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DDAS Accident Report

Accident details

Report date: 30/12/2019	Accident number: 833
Accident time: 07:05	Accident Date: 15/01/2014
Where it occurred: Area 1-005 CBU 849, Ter Harfa village	Country: Lebanon
Primary cause: Victim inattention (?)	Secondary cause: Field control inadequacy (?)
Class: Vegetation removal accident	Date of main report: Not recorded
ID original source: 01/2014	Name of source: RMAC-N
Organisation: NPA	
Mine/device: M42/M46 submunition	Ground condition: bushes/scrub; rocks/stones
Date record created: 29/12/2019	Date last modified: 29/12/2019
No of victims: 2	No of documents: 1

Map details

Longitude:	Latitude:
Alt. coord. system: UTM Coordinates 36S 703114-3667731	Coordinates fixed by:

Accident Notes

visor not worn or worn raised (?)
safety distances ignored (?)
inadequate training (?)
inadequate metal-detector (?)

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 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. 01/2014

Report Category: Accident: BAC: SUBMUNITION.

Cause: Uncontrolled detonation of mine/UXO by: Human

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

Location: Ter Harfa. **Date:** 15 January 2014

Casualty(s): Human

Agency Involved: [International demining organisation]

1. Introduction

In accordance with National Mine Action Standards (NMAS), the Chief of RMAC, [Name removed] issued a Verbal Convening Order on Friday the 15th of January 2014 for an accident investigation Board of Inquiry (BOI). The board members are [Name removed], Operations Officer and [Name removed], Chief of QA.

This is a comprehensive report by the Board of Inquiry (BOI) into the [International demining organisation] BAC Accident that occurred on the 15th of January 2014 which is based on the RMAC-N investigation, statements from [International demining organisation] personnel involved in the accident and evidence from the accident site.

The accident occurred at 0705hrs (local time) on the 15th of January 2014 in Area 1-005 CBU 849 Coordinates 36S 703114-3667731 which is located in Ter Harfa 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 15th of January 2014 at [International demining organisation] task CBU 849, an uncontrolled detonation of a US M series M42 or M46 sub-munitions occurred while [International demining organisation] searcher [Victim No.1] was cutting the vegetation and led to an injury with him and the site supervisor [Victim No.2].

[Victim No.1] sustained injuries from fragmentations of the detonated submunition in the head, in both eyes and in the right jaw. Whilst The supervisor [Victim No.2] got injuries from the fragmentations in the left thigh, elbow of the left hand [arm] and small fragments in the left eye.

Based on all available evidence, the BOI team concludes that the accident occurred due to the breaching of [International demining organisation] SOP and NMAS in cutting vegetation drills for the searcher [Victim No.1], and the injuries occurred by not wearing the visor correctly by searcher [Victim No.1] and site supervisor [Victim No.2].

There is conclusive evidence to suggest that incorrect procedures contributed to the accident and it is concluded that searcher [Victim No.1] and site supervisor [Victim No.2] were not working in accordance with [International demining organisation] Lebanon SOPs 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: CBU-849 Area 1-005. Team No: BAC 2. Ter Harfa Village, UTM 703165 3667694

4. Date and Time of Accident: 15th of January 2014, 07:05 hrs (local time)

5. Reported By: [Name removed], [International demining organisation] Operations manager

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

7. Person(s) Involved:

[Victim No.2], Site Supervisor BAC 2, ID 63563

[Victim No.1], Searcher, ID 69483

8. Investigation Team: [Name removed], Operations Officer RMAC and [Name removed], Chief of QA RMAC.

9. Date and Time of Investigation

15th of January 2014, 8:45 hrs (local time)
21st of January 2014, 12:30 hrs (local time)

10. Execution of the Investigation

Approach to Site

The accident site is located at IMSMA Task number CBU-849 which is located in Ter Harfa village. The RMAC-N investigation team [Name removed] with RMAC CLO [Name removed] drove to the accident site .

The RMAC- BOI 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. Due to the site being a BAC task the investigation team approached the accident site accompanied by [International demining organisation] Senior QA Officer [Name removed].

Process: Visual, Verbal.

11. Evidence

11.1 Ground

Accident Site

The location of the accident was on the eastern side of the CBU 849. The area consist of a terrain condensed with trees, bushes and grass. There are large boulders and smaller rocks and stones strewn across the area. The land is not cultivated or being used by local people.

The area of the accident was in the lane of the searcher [Victim No.1].

Vegetation: The vegetation consists of grass, plants, bushes and trees varying in size from knee to overhead height, which grow in irregular patches across the area.



Location of accident



Marking: Marking in general on the task was in accordance with [International demining organisation] Lebanon SOPs and NMAS, except for the base stick that was 80cm backward from where the searcher was cutting, and this was due to the fact that the base stick was sliding on the rocks as per [the statement of] searcher [Victim No.1].

11.2 Vehicle(s) and Equipment

Ambulance: One ambulance and medic was located at CBU 849 at the time of the accident.

Searcher Tools

- The schonsted locator was located behind the searcher and no damage happened to the locator.

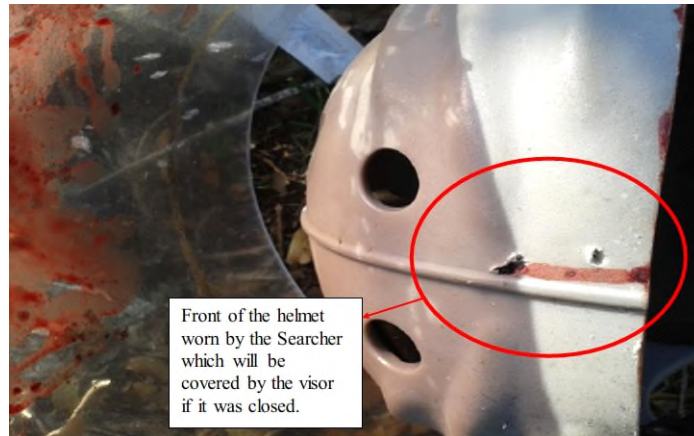


- The saw used during cutting the tree was ripped off by approximately 10cm.
- The gloves have some small holes and blood which means that the searcher was wearing them on the explosion.

Personal Protective Equipment (PPE): Searcher [Victim No.1]

As for the body armour, there was no holes in it, it was only covered by blood in some parts, which means he was kneeling and the direction of the explosion is upwards where the head was closer to the explosion from the body.

Concerning the visor, it is obvious from the scratches and damages found on the outside layer of the visor and that there's no scratches from the inside, that the visor was worn and was not fully opened. But from the injuries happened to the eyes of the searcher and from his statement during the investigation with the BOI in the hospital on the 21st of January 2014, he confirmed that the visor was not locked [down] as it should be, which contradicts with safety regulations and [International demining organisation] SOP & NMAS.



In addition to that there's a hole in the front of the plastic helmet which cannot be reached if the frame in front of it was not lifted up to a certain level which is not acceptable for the safety requirements.

Personal Protective Equipment (PPE): Site supervisor [Victim No.2]

As for the body armour, there's some holes in it which protected [Victim No.2] from these fragments found inside the armour.

Concerning the visor, there's no evidence of scratches on the visor, but the EOD visor was worn on the accident by the site supervisor which contradicts also with [International demining organisation] SOP about using this visor only for EOD operations and not for clearance operations.

Using the correct visor at the distance he was standing from the detonation would have protected the site supervisor from any injuries in his eyes.

11.3 Explosive Ordnance involved in accident: The type of explosive ordnance involved in the accident is believed to be one M-series type M42 or M46 sub-munitions

11.4 Casualty Information

Casualty's position: Searcher [Victim No.1]

According to the injury and to the statement of the searcher, he was kneeling in his lane to cut the vegetation in front of him.

Casualty's position: Supervisor [Victim No.2]: According to the statement of the searcher and the site supervisor, he was standing at a distance of 3 to 4 meters behind the searcher while the accident happened when he was starting to turn to his right side to leave the area.

Description of Injuries: Searcher [Victim No.1]:

Primarily injuries to his eyes. Minor cuts on the face (between upper lip and forehead) and on the head. Fragments seem to have come on the sides of the helmet. Several fragmentations in his eyes, causing serious injury to right eye, as well as the left. In the left eye there is still sight, while the right eye currently only responds to light and dark contrast and there is no sight. There are some small shrapnel cuts on the right hand. The final condition of the injury to his eye(s) will be known in the next 3 months.

Description of Injuries: Site Supervisor [Victim No.2]:

He was standing approximately 3 meters behind and to the right of the searcher when the explosion happened. [Victim No.2] received shrapnel in the left side of his body as he was just turning to leave. He has injuries on the left thigh and the left knee due the penetration of fragments as well as in the left bicep. No nerves or arteries were injured. He also has redness

and swelling in his left eye due to a fragment in his left eye. The coroner's medical report states that [Victim No.2] should be ready for work in the next 1-2 months.

11.5 Interviews

The following [International demining organisation] personnel were interviewed by the RMAC-N BOI team on 15th and 21st of January 2014 at CBU-319:

[Name removed], [International demining organisation] FOO
[Victim No.2], [International demining organisation] Supervisor
[Name removed], [International demining organisation] TL
[Name removed], [International demining organisation] Searcher
[Victim No.1], [International demining organisation] Searcher

12. Accident Details (Circumstances / Sequence of Events)

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

Chronology of Events (According to witness statements and site documentation) 15th January 2014.

06:05 - Arrival at the site. Morning brief by SS and Locators tests. The team split into 2 groups.

06:30 – Start of operations.

07:05: Accident happens.

07:06 - FOO [Name removed] was called by [Victim No.2] that an accident happened. [Name removed] immediately informs OPS manager, radio room and PM. [Victim No.2] calls [FOO] while the medic is on the way to him into the site. Searchers close to him come and provide first aid. [Name removed] moves from the accident site to [Victim No.2] and receives first aid until medic arrives.

07:07 - [FOO] calls Team 7 for its ambulance to assist in transport of the casualties.

07:10 - PM informs RMAC Chief.

07:19 - Team 7 ambulance arrives to Medevac point at the site.

07:22 - OPS manager, FOOs arrive to the site.

07:25 – [Victim No.1] is extracted from the site after initial stabilization is performed in site safe areas and [Victim No.1] leaves with Team 7 ambulance to the hospital.

[Name removed], [Name removed] and [Name removed] leave with the ambulance to assist.

07:30 – [Victim No.2] is extracted from the site after initial stabilization is performed in site safe areas and leaves with Team 2 ambulance to the hospital.

07:40 - [Name removed] and Deputy Team leader close the area of accident.

07:50 – [Victim No.1] arrives to hospital.

07:55 – [Victim No.2] arrives to hospital.

08:30 - RMAC [Name removed] arrives to the site, with RMAC CLO [Name removed] and [Name removed], and started investigation.

The investigation was followed up by a visit to the hospital to take the statements of the casualties on the 15th of January 2014 by [Name removed] and [Name removed] [BOI Investigators].

12.1 Medical Assistance and Evacuation (procedure, treatment, equipment.)

On the 15th January 2014, there was one medic [Name removed] at task CBU 849 who was positioned with the ambulance and driver at the control point during clearance operations.

At 7:05 hrs an explosion occurred. The medic heard the explosion inside the site, immediately she was led to the accident location by one of the searchers. Finding two casualties on the ground, she started first aid at the beginning with [Victim No.1] because his injury was

prior[ity] to the one of [Victim No.2] because blood was seen on the face and eyes of the searcher. Then both the searcher and the supervisor were evacuated to the hospital after extracting and finishing first aid by medic of team 2 by the Ambulance of team 2 and 7.

According to the statements from the [International demining organisation] personnel at the site; The time taken for the casualties to reach the hospital of Jabal Amel in Tyre from the minute the accident occurred was approximately 45 to 50 minutes.

12.2 Geography and Climate

The area of the accident site is located in Ter Harfa village.

The task site is on a rocky straight area with high and dense vegetation.

At the time of the accident the weather was calm, sunny and warm with clear sky. Visibility was good.

12.3 Communications: The [International demining organisation] team 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 organisation] 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 2nd July 2013 and the 15th January 2014 a weekly basic RMAC-N QA inspections were conducted at CBU-849. All the QA visits results were acceptable.

Accreditation: The [International demining organisation] team received a renewal for the full accreditation on January 2013

Training: The last training for the team had occurred after the Christmas break in January 2014.

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

The cutting vegetation procedures and the use of the protective equipment as for the visors at CBU-849 were not in compliance with [International demining organisation] SOP and NMAS.

14. Task Status: Current. Start Date: 2.07.2013

15. Background Information

CBU 849 is a BAC task within the task dossier 1-005 issued to [International demining organisation] by the RMAC-N. During the 2006 Hostilities with Israel, sub-munitions were dispensed into the area by Israeli rockets and projectiles.

16 Conclusions

From the evidence gathered the board concluded the following:

- a- An uncontrolled detonation of US M series M42/M46 sub-munition occurred with searcher [Victim No.1] during vegetation cutting drills.
- b- The item was exploded either because the area was not checked correctly by the Schonsted locator before starting to cut the vegetation or the saw went to an area deeper than the locator can reach in detection. And in both situations, this contradicts with [International demining organisation] SOP and NMAS as for cutting vegetation in an area not seen and/or detected [searched] correctly.

- c- From the injuries in the searcher's face and eyes, and the statement of the searcher confirmed that the visor was not secured as it should be, also this wrong position of the visor contradicts with safety regulations of using PPE/Visor in [International demining organisation] SOP and NMAS. This breach of safety resulted of this severe injury in the eye of [Victim No.1].
- d- The supervisor was away 3 to 4 meters from the searcher which contradicts also with [International demining organisation] SOP as for the safety distance between the supervisory person and the searcher should [not be less than] 5 meters.
- e- The supervisor was wearing the EOD helmet, where this helmet should be used only for EOD operations and not for clearance. The correct visor would have protected the supervisor from having this injury in the eye at this distance from the detonation.
- f- The supervisor didn't recognize during his supervision to the searcher's work [Victim No.1] that the visor wasn't worn correctly.
- g- The fragments that went in the direction of the visor of the searcher and to the body protection of the supervisor didn't go through any of them, which means that these PPE protected the area that they covered in the body of the casualties.
- h- The casualties evacuation from the site to the hospital was carried out in a timely and professional manner.
- i- The marking of the site in general was in accordance with [International demining organisation] SOP and NMAS.
- j- During the course of the investigation the RMAC-N BOI team received full cooperation from [International demining organisation].

The accident is considered to be conclusive as preventable.

17. Further Actions and Recommendations

- a. One day refresher training to be conducted for all [International demining organisation] BAC teams and to focus on vegetation cutting drills and how to wear personal protective equipment correctly. (Completed)
- b. Closer supervision from all levels to ensure there is strict adherence to [International demining organisation] SOP especially on vegetation cutting drills.
- c. BAC team 2 to be moved to another site until having a new supervisor to command the team, and send the team later back to CBU 849 ASAP to conduct normal BAC operations.
- d. It will be more trustworthy for [International demining organisation] to switch the saw used with the searchers by a shorter one that will be no longer than 30cm.

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

Report seen/Agreed by RMAC-N Chief of OPS [Name removed], by RMAC-N Chief of QA [Name removed], and Chief of RMAC-N [Name removed].

Victim Report

Victim number: 1051	Name: Anwar Ali Fayyad
Age:	Gender: Male
Status: deminer	Fit for work: not known
Compensation: Not made available	Time to hospital: 45 minutes
Protection issued: Frontal apron; Long visor	Protection used: Frontal apron

Summary of injuries: minor Hand; severe Eyes; severe Face

COMMENT: No Medical report was made available.

Victim Report

Victim number: 1052	Name: Youssef Shweikh
Age:	Gender: Male
Status: supervisory	Fit for work: presumed
Compensation: Not made available	Time to hospital: 50 minutes
Protection issued: Frontal apron; Helmet; Short visor	Protection used: Frontal apron; Helmet; Short visor

Summary of injuries: severe Arm; severe Eye; severe Leg

COMMENT: No Medical report was made available. Severe injuries are inferred because they required surgical intervention.

Analysis

The primary cause of this accident is listed as "Victim inattention" because the investigators found that the Victim may have been reaching beyond where he searched with the locator with the saw. His supervisor should have corrected this. His visor was raised and he was also using the saw while the Supervisor was too close to him, so he should have stopped working, but his Supervisor did not correct these errors either. The supervisor was wearing a short visor on a helmet (called an EOD visor by this organisation) in breach of his organisation's SOPs. The secondary cause of this accident is listed as a "Field control inadequacy" because it seems that Supervisor did not enforce the organisations SOPs, and deliberately broke some himself. The selection and training of Supervisors is a senior management responsibility, so there was also a significant "Management control inadequacy".

The suitability and performance of the Schonsdet stick detector is uncertain. If the detector failed to locate the submunition, or the way it was used led to the submunition being missed, the equipment and procedures should be reviewed.