

# DDAS Accident Report

## Accident details

<b>Report date:</b> 11/07/2011	<b>Accident number:</b> 751
<b>Accident time:</b> 10:00	<b>Accident Date:</b> 09/04/2007
<b>Where it occurred:</b> CBU 127, Area 8-002, Nr Tayr Filsay, Holusiehi, Ej-Jenoub Province	<b>Country:</b> Lebanon
<b>Primary cause:</b> Inadequate training (?)	<b>Secondary cause:</b> Unavoidable (?)
<b>Class:</b> Missed-mine accident	<b>Date of main report:</b> None
<b>ID original source:</b> BOI 005/07	<b>Name of source:</b> UN MACC SL
<b>Organisation:</b> [Name removed]	
<b>Mine/device:</b> M77 submunition	<b>Ground condition:</b> agricultural (recent)
<b>Date record created:</b>	<b>Date last modified:</b> 11/07/2011
<b>No of victims:</b> 0	<b>No of documents:</b> 2

## Map details

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

## Accident Notes

inadequate equipment (?)

non injurious accident (?)

## Accident report

The reports of this accident were made available by the investigating body in 2008. Their conversion into a DDAS file has led to some of the original formatting being lost. Text in square brackets [ ] is editorial. The reports are reproduced below, edited for anonymity.

File Reference: BOI 005/07

MINE ACTION COORDINATION CENTRE, SOUTHERN LEBANON

## BAC INCIDENT REPORT 005/2007

Report on Incident that occurred on the 9th April 2007 at CBU 127 Tayr Filsay.

### INVESTIGATION REPORT ON MISSED M77SUB-MUNITION AT CBU 127, AREA 8 HOLUSIEHI

The Incident occurred in Area 8 (CBU 127), UTM (BM) 717937-587306 on the 9th April 2007, on a Completed Site where one M77 Sub-Munition was located by a farmer when ploughing the area.

#### References:

Lebanon National Technical Standards and Guidelines (TSGs)

International Mine Action Standards (IMAS)

[Demining group] Standard Operating Procedures (SOPs)

[Demining group] Completion Report CBU 127 dated 14 March 2007

#### **Introduction**

1. In accordance with the National Technical Standards and Guidelines (TSGs), the MACC SL Programme Manager, Mr. [Name removed] and Lt.Col [Name removed], NDO Representative, issued a Verbal Convening Order on Monday the 9th April 2007, for an incident investigation Board of Inquiry (BOI). The MACC SL board members are Capt [Name removed] LAF Operations Officer MACC SL and [Name removed], Chief of QA MACC SL.

2. This is a comprehensive report by the Board of Inquiry into the Demining Incident that occurred on the 9th April 2007 which is based on the MACC SL investigation, the [Demining group] completion report: The incident is considered preventable.

Date: 9th April 2007

Time of Incident: 1000 hrs approx.

Location: Holusieh, Area 8-002, Lebanon

Task: CBU-127, Task Dossier 8-002

BM UTM: 717937-587306

UTM of location of the munition: 717869/687116

Task Start / Finish Date: 5th February to 9th March 07

Reported by: [Name removed], Reported to: [Demining group], Tyre and MACC SL

Time of Incident report to MACC QA: 1100hrs approx.

MA Organisation POC: [Name removed], [Demining group] Supervisor

Investigation Date/Time: 9th April 07, 1530hrs

Investigation Location: Task CBU-127

Investigation Team: Capt [Name removed], LAF Operations Officer and [Name removed], MACC SL QA Officer.

Explosive Ordnance Type: US M-77 Submunition

## **Background**

4. CBU 127 forms a part of 26 CBUs in Task Dossier 8-002 issued to [Demining group] for clearance as part of the sub-munitions clearance programme in SL. CBU 127 was completed on the 9th March 07 and accepted by the MACC SL on the 13 Mar 2007, see annex A for the [Demining group] Completion Report for CBU 127. According to the [Demining group] Completion File the task was a combination of surface and sub-surface clearance in accordance with the operational clearance plan. A combined total of 56,633m<sup>2</sup> was surface and sub-surface cleared on the site, of which approximately 2,618m<sup>2</sup> was surface cleared only in three smaller areas. The area where the sub-munition, M77, was located is clearly within an area that was sub-surfaced cleared.

## **Events leading up to the Incident**

5. On the morning of the 9th April 2007 the land owner had contracted a local farmer to commence cultivation of his land for follow-up planting, during the process of the cultivation the operator of the machine noticed on his return ploughing an M77 sub-munition, had been turned over and was now quite visible on the surface on the newly ploughed area. He immediately stopped work and report the incident to the land owner who in turn informed {Demining group} personnel in the area.

## **Events following the Incident**

6. [Demining group], [Name removed], BAC Supervisor, immediately contacted the operations department of the MACC SL reporting the location and circumstances regarding the incident on the 9th April 2007 at approximately 1000hrs. This site was visited by [Demining group] and the landowner was informed not to conduct any further work in this area of his land.

## **BOI Post Incident Activities and General Observations**

7. On arrival at the incident site, The MACC SL BOI Team were met by [Name removed] and [Name removed], [Demining group] BAC Supervisors and after an initial reconnaissance by the [Demining group] supervisors and the Investigation Officers, it was ascertained that the BOI could gain safe access up to the incident site without additional clearance being conducted. During the visit on the 9th April 07 it was possible to clearly view the location of the M77.

8. On the inspection of the incident site on the 9th April 2007 the following general observations were established:

- The area in which the M77 was located had been partially ploughed
- The M77 was clearly visible and most likely it had been at a depth of between 5 -10 cm below the surface
- The location of the M77 was identified as the area of the task that had been sub-surfaced cleared

## **Geography and Weather**

9. CBU 127 is located the Province of Ej-Jenoub, with the nearest Town being Tayr Filsay. The land is primarily used for agriculture. The land was being prepared in preparation for planting.

## **Conclusions**

10. Based on the investigation, the documentation and visit to the site, the BOI concludes the following:

- CBU 127 was previously cleared as part of a task dossier 8-002 issued by the MACC SL to [Demining group]
- The location of the sub-munition was identified in an area that sub-surface clearance had taken place
- It is likely that the M77 was located below ground level from between 5-10cm

### **Recommendations**

11. The following are recommendations based on the BOI conclusions:

- The area immediately surround the location of the M77 be re-cleared with a 50m box centre on the location of the sub-munition.
- [Demining group] to review and revise operator use of the Large Loop detector
- [Demining group] to review BAC sub-surface clearance operations when using the Large Loop detector
- [Demining group] conduct an internal review of the events surrounding the missed sub-munitions.

Signed: [Name removed] , C/QA Officer, MACC SL. Capt [Name emoved], MACC SL, LAF Operations Officer, NDO/MACC SL.

16th April 2007

### **Annex:**

- A. [Demining group] Completion Report [Not made available]
- B. [Demining group] Site Report dated April 2007
- C. CBU site photos

### **Comments**

[Name removed], UN Chief of Operations, MACC SL

Seen/Agreed

[Name removed] MC, UN Programme Manager, MACC SL

Seen/Agreed

### **Internal [Demining group] Investigation report**

Internal Investigation and Follow up Action

CBU 127

#### **Overview**

On Monday the 9th of April a suspected ribbon munition had been ploughed up on CBU 127. This was reported by the landowner to [Name removed] at his site. The supervisor went to where the item was reported and confirmed that it was a M77. It was not yet confirmed that the item was ploughed up in an area previously cleared by [Demining group]. MACC Ops and QA were notified about the item on the same day. A representative from MACC QA and NDO visited the site with [Name removed] and [Name removed] ([Demining group] QA off) later that afternoon.

The Task site dossier with the clearance sketch was brought with and this confirmed that the item was ploughed up in a previously cleared area.

This area was previously searched with the large loop and a number of M77 were located within the vicinity of the ploughed up area.

The site and item was photographed by MACC QA and it was recommended that an area of 50m x 50m to the centre of the item should be rechecked.

### **Background**

This part of the site is a flat area with very little vegetation and was identified to be searched with the large loop. The area was ploughed up by the land owner in 3 different places prior to the clearance team starting on this site. The landowner had informed the clearance team that a ribbon typed sub munition had previously been ploughed up in that particular area.

### **Action taken**

On Tuesday the 10th of April a small team consisting of one team leader, three searchers and a medical support team with myself redeployed to the site.

A box (50mx50m) was set up with the M77 central to the box and the area was researched. Five targets were identified and marked for further investigation. The follow up clearance was done with the Schonstedt locator to pinpoint the targets. This was the same clearance methodology used to originally clear the area.

All of the identified targets were bits of scrap metal on the surface of the ground next to previously excavated holes.

No further M77s were detected.

### **Large Loop 740M**

The large loop used to recheck the area was the same Large Loop used to search the area. The Serial Number 958

### **Test and metal free areas**

Before any work commenced on the site a test and metal free area was established near to the site to be searched. The test piece was buried at 20cm from the ground surface to the top edge of the test piece.

The same settings were used when the area was originally searched with the large loop.

The same test piece was used to test the Schonstedt locators.

### **Intrusive investigation on M77**

The M77 was located in an area previously ploughed up by the owner before clearance work started, using the same attachment (Ripper).



[The ploughed area]

The freshly ploughed area was ploughed using a single ripper attached behind the tractor. This rips down up to 30cm below the surface of the ground.

In this particular spot it had been ploughed down to approximately 26cm

The M77 was rinsed with water and on further investigation a corroded patch was noted on the bottom rim of the Body. The paint in this area was missing.

About 30cm from where the item was located the ploughed trench was inspected and all loose soil removed till the depth of the trench ploughed up to and past the M77 located.

On the investigation of the trench a patch of corroded material was noted on the side wall of the trench below 20cm.

This patch was removed and inspected. Dark paint was embedded in the soil that resembled the paint missing on the M77.

Having closely examined both findings the corroded soil with the embedded paint resembled that of the corroded part and missing paint of the M77

### **Conclusion**

This missed M77 could have previously been located by the Large Loop and marked for investigation, however on investigating with the locator it could have been missed because of the depth.

### **Recommendations**

Particular attention should be paid to areas previously ploughed / disturbed where the presence of sub munitions have been confirmed.

### **Analysis**

The primary cause of this incident is listed as *Inadequate equipment* because it was accepted by the demining group that the equipment used could have failed to locate a deeply buried M77. The large-loop detector would have signalled on it, but the Shoensdat stick-detector (used to pinpoint before removal) could have missed it, so it would have been left. The failure to address this issue indicates a significant *Management Control Inadequacy* by the MACC and the Demining group.

The Internal investigation sought to prove that the device was lower than a Shoensdat stick detector would have signalled on, but this was not accepted by the MACC investigators who suggest that the device was only 5-10cm below the ground surface. It is not clear which of these was correct. Certainly, it would be unusual for a single submunition to go twice as deep as any other in an area.

It is interesting to note that a commercial demining group missed a device (for whatever reason) and was only required to re-search 50 square metres centred on that device, which took less than a day, so was not much of an incentive to ensure that no others were missed.