

DDAS Accident Report

Accident details

Report date: 19/05/2006	Accident number: 344
Accident time: 13:00	Accident Date: 26/06/2000
Where it occurred: Jorgici-Vrela, Teslic municipality, Republic of Srpska	Country: Bosnia Herzegovina
Primary cause: Management/control inadequacy (?)	Secondary cause: Inadequate training (?)
Class: Excavation accident (survey)	Date of main report: 04/07/2000
ID original source: RB/AA/PJ/SP/EB	Name of source: BiH MAC
Organisation: Name removed	
Mine/device: TMM-1 AT blast	Ground condition: ditch/channel/trench metal scrap soft
Date record created: 21/02/2004	Date last modified: 21/02/2004
No of victims: 2	No of documents: 2

Map details

Longitude:	Latitude:
Alt. coord. system: GR: 44242 91240	Coordinates fixed by:
Map east: x=44297	Map north: y=91349
Map scale:	Map series:
Map edition:	Map sheet:
Map name:	

Accident Notes

inadequate communications (?)
inadequate medical provision (?)
inadequate equipment (?)
use of shovel (?)
protective equipment not worn (?)
mine/device found in "cleared" area (?)
inadequate area marking (?)

dog missed mine (?)

inadequate training (?)

Accident report

The following is the MAC's Accident report, edited for anonymity. [The numbering of paragraphs was non-sequential in the original, and has been adjusted. The use of several names for the same individual, each name with several variations of spelling, has made it difficult to understand who is who at some points, for which I apologise.] See also Related papers for a Board of Inquiry report from the "Office of the High Representative".

INTRODUCTION

1. As a result of a mine accident in which two RS MAC surveyors got killed BH MAC had convened the Board of Inquiry in order to investigate circumstances that led to the accident.

Mine accident occurred on June 26th 2000 in Jorgići-Vrela, Teslić municipality, Republic of Srpska. First report on the accident was received by phone on June 26th, while the Initial Report from RS MAC has not been submitted yet to the BH MAC.

2. Contractor for the task in question is the ITF, conductor [International Commercial Demining company] while the subcontractor was [National] demining company. The independent monitoring company [Commercial QA] has conducted monitoring.

[International Commercial] company, conductor of the clearance for the stated site, had finished clearance on June 19th 2000. June 27th at 09,00 hrs was the day agreed for the acceptance of the cleared site.

3. The Board of Inquiry comprised of:

- a. Chairman - BHMACH QA officer
- b. Member - F MAC QA Ops officer
- c. Member - RS MAC Inspector
- d. Member - RS MAC TA
- e. Observer - TA BH Demining Commission

4. All the members of the Board of Inquiry had met at 11,00 hrs, June 27th 2000 at the location Vrela, ID 1000284.

SEQUENCE, DOCUMENTATION AND PROCEDURES RELATED TO THE TASK

5. Along with its [Local demining group] sub-contractor [the International commercial demining group] had started the task Vrela ID 1000284 on May 22nd, using team C-4. During clearance, integral demining was used: manual demining, use of EDDs, machine preparation of the ground. The task had been completed June 19th 2000. Declaration on Clearance has been submitted to the RS MAC along with the annexes. June 22nd 2000 RS MAC notified the contractor, ITF Sarajevo and the conductor [International demining company] Sarajevo, about a meeting for the final acceptance of the task Vrela- Teslić agreed to be held at 09,00 hrs on June 27th, in RS MAC office.

6. There is a General Survey report and the minefield record within the Red Folder, as well as interviews with [two] participants in demining. Red Folder contains as well the opinion of the Survey Team Leader about the best way for removal of command-detonated mines. Conductor was familiar with all the documentation contained in the Red Folder.

GEOGRAPHY AND WEATHER

7. Accident happened at the location of Jorgići-Vrela, Teslić municipality, which is in the very vicinity of IEBL. Grids for the landmark and the datum point are x=44242 y=91240, x=44297 y=91349. There is a cadastral map of the task in the annex.

8. Final marking of the task ID 1000 284 has been finished for the area cleared. The weather was partially cloudy at the moment when accident occurred. Exact place of the accident is at the very top of the hill above the road Teslić-Doboj, about 80 km to the south. The area surrounding the accident site is cut with the trenches that are leading to the bunker and the defence trench, towards both the road and the brook to the south of the accident site.

9. Annex contains photographs of the accident site as well as of the victims. The RS MAC urgent team immediately after the accident took by the Bol as well as photographs.

PRIORITY OF THE TASK

10. Setting the priority for this task was a part of a usual procedure, from municipality towards entity levels. The aim of demining is insuring conditions for the return of the population, since the funds have been gathered for the reconstruction of their houses.

SITE LAYOUT AND MARKING

11. Works on the site were finished and final marking was done. Final acceptance of the site was agreed to be held on June 27th 2000.



[The picture above shows the trench where the accident occurred – and illustrates how the area was burned off but the undergrowth not cleared away.]

QUALITY ASSURANCE

12. Internal quality control at this site was conducted in accordance with the plan. It was conducted with the EDD teams. All the reports of the internal control were available to the inspection.

13. There is a report of external quality control conducted by RS MAC inspectors stating that the area around houses is not cleared in compliance to the BH Standard. The team leader had corrected the faults the next day and had conducted the internal control with EDD teams (easy to be noticed from daily reports).

14. There was internal quality control on June 7th without the presence of the monitors, which is stated in both inspector's and team leader's reports.

15. There is a constant problem of command-detonated mines present in the reports of RO RS MAC Banja Luka inspectors. According to the minefield records in the Red folder, command detonated mines were at the depth varying from 1.5 to 2 metres. There are two inspectors' reports (written on June 12th and June 13th) stating that agreement between the contractor and the conductor is the clearance to the maximum depth of 20 cm (if metal detector is used).

16. Area where accident occurred is metal contaminated with pots, wire, metal tapes, pieces of iron and lots of dispersed burnt vegetation. Final internal control has not conducted its job at this area properly.

TASKING, REPORTING AND COMMUNICATION

17. The head of the RO RS MAC had tasked [name excised] with the check of the final sketch on the ground. It was issued in written form on June 23rd 2000, without any number. It seems that the sketch is not correct and is not compatible with the sketch that referred to the task. According to the statement given by [the Head of the Office], QA officer and [Victim No.2], commander of the survey team who surveyed the stated location, were tasked to check the issue.

18. June 23rd 2000 it has been agreed in the RO that the site ID 1000284 will be visited Monday 26th of June. It has been agreed between the Head of the Office, Ops officer [Victim No.1] and [other RS MAC Ops Officer]. The agreement was to visit the site on Monday June 26th and try and find command-detonated mines with the VALON bomb locator, as well as to collect some additional information. Head of the RO Banja Luka had issued a verbal order to the Ops Officer [Victim No.1] for an additional general survey. Along with Ops manager RS MAC, [another RS MAC Ops Officer] went to conduct what he was tasked with.

19. The reason why [Victim No.1] and [RS MAC Ops Officer] went to the site ID 1000284 is the following: it is evident from the Declaration of Clearance given by [The International and Local commercial demining companies] that command detonated mines were not removed from the mined area. Mentioned above were tasked with finding the command detonated mines with the VALON bomb locator as well as gathering additional information.

20. As evident from the statement given by [RS MAC Ops Officer], (annex) he consulted RS MAC ex-pat TA right before he left for the site on June 26th. He introduced him with the issue of command-detonated mines. [The ex-pat TA] agreed it is a task for surveyors. [The ex-pat TA] also stated that he would consult [the Head of the RO RS MAC] about sending surveyors to conduct the locating of command-detonated mines.

21. There were no communications on the site that would enable surveyors to contact RO RS MAC in Banja Luka.



[The picture above shows the blast crater during the Accident Investigation.]

MEDICAL COVERAGE

22. RS MAC personnel on the site Vrela had no medical coverage at the time, since [Victim No.1] and [Victim No.2] thought they would only try to locate command detonated mines on a cleared area, with VALON bomb locator. As described in BH Standard, locating mines and UXO is a demining operation.

PERSONNEL INVOLVED

23. Accident that occurred on Vrela site on June 26th 2000 included RS MAC personnel and a [the Local witness]. [the Local witness], [Victim No.2], [Victim No.1] and [RS MAC Ops Officer No.2] were conducting locating of the command detonated mines, while [RS MAC Inspector] was on the other part of the site, controlling the grids for the turning points of the final sketch for the task

24. With the exception of the [the Local witness], all the personnel works in RS MAC and is supposed to be familiar with BH Standard for mine clearance and removal of UXO. They are also technically capable for the jobs they were conducting in humanitarian demining.

EQUIPMENT AND TOOLS

25. Personnel on the site had no protective equipment, while all of demining tools with them were VALON bomb locator. As for the statement of the witness, [the Local witness] and [previously unmentioned name], there was an axe and a shovel on site. Wooden pole of the shovel was found by the Bol, which was witnessed by [Local demining company] company group leader. The wooden pole was found 1m from the border of the cleared area, approximately 30m S/W from the accident site where the body of [Victim No.2] was found. Axe was not found. [The civilian assistant] identified the wooden pole as his own, since he lent his shovel to the surveyor.

26. [Previously unmentioned name] stated that some time before the accident he noticed two men climbing up the slope (later accident site) carrying axe and a shovel.

27. The Bol did not find VALON locator at the moment they reached the accident site (June 27th, 11,00 hrs).

DETAILS OF EXPLOSIVE DEVICE INVOLVED

28. According to the results of the investigation, Bol presume it was TMM-1 mine (anti-tank magnetic mine) that caused death of the Ops officer and surveyor from Banja Luka. Bol had concluded that this might be the mine involved based on the statement given by the witness, [the Local witness], who used to be the commander of the defence line where this accident happened. He was the one who stated the location of the mine and also stated that it was TMM –1 mine. Civilian Protection team from Dobojo who cleared the access lane to the accident site had found a metal part (photograph in the Annex) for which it could be presumed to be a part of a TMM-1 mine. It is possible to analyse the metal part at The Institute for Metals in Zenica, which will prove or dispute the presumptions of the Bol. Metal part of the mine was removed from the accident site before the Bol arrived and is located in RS MAC.

29. The mine was set at the crossing of the two trenches – one leading towards A B&H positions (one part of the trench was controlled by AB&H), so it can be presumed the mine was set as a booby-trap that would prevent eventual attack through the trench. The size and the shape of the crater, along with the fact that the explosion was heard by deminers from 20m distance (stated by [Another new name]), gives possibility to presume that the mine was reinforced with additional explosives. [Presumably the “20m” is a typing error.]

30. Crater is 2 metres in diameter and 1m into the depth. The bottom of the crater was very easy for the prodder to come through with all its working part (even to 25 cm into the depth). According to the information gathered on the site, Bol presume that the mine was 1 – 1.2 metres from the surface of the ground. Trenches that are connected with the accident site are as with the day of the investigation 30-40 cm deep. That leads the Bol to the presumption

that the mine was laid 60-70 cm from the surface. A possible position of the mine and the exact appearance of the crater found by the Bol are attached in annex. [Not made available.]

EVIDENCE OF RE-MINING

31. There are no proofs for additional mining, since the former soldier who was in the war operations at this area identifies the site. He identified the location as the one where the mine was laid during the war operations.

CLOTHES AND PERSONAL PROTECTIVE EQUIPMENT

32. RS MAC personnel had no protective equipment on the site.

DETAILED SEQUENCE OF ACTIVITIES ON THE DAY OF THE ACCIDENT

33. Approximately at 08:45 [Victim No.1], inspector of the RO RS MAC Banja Luka and [Victim No.2], the surveyor, headed towards their location as directed by the Head of the office. They went to location ID 1000284 Vrela – Teslić municipality, tasked to check the marking and the location itself where [the International and Local commercial companies] worked and declared it completed. There were uncertainties regarding the borders of the site itself, since old task borders (done by another commercial company) overlapped with borders of the task in question. [Victim No.2] had surveyed the stated location in the process of general survey, as the leader of the survey team.

34. [RS MAC Ops Officer No.2] had raised the problem of command detonated mines left on the ground. According to the Declaration of Clearance, these mines were not removed. As RS MAC Ops Officer, he insisted that additional check on the data about these mines is done, in order to remove them later on. [Victim No.1] received a verbal order for additional general survey by [the Head of the Office].

35. Approximately at 10:00 RS MAC Ops Officer and RO RS MAC Banja Luka Ops Officer [Victim No.1] headed from Banja Luka towards the stated site. Their driver was [name excised]. They drove in TOYOTA PRADO jeep (internal 507). Their aim was to conduct additional general survey and try and locate remained command detonated mines and additional information.

36. Upon arrival on the site, [RS MAC Inspector] and [Victim No.2] started with their part of the task (left side of the road Teslić-Doboj), paying attention to certain points particular for this site. They also did comparison of the state of the site with the sketches, putting data on map etc. An hour after they arrived on the site (about 11,00), [RS MAC Ops Officer No.2] and [Victim No.1] joined them with their driver.

37. Upon arrival on site "Vrela", [RS MAC Ops Officer No.2] and [Victim No.1] have tried to locate the first command detonated mine according to the minefield record, using VALLON locator. After detector signal, they have found a piece of metal pipe, then tried to dig with hands and a piece of wood, but they gave up. The area was too rich with minerals.

38. After being unsuccessful in locating command detonated mines, the [RS MAC Inspector] sent his surveyor [Victim No.2] to go and fetch a [Local witness], the one who is stated in the general survey report as the person who gave information.

39. [Victim No.2] asked [the Local witness] for an axe and a shovel and insisted that he follow him and show him position of at least one mine on the location. [The local witness] and [Victim No.2] came to Vrela location together, bringing the axe and the shovel with them.

40. Along with [Victim No.2], [the Local witness] came to the top of the hill where [Victim No.1] and [RS MAC Ops Officer No.2] already were. He located the spot at the crossing of the two trenches where the tank metal mine was laid during the war. [Victim No.2] and [Victim No.1] marked the place with a red-top picket 1.2m high (to be found later in the vicinity of the accident spot) and asked [the Local witness] to help them identify the mine. [The Local

witness] refused and went to [RS MAC Ops Officer No.2], who handled VALLON, trying to locate where other mines are. 2-3 minutes after he left the site of located mine, there was an explosion at the crossing of trenches.

41. [RS MAC Ops Officer No.2] came to the spot immediately after explosion and found [Victim No.1] dead, while [Victim No.2] was not around. Using a village road, the [RS MAC Inspector] climbed the hill up to the border of the site where the [RS MAC Ops Officer No.2] informed him that [Victim No.1] and [Victim No.2] got killed approached him. Probably in the state of shock, [the Local witness] went down to the road immediately after explosion and headed to his home.

42. [RS MAC Inspector] and [RS MAC Ops Officer No.2] went down to the Teslić-Doboj road where they were approached by men who later on located the place where the body of [Victim No.2] was found (it was in the mined area). [RS MAC Ops Officer No.2] sent [RS MAC Inspector] to Teslić in order to inform the police and MAC office in Banja Luka about the accident.

[Accident time is presumed to have been around 13:00.]

43. [The head of the RS MAC emergency team] was informed at 13:30 by the [RS MAC Inspector]. He immediately started with preparations for intervention. The [RS MAC Inspector] also informed [Head of the RO RS MAC] (13:40) that an accident happened at Vrela location. Intervention team went to the site immediately though they did not have a real picture of what might have happened. [Excised name] informed Civilian Protection Team at 14:00 that worked at the site ID 1000295, the part of the road Doboj-Cerovica, Stanovi. CP team arrived at Vrela at 15:30. Corpse that was in the mined area that was not a part of the task was taken out at 16:30, while the corpse near the place of the accident was taken out at 17:20.

44. BH MAC was informed by phone at 14⁴⁵.

SUMMARY

45. Jorgići-Vrela task – Teslić municipality was accepted by ITF as a suggestion for priority from RS MAC. Documentation received from RS MAC and submitted to ITF contained minefield record. Apart from other data, there are statements in it that there might be tank mines laid very deep into the ground as it is usual for command detonated mines (1.5-2 metres). This information was available to all demining organisations that participated on the tender.

46. It is clear from inspector's report dated June 7th that C-4 team leader is informed by the inspector that there are tank mines laid to the depth more than 1 metre. June 12th RS MAC inspector informed the team leader and the monitor that there are tank mines laid as command detonated mines at the depth of 1.5-2 metres. He was given the answer that the contractor and the conductor agreed to clear to the maximum of 20 cm into depth. Inspection reports attached in the annex. [Not made available.]

47. June 13th, after this inspection, RS MAC issued a letter No 354/00 to ITF, att. Chief of the ITF Sarajevo Office. Letter states that they (RS MAC) are informed that the ITF representative and the conductor agreed to clear to the depth of maximum 20 cm, which does not include tank mines laid as command detonated mines at the depth of 1.5-2 metres. RS MAC stated as well that they will not be in the position to accept the clearance as completed unless the mines buried this deep are removed. Within this letter, RS MAC is calling for an information if and what kind of the agreement is made with the conductor regarding the task Vrela – Teslic, ID 1000284. RS MAC received no answer from the ITF. June 22nd, after the ITF notification about the exact date for the final acceptance of the task in question, [a representative] from RO Banja Luka requested by phone the answer to the letter dated June 13th to the ITF. He was answered that it will be a subject to agree upon at the final acceptance of the area agreed to be done June 27th 2000.

48. Team leader daily reports do not refer to the problem of tank mines laid 1.5-2 metres into the depth.

49. After the completion of the task, [the International and Local commercial companies] submits Declaration of Clearance with annexes signed by the organisation's group leader. It says in the statement: "Hereby I declare that the area described in this document is treated in compliance with BH Standard and that is, to my best knowledge and belief, cleared of mines and UXOs."

50. [The International commercial organisation] with its [Local] sub-contractor had knowledge about the existence of mines laid at the depth of 1.5-2 metres.

51. June 22nd 2000 RS MAC is informing [the International commercial] company and ITF that the final acceptance of the task Vrela – Teslic is agreed to be done on June 27th 2000.

CONCLUSION

52. There is no such term as 'additional general survey' in the BH Standard for clearance of mines and removal of UXOs, not as such as conducted by RO RS MAC Banja Luka. Locating mines in the cleared area (locating using metal detector, locator), marking of located mines and identifying of the mines located, digging: these are all classical demining operations not to be conducted by E MAC. This operation is to be conducted with PPE, site layout, medical coverage and the communication with the office. It is not to be conducted by the survey personnel and the Ops Officer of the E MAC.

53. Sketch and marking verification done by EMAC inspectors should have been done when the organisation that cleared the ground is present.

54. The mine that caused the accident is laid in the trench and meant to prevent the pass of the soldiers. Tank mine that is preventing soldiers from coming through must be laid in that way that a soldier can activate it, which means the mine itself is modified as a booby-trap. It is most possibly laid under the very surface of the datum line of the trench during the war operations. After the soil in the trench had fallen in, the depth of the trench in the moment of demining is about 30 cm. It is though illogical to demine 10 cm into the depth of the present surface of the trench. If an area is to be cleared, the minimum of demining is 10 cm under the surface, which does not include surface that is a result of any kind of drifted soil into the trench. There is a great possibility of more mines in the trench since it connected two warring fractions.

55. It is not allowed to dig a mine using axe and a shovel in any of the humanitarian demining operations. E MAC surveyors do not look for (or locate) mines, especially not dig them.

56. There is no reason why should EMAC locate command-detonated mines. A minefield record of their existence and the information from the company that location and removal was not done are sufficient.

57. The area on the very top of the hill (around the accident site) is done quite badly. There is a lot of metal on the surface (metal is to be collected into metal collecting pit), trees in the ruined bunker was not moved, nor in the trenches. Photographs in Annex. What is stated above is not written in the RO Banja Luka inspectors' reports or in the monitors' reports from the site.

58. Conductor of demining is to remove all the mines and UXO for which there is a proof of existence in the moment of accepting the task from the contractor. If during the demining there are new issues on the task, they should be resolved with MAC structure.

RECOMMENDATION

59. Under no condition EMAC surveyor in general survey is to leave the safe area. Cleared area is not clear (safe) unless EMAC issues Quality Control Certificate. There are too many victims on cleared areas that must remind us on this.

60. Never locate a mine or a UXO without compliance with BH Standard and approved procedures. Location of mines and UXO is an operation of manual demining and it is a subject of SOP.
61. RS MAC has to change its way of conducting work in humanitarian demining regarding to compliance to BH Standard, since procedures defined within standards are not for US ONLY but for all the other participants in demining.
62. Sketch and marking verification of the area cleared is always to be done with the presence of the representative from the company that conducted clearance.
63. Demining of the area minimum to the depth of 10 cm can be done in the period when the mines are laid. All the drifts of soil or sand that covered the surface after mines are laid must be removed. This especially refers to the issues when there are information or minefield records on mines laid in areas that are under the drift nowadays, or if it was a trench or any other defensive position that might have been taken over from one warring fraction to another.
64. Comply to the Declaration of Clearance:” Hereby I declare that area described in this document is treated in compliance with BH Standard and according to my best knowledge cleared from all mines and UXO.” Never sign the Declaration if there is information that area cleared contains additional mines or UXO.
65. Since the mine is left within the cleared area (within the trench, the depth of the mine was 60-80cm in the moment of demining), it is needed to remove all the mines and UXO that we have knowledge of for the Vrela ID 1000284 from the record available. Trench that was connecting warring fractions is to be cleared by digging the drifted soil down to the datum level so that it coincides with the level when the mines where laid, since it was probably mined by A BiH.
66. Conduct demining of all the areas for which the commission states that they are not cleared according to the SOP of the company.
67. Contractor (ITF or anyone else) should react faster and try to resolve problems raised by MACs, or if it is vice versa, whatever is related to the quality of the area cleared and safety of the operations of humanitarian demining.
- Signed: all BOI members

Victim Report

Victim number: 435	Name: Name removed
Age:	Gender: Male
Status: surveyor	Fit for work: DECEASED
Compensation: not made available	Time to hospital: not applicable
Protection issued: None	Protection used: none

Summary of injuries:

FATAL

COMMENT

Multiple severe injuries. Died immediately. No medical report made available.

Victim Report

Victim number: 436	Name: Name removed
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Age:

Gender: Male

Status: surveyor

Fit for work: DECEASED

Compensation: not made available

Time to hospital: not applicable

Protection issued: None

Protection used: none

Summary of injuries:

INJURIES

severe Abdomen

severe Body

severe Chest

FATAL

COMMENT

Multiple severe injuries. Blown apart. Died immediately. See medical report.

Medical report

No medical report made available.



The pictures show Victim No.2 as he was discovered at the site.



Analysis

The primary cause of this accident is listed as a “*Management/control inadequacy*” because the management individuals involved were engaged in a task for which they were not trained or equipped. That the senior staff asked an ex-pat Technical Advisor for advice and he confirmed that it was their task illustrates the need to train Technical Advisors better, which is why the secondary cause is listed as “*Inadequate training*”.

The clearance contract awarded by ITF (International Trust Fund) was fundamentally flawed – specifying a depth that was inappropriate to the known threat. When the problem became known, the ITF did not respond in an appropriate timeframe.

The International commercial company (ultimately responsible for its subcontractor) did not ensure that the work completed was done adequately. Paragraph 59 of the Accident report mentions that metal and debris was left on the ground in one area. Also, leaving mines that were known to have been laid in a manner intended to be used to stop soldiers moving in the area was not “humanitarian”. The particular organisation has a reputation for thinking that “humanitarian” and “commercial” interests are always in conflict.

There are two inspectors’ reports (written on June 12th and June 13th) stating that agreement between the contractor and the conductor is the clearance to the maximum depth of 20 cm (if metal detector is used). The particular group had access to dogs and used them as QA on the site. Given that there were locals able to give the location of the devices and the group had dogs, it is not clear why they chose to deliberately leave booby-trap devices behind.

As the investigators observed, the statement from the commercial companies on completion that “Hereby I declare that the area described in this document is treated in compliance with BH Standard and that is, to my best knowledge and belief, cleared of mines and UXOs” was false.

Related papers

The following is a Board of Inquiry report for the “Office of the High Representative” that was made available in 2002. It has been edited for anonymity.

BOARD OF INQUIRY INTO THE VRELA MINE ACCIDENT – 26 JUNE 2000

INTRODUCTION

1. This Board of Inquiry was convened by the Co-Chairs of the Board of Donors following a request from the Director BH MAC. This request resulted from the BH MAC’s own investigation into the fatal accident which had raised a number of broader issues. The Board

of Inquiry was formed under the joint chairmanship of OHR and SFOR supported by suitably experienced technical advisors and project managers from the Demining Commission, [a demining NGO] and the Federation MAC.

2. The board conducted its investigation from 11 July 2000. Relevant data was first collated and analysed. Of particular value was the BH MAC's own report. This was found to be fundamentally accurate and sufficiently detailed to help focus the Board's follow-on work. Thereafter, the Board visited the site at VRELA. At this early stage it was clear that the Board would need to concentrate its effort into four main areas: the accident itself, the sequence of events that led to the accident and any related managerial issues, the clearance standards to be expected, and those procedural aspects connected to the timely flow of information. Finally the Board conducted a series of interviews with relevant individuals from the BH MAC, the RS MAC, [one international commercial demining company and two local commercial companies] and the ITF. The Board was extremely grateful to all those who co-operated so openly with the inquiry.

BACKGROUND OVERVIEW

3. During the war VRS forces adopted a defensive position that straddled the Dobož - Teslic road. The site at VRELA was one of two forward positions in this line. It was concentrated on a small knoll that overlooked and dominated the road. On 19 July 1995, the relevant engineer officer produced a minefield record of the area. This showed the knoll protected by a ring of PMR 2 fragmentation mines, reinforced by command detonated MRUDs and a number of buried anti-tank mines also command detonated from bunkers connected by a trench system. Running South from these bunkers was a further communications trench.

4. At some stage during the fighting, the ABiH captured the high ground to the South of the VRELA position. This placed each end of the communications trench in opposing hands. In response, the VRS commander ordered the trench to be abandoned and booby-trapped to avoid infiltration through the system by ABiH forces. The method probably used was to place an anti-tank mine, booby trapped by an anti-personnel mine, just above the junction of the bunker system and the communications trench. It was this mine that was eventually to kill [the victims of this accident].

5. At the end of the war, the VRS may have lifted some of the more easily removed surface laid fragmentation mines. The command detonated anti-tank mines being deep buried and, according to the engineer officer, laid beneath containers of fuel oil were probably left untouched. At some stage, the communications' trench was back-filled leaving the anti-tank and any other mines buried some distance below the surface.

6. The VRELA site was recommended as a high priority task required to assist the return of refugees. It was submitted to the ITF by the RS MAC for clearance by commercial contract in April 2000. The successful bidder was [an international commercial company] who undertook the task in partnership with [a local commercial company]. Monitoring the task on behalf of the ITF was [another local company]. The clearance began on 19 May and was completed on 19 June. Throughout the task there had been a disagreement between the RS MAC and the commercial contractors over the clearance of the deep buried mines. A meeting to resolve the issue was arranged for 27 June 2000.

THE ACCIDENT

7. On Monday 26 June 2000, the RS MAC Operations' Manager, went to the mine clearance task site at VRELA. He took with him [Victim No.1], the Regional Office (RO) MAC Operations' Manager, along with a driver. Loaded into the vehicle by [Victim No.1] was a Vallon Bomb Detector on which he had conducted dry training with other staff the previous Thursday and Friday. Already on site were a QA inspector from the RO MAC, and [Victim No.2], a surveyor also from the RO MAC, who were conducting a legitimate check of the site drawings in preparation for the meeting the following day with the commercial companies. The contractors, [the international and local commercial companies], were not present as they had a week previously completed their task and vacated the site.

8. On arrival on site, [the Ops Manager] and [Victim No.1] began to search with the Vallon for what was documented to be deep buried mines and which [the commercial demining groups] had confirmed had not been cleared as this was outside of the contractual obligations. On failing to find any mines, [the Ops Manager] sent [Victim No.2] to fetch a local man who been on the position during the war. On their return, [Victim No.2] and the local man, reportedly carrying a shovel and pick-axe between them, moved to the top of the hill with [the Ops Manager] and [Victim No.1]. At the junction of two trench systems the local man indicated where the anti-tank mine had been laid. After confirmation by the Vallon of a deep buried object, this location was then marked. [The Ops Manager], still carrying the Vallon, then moved to try and identify other mines further down the hillside. The local man was then asked to help identify (or find) the mine by [Victim No.1] and [Victim No.2]. He refused and went to join [the Ops Manager]. A few minutes later the mine in the trench exploded killing both [Victim No.1] and [Victim No.2].

9. Comment

a. Attempting to locate, let alone to excavate for, mines is a demining operation which is not within the remit of any MAC employee. Furthermore, the technique used by [the Ops Manager and the two victims] contravened the most basic of safety rules contained within BH MAC Standards. In the process, the life of a local inhabitant was placed in jeopardy.

b. The appointment of Operations Manager RS MAC is senior to any post in the RO MAC. [The Ops Manager] was therefore senior to [Victim No.1] who was himself senior to [Victim No.2]. Whether [the Ops Manager] issued direct orders for the other two to contravene normal practice is not known. However, as the senior man present [the Ops Manager] was effectively responsible for the actions of all those on site. [The Ops Manager] also confirms that the reason he took [Victim No.1] with him was that he was the immediate superior of [Victim No.2]. [The Ops Manager] wanted to use [Victim No.2] to help search for mines as he had previously been a Demining Team Leader of some experience.

c. There is a conflict of evidence regarding whether [the Ops Manager and the two victims] were physically digging for mines. The Board was of the view that this was probably not the original intention of the MAC team. However, after receiving such a clear identification of a mine's location, and a metal object confirmed by the Vallon, the desire of all three to "find" an un-cleared mine overcame their natural caution.

d. The reasons behind [the Ops Manager]'s actions on this day are also uncertain. His statement and interview confirm only that he wanted to prove that there were mines still on site. The need to prove the issue was not required as all parties accepted that the documented mines had not been cleared as [the commercial demining companies) had only worked to a depth of 10-20 cms. Indeed, this was the primary reason for the meeting to be held with all parties the following day. The Board's view was that [the Ops Manager]'s real purpose was to show at the next day's meeting that the location of the mines was easily accomplished. This could then have been used to justify why the RS MAC was not prepared to issue a Clearance Certificate. The Board also suspected that another reason may have been to cause embarrassment to [the commercial demining companies] whilst at the same time showing that the RS MAC, and possibly [the Ops Manager] himself, was more professional than the commercial companies.

SEQUENCE OF KEY EVENTS

10. March. The ITF letter requesting Project Files for the next tender period was sent to the RS MAC. The RS MAC then conducted the general survey of VRELA task site.

11. April. The Project File was sent from the RS MAC to the ITF. A site visit was held on 14 April between representatives of ITF, the RS MAC and potential bidders which included [the commercial companies awarded the contract]. On 22 April bidding documents were opened under transparent arrangements and [the international commercial demining company] was awarded the contract.

12. May. [The international commercial demining company] in partnership with [the local demining company] started work on 19 May.

13. June.

- a. 7 June – the QA RS MAC raised the issue of deep buried mines (in some documents called “Fugasas”) with the [local commercial company’s] manual demining Team Leader. The Team Leader informed his superiors who then discussed with the ITF to confirm the contractual obligations.
- b. 12 June – The Team Leader confirmed in the QA Inspectors’ Report that [the commercial demining companies] would only clear to a depth of 20 cms.
- c. 13 June – The RS MAC wrote to the ITF to confirm that they would not issue a Clearance Certificate unless the deep mines were cleared.
- d. 19 June – [The commercial demining companies] completed the task and signed their part of the Clearance Certificate.
- e. 20 June – The Deputy Director Operations RC MAC requested clarification over the clearance of deep mines at the monthly BH MAC Management Coordination Meeting. [Name excised] suggested that a meeting be held with all interested parties on site to resolve the issue.
- f. 22/23 June – Training on the Vallon Bomb Detector was conducted by RS MAC personnel.
- h. 23 June – The RS MAC agreed with the ITF to hold a site meeting on Monday 26 June later changed to Tuesday 27 June. Also, on this day the Director RO MAC tasked his QA officer and [Victim No.2] to visit the site on 26 June to clarify the site sketches.
- i. 26 June – [The QA officer and Victim No.1] went to site to conduct their task from the known safe area. Later, [The Ops Officer and Victim No.2] arrived on site and attempted to locate the deep buried mines and the accident occurred.

14. Comment.

- a. The RS MAC was not represented at the bid opening board on 22 April as the Technical Advisor, was on leave. He nominated the Director of the Regional Office to attend in his place. For reasons of transparency these Boards consist of representatives of the BH MAC, ITF and UNDP. [The Technical Advisor] attends as a representative of UNDP. As [name excised] was an employee of an E MAC, he was not permitted to attend. This was unfortunate, as the RS MAC could have identified at this stage that the bidders may not have been reflecting the requirement to clear deep mines.
- b. The sequence of events confirms that there was a fundamental difference between what the RS MAC expected from the clearance operation and what the commercial companies intended to achieve. The MAC expected the back-filled trenches to be cleared, bunkers dismantled and any deep mines removed. The ITF contract, however, only required [the international demining company] to clear to a depth of 10-20 cms. This contract is in line with the BH MAC Standards which also do not address the clearance of trenches, bunkers, or deep mines.
- c. The difference in expectation, perhaps compounded by the non-attendance of the Director RO MAC at the bid opening board, caused tension between the RS MAC, the ITF and the commercial contractors. It is the Board’s strong belief that this tension quickly translated itself into a degree of mistrust and a feeling within the RS MAC that the commercial companies should not be allowed to receive payment for a job which, in their view, was only “half-done”. This mistrust may have been raised still further given the speed of the clearance operation, the failure of the ITF to respond to the RS MAC’s letter of 13 June and the production of a Cleared Area Certificate by the company on 19 June.

MANAGEMENT ISSUES

15. Both the Technical Advisor (TA) and the Deputy Director Operations were approached by [the Ops Officer] on the morning of 26 June when he made clear his belief that the MAC should locate the mines before the meeting with ITF. Both the TA and Deputy Director have stated that they told [the Ops Officer] that this was not his job and not to go.

[The Ops Officer] confirms that this is what he was told. Despite this, he felt confident enough to meet up with [Victim No.1], sign for a car, load the Vallon bomb detector and drive to site.

16. On the Thursday and Friday of the previous week, [Victim No.1] signed out the Vallon from the store for dry training. According to the TA, this was the first time for many months that this equipment had been used. Many within the MAC would have known of this training.

17. The Deputy Director Operations and Director MAC knew of the problems on the VRELA site from the QA reports. The TA only became aware at the Management Coordination Meeting of 20 June when his Deputy Director sought clarification from those present.

18. The majority of MAC staff are trained to a technical level far beyond that required for their appointments. Almost all have attended basic deminers' courses, most have served as Team Leaders, many have been trained in both General and Technical Survey, and some in UXO disposal. This level of training is viewed extremely proudly within the higher management structure of the RS MAC and is used to deflect any criticism of MAC practices and procedures.

19. The Director of RS MAC in his discussions with the Board made it extremely clear that he viewed the contractors and the ITF with some considerable disdain. He considered their quality of work unacceptable and believed them responsible for causing the situation that led to [the Ops Officer]'s actions.

20. Comment.

a. The Board was of the view that the high level of technical training of the RS MAC staff might tempt some individuals to conduct activities for which their posts were not responsible and for which they were not insured. The Board was concerned that this possibility was not fully recognised within the senior management of the MAC.

b. The Board was surprised that no suspicions were aroused in the MAC hierarchy when the Vallon was used for dry training on 22 and 23 June. Also, despite being told not to go to the site, [the Ops Officer] continued on with his plan regardless. His actions suggest either poor discipline within the MAC or that [the Ops Officer] himself believed that his superiors would actually be pleased if he could succeed in his task.

c. The TA is effectively isolated within the RS MAC's decision making process. He was not aware of key operational matters: not least the problems at VRELA, the training on the Vallon, the tasking of Survey to the site on the morning of 26 June or that after his conversation with [the Ops Officer] he had actually driven to site.

d. Of most concern to the Board was the attitude of the Director RS MAC to the ITF, [the commercial companies involved], which he viewed as one coherent grouping. The Board was also given the impression that underlying the Director's comments was a history of personal antipathy to some individuals within these different companies. It was suspected that the Director's judgement on how best to address the problems at VRELA could have been coloured by his own strained relations with the companies involved. More worrying to the Board was that the actions of some of the MAC staff may have been influenced by knowledge of their Director's views. This would explain why [the Ops Officer] felt confident enough to disregard the comments of the TA and Deputy Director regarding searching for mines.

CLEARANCE STANDARDS

21. In the four weeks it took [the international demining company and its local partner] to complete the VRELA task, a total of approximately 32,000m² was cleared. In accordance with the ITF contract and BH MAC Standards this was done to a depth of 10-20 cms. No attempt was made to excavate the back-filled trench lines, dismantle the bunker systems, or clear the deep buried mines.

22. Various preparation and clearance techniques were used on the task site. During the initial stages ground was prepared using mechanical methods. Explosive Detection Dog (EDD) Teams then conducted the major clearance task. Manual deminers were used to prepare and lay out boxes for the EDD Teams. Laying-out of boxes is achieved by manual

clearance techniques using metal locators or prodding. A number of reports, including the final statement from [local company] monitor, confirm that a considerable amount of metal was left on site. If metal locators were used this metal contamination should have been identified and according to the Standards removed using prodder and excavation techniques.

23. Comment.

a. The ITF contract required [international and local commercial companies] to clear the area to a depth of 10 cms. This was a direct reflection of BH Standards. Therefore, the depth of clearance as produced by the contractor conformed to both the contract and the Standards. BH MAC Standards, however, fail to address the clearance of trenches, bunkers, rubble and deep buried mines. Consequently, these areas were not included in the contract between the ITF and the contractors. [The commercial companies] were therefore within their contractual rights to refuse to search for, or clear, the buried mines.

b. The Board was concerned over certain aspects of the demining operation conducted by [the commercial companies]. In particular, the contractors should have cleared the bunkers and should have raised the issue of whether to clear the back-filled trenches. Also the Board was concerned at the overall speed of the operation, especially given the level of metal contamination.

c. The QA inspectors from the RS MAC and the monitors from [the local monitoring company] should have highlighted these failings. Appropriate action should then have been taken by the MAC QA inspectors.

INFORMATION FLOW

24. The information flow for commercial contracts, such as the World Bank and ITF, is based on the following generally agreed principles:

a. The funding agency informs the E MAC's of the upcoming Bid and requests a list of priority tasks of the appropriate sizes.

b. The E MACs prepare the priorities and submit task documentation for the selected sites to the ITF for inclusion in the Bidding Document.

c. The Bidding Documents are obtained by interested contractors and they are then able to question the ITF and obtain additional information from the E MACs on the relevant task sites.

d. A site visit is scheduled by the ITF for all bidders at which the relevant E MAC provide any additional information obtained since the survey report was completed and verbally outline the task.

e. Bids are submitted by the contractors, outlining the work methods, time and procedures to complete the work in accordance with the difficulties of the site and in accordance with the terms of ITF Bidding Document.

f. On award of a contract the successful contractor obtains the Red Folder which contains all relevant data, which should include survey data.

g. The start time for the work is co-ordinated between the ITF and the relevant E MAC.

h. All works on ITF contract sites are overseen by ITF monitors who are specifically responsible for ensuring that the clearance company is meeting its contractual obligations. They also arrange for Quality Control on an agreed percentage of the task. The clearance quality, techniques employed and other technical details concerning demining operations are checked by QA inspectors from the E MAC, acting on behalf of the state.

i. On completion of the work the contractor submits a Completion Report to the relevant E MAC, requesting acceptance of the site. The site should be inspected and an Acceptance Form provided to the contractor. This is presented to the funding agency for final settlement.

25. Comment.

a. On 14 March 2000, the Level One survey of the site confirmed that command detonated mines were laid on the VRELA site. This is shown on the wartime military

Minefield Record report. It is also emphasised in the survey report following interviews with the engineer officer who completed the report. He also confirmed that they were laid beneath containers of fuel oil, and were “Fugasas”.

b. In early April, the ITF received the Project File from the RS MAC which included the survey data. This information was submitted two days before the release of the ITF document.

c. On award of the contract [the International commercial company] was given the Survey Report (on or about 18 May) and started work on the site on 19 May. The Red Folder was obtained on 22 May and the Survey Report returned to the Regional Office. The minefield record of the site, illustrating the general location of the command detonated mines, was one of the documents in the Red Folder but essential Survey information was not included.

d. The Red Folder and the survey report are separate documents. The Red Folder (actually called the Information Folder) is prepared at the BH MAC. It contains only the most basic of information but includes a wartime record if one is available. This is security sealed before being forwarded to the relevant E MAC. The survey report and the formal tasking letter are then signed over to the demining organisation along with the Information folder. All three documents are still separate but are collectively termed the Red Task Folder. The Board was concerned that this system can easily result in the critical survey information not being available on site: as was the case on the VRELA task.

CONCLUSIONS

26. The accident at VRLA was caused when staff from the RS MAC conducted activities that are contrary to BH MAC Standards. [The Ops Officer] was the senior man involved and effectively planned, organised and commanded the attempt to locate deep buried mines.

27. In the week immediately prior to the accident, certain actions within the RS MAC should have alerted the senior management to [the Ops Officer]’s intentions. No effective action was taken. This is primarily a failure in management and discipline.

28. The views of the Director, and probably other senior staff within the RS MAC, regarding [the commercial demining companies] and their relationship with ITF probably influenced [the Ops Officer]’s decision to try to locate mines.

29. [The commercial companies]’ clearance to a depth of only 10-20 cms, the failure of the ITF to respond to RS MAC letter of 13 June, and the speed of the clearance operation undoubtedly caused frustration within the MAC and possibly for some to question the companies’ true intentions. However, this cannot justify the actions of the RS MAC staff on 26 June. This is especially the case as a meeting to resolve the issue was planned for the following day.

30. The ITF contract with [the international commercial company] reflected the requirements of the BH Standards. Likewise [the commercial companies]’ clearance to a depth of only 10-20 cms reflected their contractual obligations. To clear the deep buried mines was within the technical capabilities of the two companies involved, although the location of the mines may well have required specialist EOD equipment. In addition, it would have made the task prohibitively expensive. As the bidding document, the tender and the contract did not reflect the presence of deep buried mines a further contract would have been required for the contractors to clear the site of all mines and UXO. This was one of the main options to be considered at the meeting planned for the 27 June.

31. The site Survey Report was written on 14 March and it included detailed information on the deep mines and technical advice on how best they should be cleared. This report was sent to the ITF as part of the normal process of identifying suitable sites for ITF contracts. Despite this, the information on deep mines was not then reflected in the contractual process. The Board was also concerned over the Red Task Folder system. Rather than being one bound document as its name suggests, the Red Folder is actually three different documents produced by different organisations. This causes delay and more importantly risks the critical survey data being separated from the Team Leader conducting the clearance operation.

32. The command and control arrangements for the clearance task were complex. [The international commercial company] was in partnership with [a local commercial company], [Another local company] was monitoring and providing Quality Control on behalf of the ITF who were themselves contracting the three companies involved. There were Manual, Mechanical and Dog Team Leaders from [the international commercial company and another local partner] on the site at different times. The Project Officer for [the international commercial company] visited the site approximately once per week and co-ordinated the activities of the two companies. It is the Board's view that this structure contributed to the delay in addressing the problem of the deep mines, and its contractual implications, as so many difference people had to agree the way ahead before holding a meeting with the RS MAC.

RECOMMENDATIONS

33. The working practices and management ethos of the RS MAC must change. There exists a culture of intervention on mine clearance tasks that risk the safety of MAC employees. This requires changes to personnel, leadership style, training and MAC structure.

34. The Board recommends that the position of TA in the RS MAC be re-evaluated to confirm the detailed job description and personal qualities required. Also, the Board believes that to help implement the changes needed within the RS MAC requires the addition of a second TA post. This should be an in-kind appointment funded for at least one year. The post should be filled as soon as possible but ideally by the end of this year.

35. The BH MAC Standards must be updated to include the clearance of trenches (open or back-filled), bunkers, deep mines and rubble. Likewise, the Clearance Certificate's statement that "to the best of my knowledge cleared of all mines or UXO" needs amendment or clarification. These amendments should be confirmed in written form at the next Technical Working Group and incorporated within the revised Standards by the end of November 2000. The BH MAC should also determine what action should be taken if a demining team is unable to locate deep buried objects that have been identified in the General Survey to be on site. In particular, whether there should be some mechanism that allows an E MAC to task the CPO to assist specifically in their location.

36. The Survey Report's key findings must be incorporated within the task description contained in the bidding document and then reflected in commercial tenders and the final contract. The ITF should incorporate these recommendations in time for the next round of contract bids. The process should also be confirmed in the revised BH MAC Standards.

37. During the site visit of potential bidders, the E MACs must confirm in written form the key information contained in the General Survey by distributing either a copy of the Survey itself or a separate summary that confirms the main task details and clearance requirements. This should be implemented with immediate effect.

38. The Red Folder should be collated and issued by just one agency. The decision of which agency should be responsible should be made by the BH MAC after consultation with the two Entity MACs. This decision should be confirmed at the September Management Coordination Meeting and promulgated at the following Technical Working Group.

39. In the absence of a TA at a Bid Opening Board, a nominated replacement from the E MAC should attend as a technical observer. This is to ensure that the technical aspects of a bid reflect the needs of the task site. The ITF should consider implementing this recommendation as soon as practicable.

40. [The two commercial companies involved] must urgently review their command and control arrangements when working in partnership with each other or indeed with any other mine clearance organisation. Furthermore, they should now review their SOPs to reflect the lessons learned from this accident and the changes recommended in this report. These amended SOPs should be forwarded to the BH MAC by 15 September 2000.

41. The role and training of QA inspectors within the E MACs needs greater emphasis. In particular, they must recognise that it is their duty to ensure that those critical safety and quality issues are identified and addressed in the most timely manner.

42. The RS MAC should now hold a meeting, similar to the one planned for the 27 June, to resolve what to do with the site at VRELA. Present should be the ITF, [Local and International commercial companies]. The BH MAC and CPO should attend as observers. The decision regarding the site is to be forwarded by the RS MAC to the BH MAC by 31 August 2000.

Co-Chairmen of the Board:

OHR, SFOR

Board Members:

Norwegian Peoples Aid [external to all events]

Federation MAC

Demining Commission