

DDAS Accident Report

Accident details

Report date: 07/07/2011	Accident number: 709
Accident time: Not recorded	Accident Date: 28/03/2007
Where it occurred: Area 6, MF1580, Kfar Houne	Country: Lebanon
Primary cause: Management/control inadequacy (?)	Secondary cause: Field control inadequacy (?)
Class: Missed-mine accident	Date of main report: 10/04/2007
ID original source: BOI 006/07	Name of source: UN MACC SL
Organisation: [Name removed]	
Mine/device: No.4 Israel AP blast / frag	Ground condition: building rubble grass/grazing area steep slope
Date record created:	Date last modified: 07/07/2011
No of victims: 0	No of documents: 2

Map details

Longitude:	Latitude:
Alt. coord. system: UTM 741126/707075	Coordinates fixed by:
Map east:	Map north:
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

inadequate investigation (?)
mine/device found in "cleared" area (?)
non injurious accident (?)

Accident report

The report of this incident was made available in 2008. The conversion of the varied documents into a DDAS file has led to some of the original formatting being lost. Text in square brackets [] is editorial. The report is reproduced below, edited for anonymity.

File Reference: BOI 006/07

MINE ACTION COORDINATION CENTRE, SOUTHERN LEBANON

MINE INCIDENT REPORT 006/2007

Report on Incident that occurred on the 28th and 29th March 2007 in Minefield 1580 Kfar Houne.

INVESTIGATION REPORT ON TWO MISSED MINES AT MINEFIELD 1580, KFAR HOUNE [Confusingly, this report gives details of three mines, one of which was visible but outside the cleared area.]

The Incident occurred in Area 6 (Minefield 1580), UTM (BM) 741126-707075 on the 28th and 29th March 2007 where two AP mine (No4 Israelis) were located in a previously cleared and marked area.

References:

Lebanon National Technical Standards and Guidelines (TSGs)

International Mine Action Standards (IMAS)

[Demining group 2] Standard Operating Procedures (SOPs)

[Demining group 1] Standard Operating Procedures (SOPs)

MACC SL Mine / UXO information (Completion File MAF Task No. [Demining group 1]/MC/019)

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 Friday the 30th March 2007, for an incident investigation Board of Inquiry (BOI). The MACC SL board members are Lt [Name removed] LAF Plans 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 Incidents that occurred on the 28th and 29th March 2007 which is based on the MACC SL investigation, the [Demining group 2] and [Demining group 1] investigation report, statements from [Demining group 2] and [Demining group 1] personnel involved and with background knowledge of the incident site, visits to and photographs from the incident site: The incident is considered preventable.
3. The [Demining group 2] investigation report was forwarded to the BOI on 30th March 2007 is at annex A. The [Demining group 1] Completion File, [Demining group 1] Task No: [Demining group 1] /MC/019 is attached at annex B. The incidents occurred on the 28th and 29th March 2007 in Area 6 Minefield 1580 situated in Kfar Houne, an abandoned IF defensive position, UTM 741126-707075.

Background

4. Minefield 1580 forms a part of a number of minefield (and [Demining group 2]'s) tasks issued to [Demining group 2] as part of the OES II clearance requirements for Area 6 and commenced clearance on the 23rd March 07. According to the [Demining group 1] Completion File the initial task was a combination of NDO 262 and 263, with NDO 262 re-identified as CLDA 1066. NDO 262 required an area to be flailed east of the Kfar Houne position and during this process two AT mines were located, the task was immediately suspended. In addition to the flailing of this area, manual clearance was conducted on the ID defensive minefield which surrounds the Kfar Houne position to allow the operations of the

[Demining group 1] mechanical asset to be viewed from a safe viewing area. The 2 AP No 4 mines located by [Demining group 1] on the 27th August 2004 (see daily work sheets). The limitation of the clearance was a cleared lane 1m or 2m wide and approximately 10m in length. The area of clearance and the location of the mines were marked and the area was suspended. The data was NOT recorded in the [Demining group 1] Completion File for the task or recorded separately indicating the extent of the site clearance.

5. During this process the management of the task was coordinated through the NDO with daily on site management provided by an LAF officer, Capt [Name removed], who during discussions can confirm that the lane was authorised but he recalls it only being 1m in width only. He has suggested that the lane width may have been extended by other personnel from the MACC SL during a recent site visit but not sure who. No MACC SL involvement occurred in terms of operational and QA support during this task.

6. [Demining group 1] commenced clearance at this site, NDO 262, over the period 21st July to 30th August 2004, with the task being suspended on as of the 30th August 2007. The minefield clearance task, clearance of the IF position minefield 1580, was then issued to [Demining group 2] as part of the OES II clearance programme. [Demining group 2] commenced worked at the site on the 23rd March 2007.

Events leading up to the Incident

7. On the mornings 28th and 29th March 2007, [Demining group 2] as part of their normal working procedures had commenced the re-clearance of the lane cleared by [Demining group 1] in 2004, during this process two No 4 AP mines were located, one on each day in an area previously cleared and marked as cleared by [Demining group 1]. The mines were in good condition however one had some damage on one of the corners.

Events following the Incident

8. [Demining group 2] immediately contacted the MACC SL reporting the location of mine on the 28th Mar in a previously cleared area. As same situation occurred on the 29th Mar the same procedure was followed with the MACC being informed. Lt [Name removed] and Mr. [Name removed] visited the site to access the incident on the 30th March 2007. As is standard practise with [Demining group 2] re-clear all areas previously manually cleared on sites, no [Demining group 2] personnel were injured due to this practise.

BOI Post Accident Activities and General Observations

9. On arrival at the incident scene and after an initial reconnaissance by the Investigation Officers, it was ascertained that the BOI could gain safe access up to the accident scene without additional clearance being conducted. During the 2nd April 07 it was possible to view the location of the [Demining group 1] lane marking, the mine marking and the location of the missed mines and the new mine located by [Demining group 2] during clearance operations.

10. On the inspection of the incident scene on the 2nd April 2007 the following general observations were established:

- The lane marking by [Demining group 1] during previous cleared was in place and easily recognizable
- The marking of the mines located by [Demining group 1] was in place and easily recognizable,
- The area where the mines were located was clearly identified as inside the area as marked as safe and cleared,
- The area was re-marked by [Demining group 2] including the mines missed by [Demining group 1] and the new mine located during additional clearance.

Geography and Weather

11. Minefield 1580 is located on the top of high feature in Kfar Houne, the ground is heavily contaminated and requires full excavation. The area slopes steadily away from the top of the position. The minefield is marked by a boundary fence but this is in a poor state of repair. There was no evidence of previous excavation being conducted on this site.

Site Layout and Marking

12. The site layout and minefield marking prior to the incident was in accordance with National TSGs and [Demining group 2] and [Demining group 1] SOPs.

Management, Supervision and Discipline

13. Not applicable as this site was managed by the NDO.

Quality Assurance

14. No internal QA was conducted by [Demining group 1] at this site.

15. External QA was not carried out by the MACC SL QA Section on the [Demining group 1] clearance operations as this was managed by the NDO.

Details of Mine Involved

16. The Israeli No 4A AP blast mine consists of a plastic box with a hinged lid that overlaps the sides. The main charge is 188g of cast TNT, housed in an internal plastic compartment, which occupies just over half the volume of the box at the hinged end. The wall of this compartment is threaded to accept the fuze assembly; the remainder of the box is empty.

17. The metal fuze (No 9 Ignitor) assembly, which incorporates a lead-shear arming delay, is fitted through a hole in the end of the mine and screwed into the wall of the charge compartment and sealed with a rubber O-ring. The arming pin protrudes through the end of the mine opposite the hinge. The arming pin is attached to a pull ring, which is looped over the fuze body and retained by a plastic cap during transit for additional safety. The striker is retained and secured by a square shaped slotted plate on which the open end of the box rests.

18. The mine is designed purely for direct pressure operation. To arm the mine, the plastic cap on the end of the fuze is removed to release the pull ring; the arming pin is then removed. The spring-loaded striker is retained until it has sheared through a lead wire, which runs through holes in the end of the fuze. The arming process normally takes several hours. Once armed, the striker is retained only by the slotted plate; pressure on the lid (in excess of 8kgs), simply pushes the slotted plate out which in turn releases the spring loaded central striker. The striker then impacts with the integral fuze detonator, which then passes the detonating wave to the main TNT charge causing the mine to detonate.

19. There have been instances reported where foreign bodies have embedded themselves in between the recess in the striker mechanism and the slotted striker retaining plate, therefore allowing the partial downward release of the plate. The spring-loaded striker is now therefore only being held by the foreign body. Accumulated pressure over a period of time (especially in heavy soil conditions), can also slowly release the slotted striker retaining plate. This will therefore reduce the direct pressure required to activate the mine.

Conclusions

20. Based on the investigation, the statements and visits to the site, the BOI concludes the following:

- The area was previously cleared as part of task NDO 262, issued by the NDO to [Demining group 1]
- On site marking of Minefield 1580 was in accordance with the TSGs and [Demining group 1] SOPs.
- The two mines located by [Demining group 1] during the clearance of the access lane were clearly marked and recorded.
- The mines located by [Demining group 2] during follow up clearance of the site were located inside the area marked by [Demining group 1] marking posts during previous clearance operations.
- Additional mines have been located during follow up operations by [Demining group 2] forward of the [Demining group 1] cleared area.
- The site is heavily contaminated and requires full excavation.
- The site was operationally managed, including external QA requirements by the NDO.
- The minefield site was visited by the MACC SL subsequent to the task being issued to [Demining group 2] and the clearance lane marking may have been adjusted or replaced.
- The task was suspended by the NDO on the 30th August 2005.

Recommendations

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

- All clearance undertaken on any task, whether completed or suspended must be recorded in either an IMSMA suspension or completion report.
- [Demining group 1] conduct an internal review of the events surrounding the missed mines.
- [Demining group 1] to confirm to the MACC SL additional sites that they have conducted clearance operations on that have been suspended to confirm if there is any incomplete documentation.

Signed: C/QA Officer, MACC SL: LAF Plans Officer, NDO/MACC SL

10th April 2007

Annex:

- A. [Demining group 2] Initial Report dated 30 Mar 2007
- B. [Demining group 1] Internal Investigation Report
- C. [Demining group 1] Completion Report [not attached]

Comments by the MACC SL Chief of QA, [None]

Comments by the MACC SL Chief of Operations [None]

UN Chief of Operations, MACC SL, Seen/Agreed

UN Programme Manager, MACC SL, Seen/Agreed

NDO Representative, MACC SL [None]

Annex A

REPORT [by Demining Group 2] FOR THE DISCOVERY OF THE REMAINS OF AN ISRAELI NUMBER 4 AP MINE LOCATED DURING THE CLEARANCE OF WIRE FROM THE SOWAIDA POSITION PRIOR TO COMPLETION HANDOVER: GRID 734239, 699427

18th MAY 2007

References:

Lebanon National Technical Standards and Guidelines (TSGs).

International Mine Action Standards (IMAS).

[Demining group 2] International Limited Standard Operating Procedures (SOPs).

Introduction

The [Demining group 2] SL Area 6 BT Manager was tasked to the Sowaida position by [Demining group 2] SL Area 6 operations Manager in response to the discovery of the remains of an un-fused Israeli Number 4 AP mine which was visually located in an un-cleared area.

Sequence Of Events

[Demining group 2] SL deployed several MCTs to the Sowaida position to remove the wire which had been left on the site by other clearance contractors, during the clearance of this wire one of the supervisors spotted the remains of an Israeli number 4 AP mine wedged into a large concrete beam which lay within an un-cleared area on the eastern side of the position. This was reported to [Demining group 2] SL Area 6 Operations Manager.



[Name removed] ([Demining group 2] SL Operations Officer) and Mr. [Name removed] ([Demining group 2] SL BT Manager) were tasked to visit the site and view the item located and report its finding to [Demining group 2] SL Area 6 Operations Manager.

On arrival at the site the supervisor escorted Mr. [Name removed] and Mr. [Name removed] to the location of the mine, on inspection of the mine the following was discovered:

- The remains of the mine were un-fused.
- The mine case was broken where and the explosive content joins the fuse well.



- The rear of the mine case was open and some of the TNT fill was not present at the rear of the mine, the exposed TNT had been subjected to weathering and the TNT was black [brown], which would indicate that it has been exposed to the environment for an extended period of time.
- The forward edge of the mine had been shielded from the weather and the fuse well threads were undamaged which would indicate that the fuse had been removed rather than blown out by a detonation.
- Striation marks were visible on the plastic case of the mine which would indicate a blast had taken place at the rear of the mine.

The mine was photographed and the UTM of its location was recorded, UTM 734239, 699427 +/- 6m as shown on Mr. [Name removed]'s GPS.

General Observations

The area where the mine was located was to the best of [Demining group 2] SL knowledge was not cleared by [Demining group 2] SL. There is a very large reinforced concrete beam which appears to have been blown out of the position and there are some metal items such as fencing wire and ammunition containers under the beam. This item was too large to be moved by the MCT clearing this area.

Conclusions

This was reported by telephone to Mr. [Name removed] (MACC SL Chief of QA) by telephone, Mr. [Name removed] was instructed to retain the mine in the [Demining group 2] SL explosives store, and that MACC SL would visit [Demining group 2] SL on Monday 21st May 2007 to visit the site and view the remains of the mine.

Recommendations

As this site has yet to be handed over it is recommended that the completion paperwork be made available to confirm that the remains of the mine were in an un-cleared area.

Signed [Name removed], BT Manager [Demining group] SL

Annex A: South Lebanon, 28th March 2007

REPORT [by Demining Group 2] FOR THE DISCOVERY OF MISSED MINES IN A PREVIOUSLY [Demining group 1] CLEARED AREA ON MF 1580 LOCATED BY [Demining group 2] SL.

1. [Demining group 2] SL deployed an MCT onto MF 1580 23rd March 2007, the CP was established and a CASEVAC exercise was conducted. Clearance operations commenced 26th March 2007.
2. The site supervisor was instructed to conduct verification of the cleared area prior to continuing with the clearance, by the [Demining group 2] SL Operations team on the site handover.
3. During clearance operations 28th March 2007 one Israeli Number 4A AP mine was located 4cm inside the [Demining group 1] clearance lane.
4. During clearance operations 29th March 2007 a further Israeli Number 4A AP mine was located in the marked and cleared [Demining group 1] clearance lane, this mine was photographed and destroyed to allow the clearance operation to continue.
5. On the evening of 29th March 2007 UN MACC SL Chief of Operation and [Demining group 1] TOM were informed of the fact that these mines had been located.
6. All site visits for the purpose of investigation should be coordinated through the [Demining group 2] SL OES II, Programme Manager and Operations team.
7. See attached photographs, for location of mines.

Signed: [Name removed]



[Photo clearly showing mines found inside the perimeter marked by old marking.]

Annex B

Incident Report, 4 Apr 2007, Kfar Houna

[Demining group 1] Task No. [Demining group 1]/MC/019.

Minefield No. NDO-263.

Author: [Name removed] Technical Field Manager Compliance Section

24 April 2007

Introduction

1. On 03/04/2007 we was tasked to conduct an investigation about missed mines in a

field, supposedly cleared my [Demining group 1] previously. (See report by [Demining group 2] under "Annex A".) The investigation took place 04/04/2007, and was conducted by TFM [Name removed] and Completion/QA officer [Name removed] from [Demining group 1].

Aim

2. The Aim was to find out what, if anything, [Demining group 1] had done in this field and to try to determine the cause for it.

Incident Scene Details

3. The investigation started by looking for any completion folder that [Demining group 1] might have for this area. We found the folder "Completion File [Demining group 1] Task No. [Demining group 1]/MC/019. Minefield No. NDO-263. Kfar Houne . BM 741126-707075. Start date 21 July 2004, End date 30 August 2004".

4. When reading these reports, and especially under point "1.21 Additional information", it is clear that the area was done as "Verification of area below the position." And that they found "2x No4 found when manually clearing an observation post for the operator on the position."

The area was cleared by the MECH team with the support of deminers and this area was cleared manually just for the use of the MECH operator to have a good observation point for the flail.

5. After this we continued with a site visit, after coordinating this with Mr. [Name removed] of [Demining group 2]. Once at the CP of the field, we were greeted by Site Supervisor Mr. [Name removed] and he gave us a site briefing. He thereafter took us up to the field and explained what had happened.

Comments

Referring to Annex A, the photos from the [Demining group 2] report, and the photos taken by [Demining group 1] on our visit 4th April 2007, we think it is clear that there are some discrepancies. Also what we were told by Mr. [Name removed] about what he and his team did on site is not what the found mines tell us. He said that they rechecked the area by starting to go down, found one AP No-4, continued down, turned around and on the way up found one more. How did they do this, when they showed us that the yellow picket on the far right indicated the mine found 28th March 2007?

It's very clear when you compare the photos from the [Demining group 2] report, with the photos taken by [Demining group 1] 4th April 2007; there are pickets that are on the [Demining group 2] photos, which are not on the [Demining group 1] photos. At least not on the same place. Were they moved when they rechecked the area, and then put back? In the wrong places by mistake?

This field was cleared in 2004. The area was fenced off on two separate occasions by [Demining group 1], and both times the fence has been taken down by locals.

Conclusions

After studying all the evidence available we have made the following conclusions:

In our opinion the [Demining group 2] team have rechecked the area, and in doing so, moved the existing marking with the intent to put them back into the same place. In doing so, they moved the existing marking farther out without knowing it them selfs. It is clear comparing the [Demining group 2] pictures with the ones taken by [Demining group 1], that there is a discrepancy between the markings.

The report made by [Demining group 2] indicates the yellow picket at the far end as being the one found 28th March 2007. When we were on site, we were showed the yellow picket at the far right as being the one found 28th March 2007! We asked several times, and even walked up to it and asked if it was the correct one. And got a "yes" answer back on all the questions. We were told that the yellow picket at the far end was found by the [Demining group 2] team, outside the old marking.

Signed: [Name removed] TFM Compliance Section [Demining group 1] Lebanon

[Extract from IMSMA Suspension Report]

1.21 Additional Information:

Verification of area below the position. 2x No4 (740814-706746) found when manually clearing an observation post for the operator on the position. On 22 October, 2004 TL was ordered by an officer from NDO to do some extra work with the Volvo clearing a tree from an old vehicle track. This was not a part of operations since the TOM, [Demining group 1] had closed the site on the 30 August, 2004. 2 x TM46 was uncovered by the Volvo. One got stuck in the bucket and the other one pushed out of its position. Luckily no one got Injured!! Entrance to area fenced. Fence removed by locals and re-fenced in February 2005. As of today 04 July 2005 fence has been removed again. Mine warning sign from LAF is placed left of the entrance. [Demining group 1] will not fence the entrance again.

Annex C

[Showed photographs of the missed mine sites challenging the fact that no "picket" was 90 degrees to a found mine (although the edge of the marked cleared areas was).]

According to the Site Supervisor they came down the blue arrow, rechecking in a 2m wide lane came across the first AP No-4, dealt with that one, then continued and turned around at the bottom. They then continued to clear a 2m wide lane going up, and after a while they encountered the second AP No-4.

Is the yellow picket outside the marking?

Where is the old marking shown in the [Demining group 2] report?

Is this the old marking that can clearly be seen laying down, outside the tape, in the [Demining group 2] report?

Statements

Statement of Mr. [Name removed], Site Supervisor at the site;

When they first arrived on site and where showed where they where to work, he

decided that he wanted to recheck the area that where marked. Since he had been told that there "are a lot of mines in this area". They started to do this going down "in a 2m wide lane, and that's when we found the first No-4, 4cm within the old marking (28th March according to the [Demining group 2] report.) When we turned around to continue going up, we found the other one 54cm within marked area. (29th March according to [Demining group 2] report." I asked him two times if I had understood it correctly, and repeated what he had told me, and he said "Yes"

I, [Name removed], talked to Captain [Name removed], now a QA officer for the NDO, but in 2004 he was the responsible site supervisor from the NDO on this specific site. He said the following;

"When we started to work on this site, we first cleared a 2m wide lane, but after we had cleared 5m in this way, we went down to a 1 m lane."

Analysis

The primary cause of the incident is listed as a *Management control inadequacy* because it seems that the paperwork for the site was not completed appropriately and the area marking may have been misplaced. Because it is possible that the mines were missed despite using procedures that should have located them, the secondary cause is listed as a *Field control inadequacy*.

Demining group 1's investigation was incoherent and appears to have set out to show that Demining group 2 had somehow falsified the fact of the missed mines being inside a marked clear area. When there was no guarantee that the marking was in its original place, this was both unnecessary and unprofessional.

If Demining group 1 had cleared a lane one metre wide and ten metres long, that would have been in breach of its own SOPs which require a lane to be widened to 2 metres wide after reaching five metres in length.

The Inadequate investigation listed under Notes refers to the UN MACC's abrogation of its responsibility to reach a conclusion and suggest appropriate corrective measures.