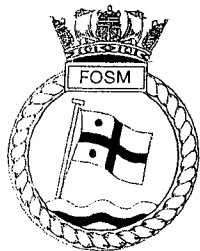


D/FOSM/X/5200/26



Flag Officer Submarines
Eastbury Park
Northwood
MIDDLESEX
HA6 3HP

MOD: xxxxxxxxxxxxxx
BT: xxxxxxxxxxxxxx
Fax: xxxxxxxxxxxxxx

The President and Members
of the Naval Board of Inquiry
To Be Convened on 15 December 2000

11 Dec 00

BOARD OF INQUIRY - INSTRUCTIONS

References:

- A. QRRN Chapter 57.
- B. QRRN Chapter 45.
- C. The Yellow Guide.
- D. SMP 7 Submarine Navigation Manual Table 6-3

1. You are to assemble at 0830 on 15 December 2000 as a Board of Inquiry whereof Captain xxx: xxxxxxxxxxxx Royal Navy, is to be the President, and hold a careful investigation into the circumstances surrounding the grounding of HMS VICTORIOUS on 29 November 2000. The members of the Board of Inquiry are to be Commander xxxxxxxx Royal Navy and Lieutenant Commander xxxxxxxxxxxx Royal Navy. You should draw appropriate, logical conclusions and make necessary recommendations. (S38) (S40) (S44)

2. You are to call before you such witnesses as are necessary to enable you to conduct a full inquiry. Recommendations should be put forward, if appropriate, which might prevent similar occurrences in the future. You are directed to investigate in detail all aspects of the submarine's navigation plan and all documents, including charts, that were in use. Your Inquiry should include, but by no means be limited to, a review of the records listed at Reference D. You are to ensure that all relevant matters that come to your attention during the course of your Inquiry are fully covered. In particular, you should examine if appointing turbulence among the warfare officers on board has any relevance.

3. The inquiry is to be conducted in accordance with the directions contained within the References. If you require any further advice you should contact xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx FOSM on extension xxxxxxxx (S38) (S40) (S44)

4. The report of the Board is to be accompanied by minutes of the evidence taken. The questions in the minutes are to be numbered consecutively and the name and rank, rating or title of

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each witness are to appear at the head of each page of his evidence. The report and minutes are to be signed by the members of the Board and are to be forwarded in triplicate.

5. Recording/audio typing equipment and typing and secretarial support will be made available by the Captain First Submarine Squadron to be used at the President's discretion.

XXXXXXXXXXXXX
XXXXXXXXXXXXX
XXXXXXXXXXXXX
XXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXX
RAdm
FOSM
XXXXXXXXXXXXXXXXXXXX

Information:

CINCFLEET
DCINC/FLEET
Captain First Submarine Squadron
The Commanding Officer HMS VICTORIOUS

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unclass/NPM



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SM 520/02

Flag Officer Submarines
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19 December 2000

Sir

**BOARD OF INQUIRY INTO THE CIRCUMSTANCES SURROUNDING THE
GROUNDING OF HMS VICTORIOUS ON SKELMORLIE BANK ON 29
NOVEMBER 2000**

References:

- A. QRRN Chapters 19, 30, 45, 57.
- B. HMS VICTORIOUS LGL/LGQ 291358Z NOV 00 (GROUNDING).
- C. FOSM ABA/LAL 041459Z DEC 00 (BOARD OF INQUIRY).
- D. FOSM's D/FOSM/X/5200/26 dated 11 Dec 00 (Board of Inquiry – Instructions).
- E. Guide to the Conduct of Boards of Inquiry (The Yellow Guide) dated 15 Sep 97.
- F. HMS VICTORIOUS(S)' 520/0 dated 2 Dec 00 (Ship's Investigation Report).
- G. SMP 7 (Submarine Navigation Manual).
- H. Vanguard Class Ship Standing Orders.
- I. HMS VICTORIOUS(S)' 520/0/1 dated 10 Dec 00 (S.232 and covering letter).

1. We have the honour to submit the report of our Inquiry into the grounding of HMS VICTORIOUS on Skelmorlie Bank on 29 November 2000, whilst the submarine was on surfaced transit from the vicinity of Great Cumbrae Island to Loch Long.

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INTRODUCTION

2. HMS VICTORIOUS (STBD) (xxxxxxxxxxxxxxxxxxxxxx) sailed from HM Naval Base Clyde on the morning of 29 Nov 00 for CO's INDEX, intending to conduct a towed array (TA) deployment in the vicinity of Ascog patches before leaving the Clyde. Weather conditions within the Gareloch were favourable, although the forecast was for conditions to worsen during the period, with gale force winds expected in the Clyde areas. (S38)
(S40)
(S44)

NARRATIVE

3. The xxxxxxxxxxxxxxxxxxxxxxxxxx, had been given Conduct of the submarine at Harbour Stations and the submarine sailed at 1000. (It was intended that he would retain conduct for the duration of the INDEX period.) After an uneventful transit of Rhu Narrows the submarine adopted River Routine at 1122 with the xxxxxxxxxxxxxxxxxxxxxxxxxx, retaining charge of the submarine and acting as the Officer of the Watch (OOW). The Officer of the Watch Below (OOW Below) was xxxxxxxxxxxxxxxxxx. Q2
(S38)
(S40)
(S44)

4. As VICTORIOUS approached the vicinity of Ascog patches, where she had been directed to carry out a TA deployment, it became obvious that conditions were unsuitable. It was decided, therefore, in agreement with the TA Deployment Officer embarked in the TA tug IMPETUS, to head to an area north of Great Cumbrae Island for a further attempt. Q4
Q41, Q12

5. The OOW briefed the OOW Below of the revised plan and asked for a course to steer to make ground to the new position. This intention was further revised and as VICTORIOUS re-gained the 191° exit lane in the Firth of Clyde Channel, she altered course to starboard and followed the track. Abeam Mountstuart buoy the submarine altered course to port, reduced speed and then continued on an easterly heading toward the intersection of the Skelmorlie and Hunterston channels. The OOW discussed with the xxx his intentions to turn to the north and, using "C" buoy as a visual reference, conducted the turn at 1256 and remained at slow speed to assess the suitability of the conditions for the TA deployment. At this stage VICTORIOUS was approximately 1.4 nm west of the Ayrshire coast. Q74, Q75
Q219
Q220
Q222

6. Conditions, however, were still unsuitable for the TA deployment. Moreover, the 'blue rope' used to assist in TA operations had parted and was now in danger of being ingested into the propulsor, dragging the tow cable with it. It was, therefore, essential to seek calmer water to investigate further. The xxx and xxx discussed the options and agreed to proceed north to Lower Loch Long Buoy (LLLB), to make an assessment of the conditions there. IMPETUS was despatched to head for LLLB at best speed and, on arrival, to report the conditions. At about 1325 the xxx left the bridge to establish communications with Faslane and inform Squadron of his intentions. Q14, Q15
Q22

7. Shortly afterwards, at 1325, VICTORIOUS increased speed to 10 knots, still on a northerly heading. How and why the decision to increase speed was made at this Q91, Q92

time remains unclear to the Board. The intention to proceed to LLLB was understood by the OOW Below (passed either from the OOW or ascertained from listening in to VHF traffic), but no clear instructions were passed, and no revised and approved navigational plan was promulgated.

Q184, Q18

8. In the Control Room, [REDACTED] had taken over as the Petty Officer of the Watch (POOW) shortly after 1300 and was fixing the submarine's position using visual bearings (taken from TTVC) and radar ranges. After plotting the 1325 fix and generating an EP the POOW changed chart, switching to the entry chart on the instructions of the OOW Below. The POOW had missed the increase in speed to 10 knots, and remained under the mistaken impression that the submarine was loitering. Following the chart change to the entry chart at about 1330, the OOW Below supervised the bearings for the next fix as part of his watch handover. When plotted, the 1331 fix placed VICTORIOUS 4.5 cables WSW of the correctly plotted 1325 position. The significance of this went unnoticed by the OOW Below, his relief [REDACTED] and the POOW.

(S38)
(S40)
(S44)

Q111, Q120

Q127, Q129

Q181, Q136, Q140
Q141, Q142

Q139, Q140

9. Using the mis-plotted 1331 fix, the generated EP indicated that on a course of north the submarine would regain the standard 011° entry track in the vicinity of the Skelmorlie Bank. This would allow the submarine to transit safely between the Skelmorlie mid-channel marker and No 32 starboard lateral mark. In reality, the submarine was heading directly across Skelmorlie Bank.

10. The Echo Sounder (E/S) Operator, [REDACTED] [REDACTED], was reporting soundings to the Bridge via the Radar Operator. As the sounding reached the minimum expected, he raised his voice and started reporting every metre. At 1337, with a sounding of 1m, he shouted across the Control Room to the Ship Control OOW to bring the submarine to Emergency Stations.

(S38)
(S40)
(S44)

Q203

Q202

Q206

11. At 1338 VICTORIOUS grounded on the Skelmorlie Bank, leaving No 32 buoy approximately 400 yards to port. At Emergency Stations both the [REDACTED] and [REDACTED] went immediately to the Bridge, where the [REDACTED] took Conduct. VICTORIOUS subsequently returned to Faslane and berthed at No 11 berth at 1732.

(S38)
(S40)
(S44)

Q28

STANDARD OF NAVIGATION AND CHARTWORK

12. Role of the POOW (Navigation). The employment of the POOW to execute the chartwork during Harbour Stations and at River Routine appears to be standard practice in many submarines. Regardless of whether this is advisable, in this case it was inappropriate without far greater supervision. Once it became obvious that the submarine was no longer going to follow the planned track and was going to manoeuvre north of Great Cumbrae, the POOW was unable to safely continue executing the chartwork. His responsibility is for "fixing and the passage of the submarine along the planned track". At this stage it became the duty of the OOW Below to take a close interest in the current position and intended movement of the submarine.

Ref H Art 0825

Ref H Art 0808

13. Appreciation of Navigational Situation. The submarine had been on a steady

course of north since 1305, and so the relative position of the fixes at 1325 and 1331 was highly significant. The woeful lack of understanding by the OOW Below and the POOW of the inconsistency between these fixes is indicative of a widespread lack of navigational awareness amongst the team on watch. This was compounded by poor communications and teamwork between the Bridge and Control Room. Had the OOW Below taken an active interest in navigation throughout his watch, the accuracy of the 1331 fix would have been questioned immediately. Instead, the previous EPs, which had been generated correctly, and the 1325 fix, which had been correctly transferred, were ignored.

14. Navigational Records. The navigational records submitted to the Board were barely adequate. Without the echo sounder trace and the invaluable information provided by the EOTs printout it would have been difficult for the Board to reconstruct the submarine's actual track with confidence. The fixing log contained several omissions, most notably the chart change from the exit chart (1907) to the entry chart (1907) at 1325. The standard of chartwork produced by the POOW was reasonable whilst following the planned track, but barely acceptable once the submarine had deviated from that track. Use of standard chartwork conventions was weak.

15. Fixing. The Board found no evidence to support the assertion made in the Ship's Investigation Report that difficulty had been experienced in fixing the submarine's position using TTVC.

Q120

16. Visual Lookout. The Board was surprised and disappointed to learn that the buoys marking Skelmorlie Bank were not spotted until after the grounding. The first person to notice them was the CO who had gone to the Bridge at Emergency Stations. It was only when he spotted the buoys 1000 yards astern that he realised what had happened. They had been missed by the OOW, who had not made a determined effort to look for them. Neither had he directed his lookout to do so. Acknowledging that the sea state may have made the buoys difficult to see, it is of concern that greater effort was not made to locate a familiar and clearly marked navigational hazard ahead of the submarine.

Q100, Q98

Q29, Q30, Q 32

Q99, Q100, Q101

17. Communications with the Bridge. On a day of high winds, the OOW found it difficult to hear reports made by the plot and echo sounder operator. This is a shortcoming common to all submarines, and in this case it hindered the smooth flow of information between Bridge and Control Room. It is possible to argue that under different circumstances and with perfect communications the incident may have been averted. However, Ship Control and conning orders were being passed without difficulty; and a stanaphone was being used for passing fixing reports. The Board concluded that degraded communications were not a significant factor in the grounding.

Q186, Q122

Q213

Q122

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SUPERVISION OF THE POOW

18. Although an experienced POOW, too much was being asked of
 XXXX (XXXXXXXXXXXXXXXXXXXX, XXXXXXX) was aware that amendment of the navigational (S38) Q188, Q18
 plan was not within the competency of the POOW, but failed to take a purposeful (S40)
 interest in the navigation at a time when the plan was being constantly modified. It (S44)
 appears that XXXXXXX only contribution to the navigation of the submarine at a Q178, Q181, Q131
 crucial time was demanding a chart change and his involvement in the fix at 1331.
 This fix was poorly planned, and subsequently incorrectly plotted by the POOW. XXXXX:
 XXXXXXX noted the plotted fix, and should have appreciated its inconsistency with the
 transferred 1325 position.

NAVIGATIONAL PLANNING

19. Once it had become clear that the Command intentions had changed the XXXXX Q75, Q76, Q184, Q185
 did not communicate them to the OOW Below. Specifically, the NO should have Ref A Art 1925.2h
 briefed the OOW Below of the revised intentions and directed him to produce a (S38)
 change to the navigational plan to that effect, that the submarine could then follow. (S40)
 The XXX should then have ensured that the POOW was also aware of the revised plan. (S44)
 The lack of a navigational plan drawn on the chart in use had a direct effect on the
 level of support that the POOW on the plot was able to provide to the OOW.

APPOINTING TURBULENCE

20. The Board was specifically directed to investigate whether appointing
 turbulence amongst the warfare officers had any relevance to the grounding. The Q172
 Board noted that the OOW Below until 1333 (XXXXXXX) had been in post less than 6 Q10, Q11, Q39
 weeks. Furthermore, XXXXXXX who took over the watch in the Control Room just Q153
 before the grounding, had recently arrived without completing the Intermediate (S38)
 Warfare Course. Neither of these officers had had the opportunity to complete their (S40)
 BSQ, and so were not strictly authorised to act as OOW Below. However, it was the (S44)
 opinion of the Board that XXXXXXX, by virtue of his previous experience, was entirely Q154
 capable of taking the duty. The circumstances of XXXXXXX appointment are Q173
 clearly undesirable, but again the Board concluded that his role in the grounding was
 not affected by his inexperience.

CONCLUSION

21. It is concluded that:

a. HMS VICTORIOUS ran aground on Skelmorlie Bank in the Clyde
 Estuary (in position 54 54.72N 005 55.54W) at 1338 on 29 Nov 00. The Para 11
 primary cause of the grounding was a failure of standard navigational practice
 and a lack of awareness amongst all members of the navigation team of the Para 19
 increased danger to safe navigation as soon as the submarine had deviated
 from its pre-briefed navigational plan.

b. In particular:

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a. The lessons identified, drawn from the conclusions of this Board of Inquiry, should be given wide distribution within the Fleet.

b. A clear policy for the qualification and employment of the OOW Below should be introduced by Flag Officer Submarines. It is incongruous that current orders prohibit the use of an officer without a BSQ from acting as OOW Below but not as OOW Dived. Similarly, the Board considered that under certain conditions (eg River Routine) it would be wrong for an officer without a Bridge Watchkeeping Certificate to supervise the navigation, as is allowed under current rules.

Ref H Art 080

c. Clear and unambiguous instructions for the OOW Below should be produced for each class of submarine in Class Standing Orders. These orders should clarify the role and responsibilities of the OOW Below in all manning states, and be applicable across the Flotilla.

Ref F

d. During the CODC, SMCC and SM(n) courses significant emphasis should be placed on the responsibilities of the CO and NO when producing a change to a previously approved navigational plan.

We have the honour to be,
Sir

Your obedient Servants

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Lieutenant Commander Royal Navy

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Commander Royal Navy

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Captain Royal Navy

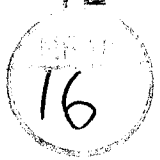
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Annexes:

- A. List of Personnel Interviewed.
- B. Transcripts of Evidence from Personnel Interviewed.

Enclosures:

- 1. Extract from Control Room Log - 29 Nov 00.
- 2. Echo Sounder 780 Trace.
- 3. Copy of EOTs Log – 29 Nov 00.
- 4. Navigation Brief – Departing Faslane – 29 Nov 00.
- 5. Wardroom Watch and Station Bill.
- 6. Copy of Fixing Log – 29 Nov 00.
- 7. Chart 1907 – Plot Exit 3.
- 8. Chart 1907 – Plot Entry 1.
- 9. Chart 1907 – Board of Inquiry Reconstruction.
- 10. Wordsafe Cassette x 1.
- 11. TSNAPS Tape x 1.
- 12. Audio Witness Evidence Tapes x 8.
- 13. HMS VICTORIOUS (STBD)'s 520/00 dated 2 Dec 00.



D/FOSM/X/5200/26



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Commander-in-Chief Fleet

1 Feb 01

HMS VICTORIOUS GROUNDING – FINDINGS OF BOARD OF INQUIRY

Introduction

1. On 29 Nov 00 at 1338, HMS VICTORIOUS grounded on the Skelmorlie Bank in the Clyde Estuary. A Board Of Inquiry (BOI) was convened in Faslane on 15 Dec 00 and the report of its findings is enclosed.

Discussion

2. The grounding occurred because the submarine’s true position was some 4.5 cables further North East than that plotted. This was caused by a failure of the OOW (XXXXXXXXXXXXXXXXXXXX) to form and promulgate a clear navigational plan when foul weather caused the decision to halt the Towed Array deployment and seek more sheltered water. Significant contributory factors were also the failure of the OOW Below to advise on such a plan or to effectively supervise the chartwork of the POOW.

Personnel

3. There was no material failure that contributed to the grounding, but the BOI identified 3 officers and one Senior Rate whose performance may have fallen short of the standard that could be expected of officers of their seniority and experience. (XX) XXXXXXX

XXXXXXXXXXXXXXXXXXXX

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(540)
(544)

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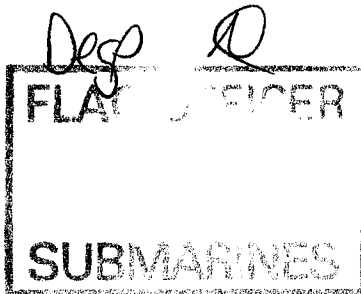
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Recommendation

6. It is recommended, therefore, that CINC initiates proceedings against ~~XXXXXXXXXXXXXXXXXXXX~~ (S38)
~~XX~~ on charges drawn under NDA Section 19, which would be (S40)
tried at Court Martial. (S44)

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XXXXXXXXXXXXX)
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Rear Admiral



Enclosure:

- 1. SM2's SM520/02 dated 19 Dec 00 (BOI Report) - NPIS

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