injuries:** Amp finger; minor Legs; severe Arms; severe Hand.

COMMENT: No Medical report was made available.

### Analysis

The primary cause of this accident is listed as a 'Field control inadequacy' because the Victim was working without a base-stick and in a way that contradicted his SOPs and the approved clearance plan. He cannot have been formally trained to work in the unapproved way, so was inadequately trained. His field supervisor had identified a way that might have increased efficiency but had not ensured that it was conducted safely, so the field supervisor was also inadequately trained for his role. The selection and training of field supervisors is a

management responsibility, so the secondary cause is listed as a 'Management control inadequacy'.

The investigation identified inconsistencies in statements and an attempt to cover up failings by placing a base-stick after the event. It is hoped that the follow-up meeting with the management of the demining organisation led to these failings being urgently addressed.

The tool used for excavation was long and malleable and appears to have been made for the purpose, but it does not appear to be an ideal tool for area excavation or for the cautious excavation of a metal-detector reading in hard ground with many stones. No other tools are shown in the photographs. If this was the only excavation tool issued to the deminer, the provision of tools was inadequate.