COURT OF INQUIRY

assembled by

RADM Garin Golding, RNZN
Chief of Navy

For the purpose of collecting and recording evidence on the circumstances that resulted in the loss of HMNZS MANAWANUI off Upolu, Samoa, on 6 October 2024

CONTENTS

	Page
1. MD 634 ORDER FOR THE ASSEMBLY OF A COURT OF INQUIRY	7
2. STATEMENT OF COMPLIANCE WITH AFDA s 200N	11
3. STATEMENT UNDER AFDA s 200G	15
4. ACRONYMS	16
5. REPORT OF THE COURT OF INQUIRY	
Preliminary	20
Incident Overview	23
Sequence of events leading up to the loss of the Ship	
TOR 1: What was the chain of events and circumstances in the immediate lead up to the grounding and loss of the Ship?	32
Ship Activity at the time of the grounding	
TOR 2: What task was the vessel conducting at the time of the grounding?	42
TOR 3: Who was on watch prior to and at the time of the grounding, and what was their involvement in the incident?	42
TOR 4: What condition of watertight integrity was the Ship in at the time of the grounding?	46
TOR 5: Was the Ship at a degree of readiness appropriate for the task being undertaken, given the proximity to hazards and the prevailing conditions?	46
Location	
TOR 6: What was the time and location of the grounding?	50
TOR 7: What were the light, sea and weather conditions at the time of the grounding?	50
TOR 8: What was the state of the tide at the time of the grounding?	50
TOR 9: What is the current location of the Ship?	51

The grounding
TOR 10: What was the cause of the grounding? 51

TOR 11: In respect of actions immediately after the grounding:
a. What actions, emergency or otherwise, were taken immediately after the grounding? 53

b. Were these actions in accordance with relevant RNZN, or Ship, orders, regulations and procedures? 53

c. Were all actions taken immediately following the grounding adequate and proper given the circumstances? 54

TOR 12: In respect of damage sustained as a result of the grounding:

a. What was the extent of the damage sustained? 54

b. What was the cause of the damage? 54

TOR 13: Did any stability issues contribute to the grounding? 55

Damage control following the grounding
TOR 14: Was a survey of the Ship's watertight integrity undertaken after the grounding and if so, what did it reveal? 55

TOR 15: In respect of damage control:

a. What damage control steps or procedures were undertaken? 56

b. Were any damage control steps or procedures taken consistent with relevant orders, training, and SOPs? 56

c. When was the decision made to cease damage control efforts and on what basis? 57

d. Could any further damage control steps or procedures have been taken? 58

Loss of Ship
TOR 16: What time and by whom was the decision made to abandon ship? 58

TOR 17: The sequence of events leading up to the decision to abandon Ship 58

TOR 18: In respect of sensitive or classified stores, documents, systems and equipment:

a. What steps were taken to secure or destroy classified documents, systems or equipment on board the Ship? 59

b. Were steps taken to secure or destroy classified documents, systems or equipment on board the Ship sufficient, if not, why not? 60

c. What sensitive or classified stores, equipment, documents, systems or equipment remain on the Ship? 60

TOR 19: What steps were taken to secure or preserve relevant logs, recordings or other evidence relevant to the loss of the Ship? 61

TOR 20: What was the likely cause of the fire? 62

TOR 21: Did all lifesaving equipment operate as required? 63

TOR 22: Was the RNZN abandon ship policy followed and was it fit for purpose? 65

TOR 23: What was the likely cause of the loss of the Ship? 66

Organisational aspects relevant to the loss – people and systems

TOR 24: In respect of Ship's company:

a. Was the Ship appropriately crewed for the tasks being undertaken? 66

b. Were there any personnel deficiencies? 66

c. If any of Ship's company were carrying waivers, what were those waivers? 67

d. Was Ship's company appropriately trained and experienced? 67

e. Was any alcohol consumed by Ship's company in the lead up to the survey task? 71

TOR 25: In respect of operational tempo in the lead up to, and including, the deployment:

a. What was the training demand on the Ship? 72

b. What was the operational tempo on the deployment? 72

c. What were fatigue levels among Ship's company at the time of the grounding and was this an operative factor in the grounding? 72

TOR 26: Were the charts and navigation aids being used suitable and sufficient for the safe operation of the Ship? 74

TOR 27: Were the charts up to date with the latest changes and navigation warnings? 74

TOR 28: Had appropriate operational risk management steps been taken and were these sufficiently robust? 75

TOR 29: In respect of navigation:

a. Was the navigation plan sound and appropriate for the passage of the Ship in the location where the incident occurred? 82

b. Was the Ship being navigated in accordance with all relevant RNZN orders, regulations and procedures? 82

c. Were all persons involved in the navigation of the Ship at the time of the incident appropriately trained and qualified to perform their duties adequately? 83

d. Was any person involved in the navigation of the Ship under training at the time of the incident and if so was a qualified supervisor present at the time of the incident? 83

e. Other than navigation, what duties or activities had the persons involved in the navigation of the Ship conducted in the 24 hours prior to the grounding? 84

TOR 30: What roles were duty personnel performing prior to, during and immediately after the incident? 85

TOR 31: In respect of procedures for the task the Ship was conducting:

a. What procedures are meant to be followed for the conduct of the task? 85

b. Where are these procedures detailed? 85

c. Were these procedures followed? 85

TOR 32: Are there any other systems or processes used within the maritime community that could have improved situational awareness or helped prevent the loss of the Ship? 89

Materiel state relevant to the loss

TOR 33: Did the materiel state in any way contribute to the:

a. grounding? 89

b. subsequent loss of the Ship? 89

c. ability to safely evacuate Ship's company? 89

TOR 34: What were the findings or outcomes of the Seaworthiness Boards in respect of the Ship since the capability introduction? 91

General comment

TOR 35: Comment on the existence and adequacy of all orders, regulations and procedures, including international maritime regulations, relating to the incident. 94

TOR 36: Comment on any other matters the Court considers relevant to the purpose of this Inquiry. 98

Recommendations

TOR 37: Are there any recommendations or changes that could be made to prevent a recurrence of such an incident? 111

TOR 38: Are there any recommendations or lessons that the NZDF needs to learn to better prepare for an incident like this in the future? 116

TOR 39: Make any other recommendations that the Court considers relevant to the purpose of this Inquiry. 116

6. CONCLUSION 118

7. WITNESS LIST 121

8. EXHIBIT INDEX 122

ORDER FOR THE ASSEMBLY OF A COURT OF INQUIRY

Orders by RADM Garin Golding, RNZN, Chief of Navy

A court of inquiry consisting of the following persons is to assemble no later than 11 October 2024.

For the purpose of collecting and recording evidence on the circumstances that resulted in the loss of HMNZS MANAWANUI off Upolu, Samoa, on 6 October 2024 and reporting and commenting as required by the terms of reference below.

President: CDRE Melissa Ross, RNZNR

Members: GPCAPT John McWilliam, RNZAF, CAPT Dean Battilana, RAN, CAPT Andrew Mahoney, RNZN

Counsel assisting: A/CDR Jonathan Rowe, RNZN

The President is to order or summon the witnesses to attend in accordance with section 200I of the Armed Forces Discipline Act 1971.[1] Upon completion the President is to forward the record of proceedings to me.

The Court is to have regard to sections 200M and 200N of the Armed Forces Discipline Act 1971 at all times. The court is to read DM 69 (2 ed) Volume 1 Chapter 11 Section 2 before commencing its inquiry.

In the conduct of its inquiry, the Court is to be cognisant of the need to approach some interviews with empathy and ensure that its approach supports the welfare and wellbeing of personnel to the greatest extent possible.

I require the Court to provide me with an interim report on Terms of Reference 1 – 20 by 13 November 2024, together with fortnightly updates on progress thereafter. In preparing its interim report, the Court is to note that it is my intent to have this reviewed by an external legal review. The Court is to provide me with its final report is by 28 February 2025.

All recommendations from the Court are to be logically connected to the Court's findings and are to be reasonably achievable.

These Terms of Reference replace those signed on 9 October 2024.

TERMS OF REFERENCE

Sequence of events leading up the loss of the Ship

1. What was the chain of events and circumstances in the immediate lead up to the grounding and loss of the Ship?

Ship Activity at the time of the Grounding

2. What task was the vessel conducting at the time of the grounding?

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1 A summons is to be in form MD 637.

3. Who was on watch prior to and at the time of the grounding, and what was their involvement in the incident?
4. What condition of watertight integrity was the Ship in at the time of the grounding?
5. Was the ship at a degree of readiness appropriate for the task being undertaken, given the proximity to hazards and the prevailing conditions?

Location

6. What was the time and location of the grounding?
7. What were the light, sea and weather conditions at the time of the grounding?
8. What was the state of the tide at the time of the grounding?
9. What is the current location of the Ship?

The Grounding

10. What was the cause of the grounding?[2]
11. In respect of actions immediately after the grounding:
    a. What actions, emergency or otherwise, were taken immediately after the grounding?
    b. Were these actions in accordance with relevant RNZN, or Ship, orders, regulations and procedures?
    c. Were all actions taken immediately following the grounding adequate and proper given the circumstances?
12. In respect of damage sustained as a result of the grounding:
    a. What was the extent of the damage sustained?
    b. What was the cause of the damage?
13. Did any stability issues contribute to the grounding?

Damage control following the grounding

14. Was a survey of the Ship's watertight integrity undertaken after the grounding and if so, what did it reveal?
15. In respect of damage control:
    a. What damage control steps or procedures were undertaken?
    b. Were any damage control steps or procedures taken consistent with relevant orders, training, and SOPs?
    c. When was the decision made to cease damage control efforts and on what basis?
    d. Could any further damage control steps or procedures have been taken?

Loss of Ship

16. What time and by whom was the decision made to abandon Ship?
17. What were the sequence of events leading up to the decision to abandon Ship?

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[2] If it is the opinion of the Court that the cause of the accident is attributable in whole or in part to the conduct of a person or persons the Court is to establish this finding in the evidence it collects but in its report the Court is not to apportion guilt.

18. In respect of sensitive or classified stores, documents, systems and equipment:
    a. What steps were taken to secure or destroy classified documents, systems or equipment on board the Ship?
    b. Were steps taken to secure or destroy classified documents, systems or equipment on board the Ship sufficient, if not, why not?
    c. What sensitive or classified stores, equipment, documents, systems or equipment remain on the Ship?
19. What steps were taken to secure or preserve relevant logs, recordings or other evidence relevant to the loss of the Ship?
20. What was the likely cause of the fire?
21. Did all lifesaving equipment operate as required?
22. Was the RNZN abandon ship policy followed and was it fit for purpose?
23. What was the likely cause of the loss of the Ship?

Organisational aspects relevant to the loss – people and systems

24. In respect of Ship's company:
    a. Was the Ship appropriately crewed for the tasks being undertaken?
    b. Were there any personnel deficiencies?
    c. If any of Ship's company were carrying waivers, what were those waivers?
    d. Was Ship's company appropriately trained and experienced?
    e. Was any alcohol consumed by Ship's company in the lead up to the survey task?
25. In respect of operational tempo in the lead up to, and including, the deployment:
    a. What was the training demand on the Ship?
    b. What was the operational tempo on the deployment?
    c. What were fatigue levels among Ship's company at the time of the grounding and was this an operative factor in the grounding?
26. Were the charts and navigation aids being used suitable and sufficient for the safe operation of the Ship?
27. Were the charts up to date with the latest changes and navigation warnings?
28. Had appropriate operational risk management steps been taken and were these sufficiently robust?
29. In respect of navigation:
    a. Was the navigation plan sound and appropriate for the passage of the Ship in the location where the incident occurred?
    b. Was the Ship being navigated in accordance with all relevant RNZN orders, regulations and procedures?
    c. Were all persons involved in the navigation of the Ship at the time of the incident appropriately trained and qualified to perform their duties adequately?
    d. Was any person involved in the navigation of the Ship under training at the time of the incident and if so was a qualified supervisor present at the time of the incident?

e. Other than navigation, what duties or activities had the persons involved in the navigation of the Ship conducted in the 24 hours prior to the grounding?

30. What roles were duty personnel performing prior to, during and immediately after the incident?

31. In respect of procedures for the task the Ship was conducting:

    a. What procedures are meant to be followed for the conduct of the task?

    b. Where are these procedures detailed?

    c. Were these procedures followed?

32. Are there any other systems or processes used within the maritime community that could have improved situational awareness or helped prevent the loss of the Ship?

Materiel state relevant to the loss

33. Did the materiel state in any way contribute to the:

    a. grounding?

    b. subsequent loss of the Ship?

    c. ability to safely evacuate Ship's company?

34. What were the findings or outcomes of the Seaworthiness Boards in respect of the Ship since the capability introduction?

General

35. Comment on the existence and adequacy of all orders, regulations and procedures, including international maritime regulations, relating to the incident.

36. Comment on any other matters the Court considers relevant to the purpose of this Inquiry.

Recommendations

37. Are there any recommendations or changes that could be made to prevent a recurrence of such an incident?

38. Are there any recommendations or lessons that the NZDF needs to learn to better prepare for an incident like this in the future?

39. Make any other recommendations that the Court considers relevant to the purpose of this Inquiry.

Dated a WELLINGTON on the 3rd day of November 2024

[redacted]

G.R. GOLDING
RADM, RNZN
Chief of Navy
Assembling Authority

STATEMENT OF COMPLIANCE WITH AFDA S 200N

Phase 1 - interim report

Due to the level of publicity surrounding the grounding and loss of HMNZS MANAWANUI, the Court considered that the character or reputation of some personnel may be affected by the interim report. On this basis the Court identified three affected persons who needed natural justice rights under AFDA s 200N at the earliest practical opportunity in Phase 1 to ensure that they could exercise those rights in relation to the interim report. These rights were granted on 24 October 2024 with a requirement for any rights in respect of the interim report to be exercised by 7 November 2024. The Court made it clear to the three affected persons that their rights would continue throughout the COI process, up until the completion of the final report. On 16 December 2024, the three persons were informed that the last date for exercising natural justice rights in respect of the final report was 14 February 2025. This date was to ensure the Court could have their evidence transcribed and consider it prior to completing the report by 28 February 2025. The personnel granted natural justice rights in Phase 1 and the manner in which they exercised them is set out below.

a.

b.

c. 

Phase 2 – final report

The Court granted natural justice rights under AFDA s 200N to eight additional personnel in Phase 2. With the exception of Witness 64, these rights were granted on 11 December 2024. These rights were granted to Witness 64 on 5 February 2025. The manner in which these witnesses exercised the natural justice rights are set out below.

a. 

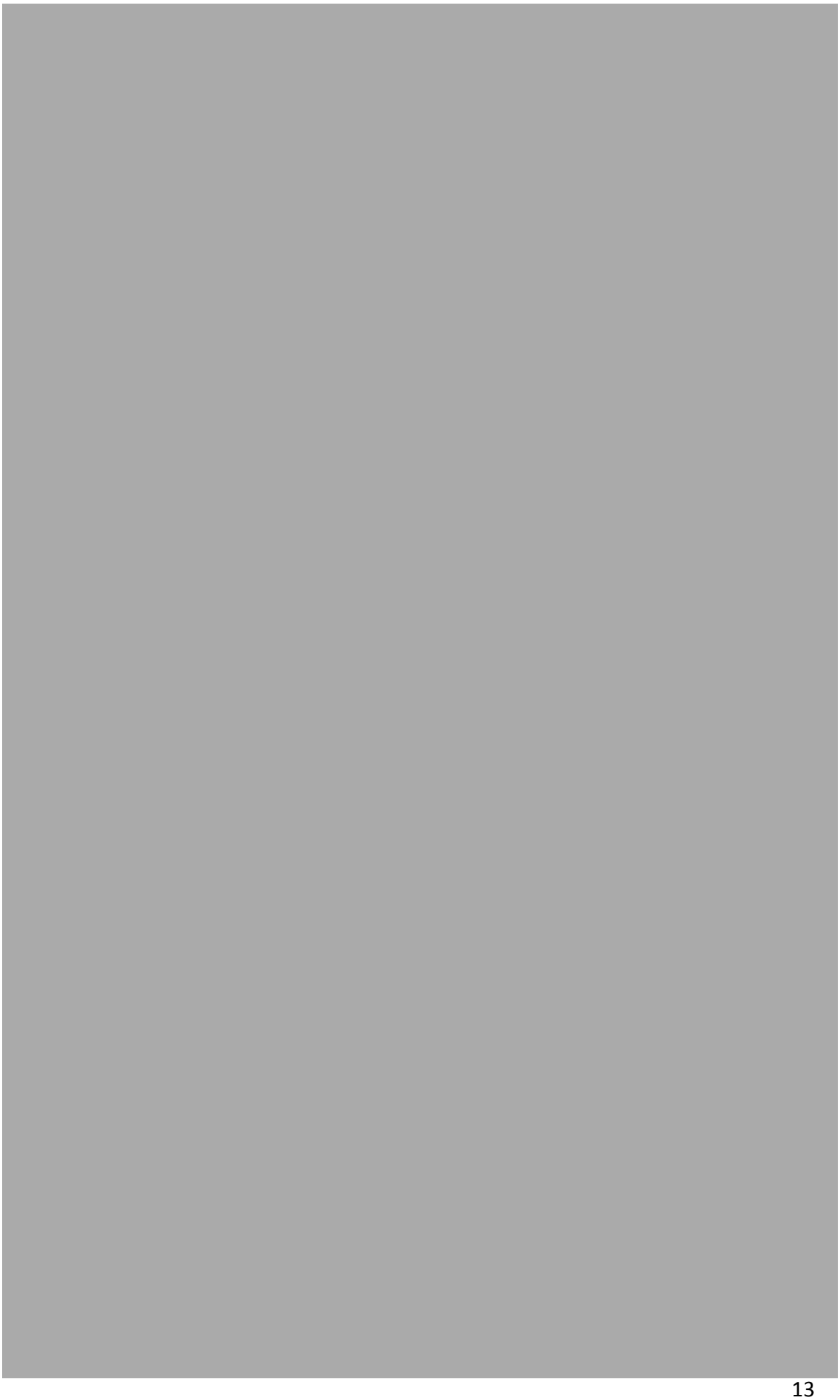
b.

c.

d.

e.

f.



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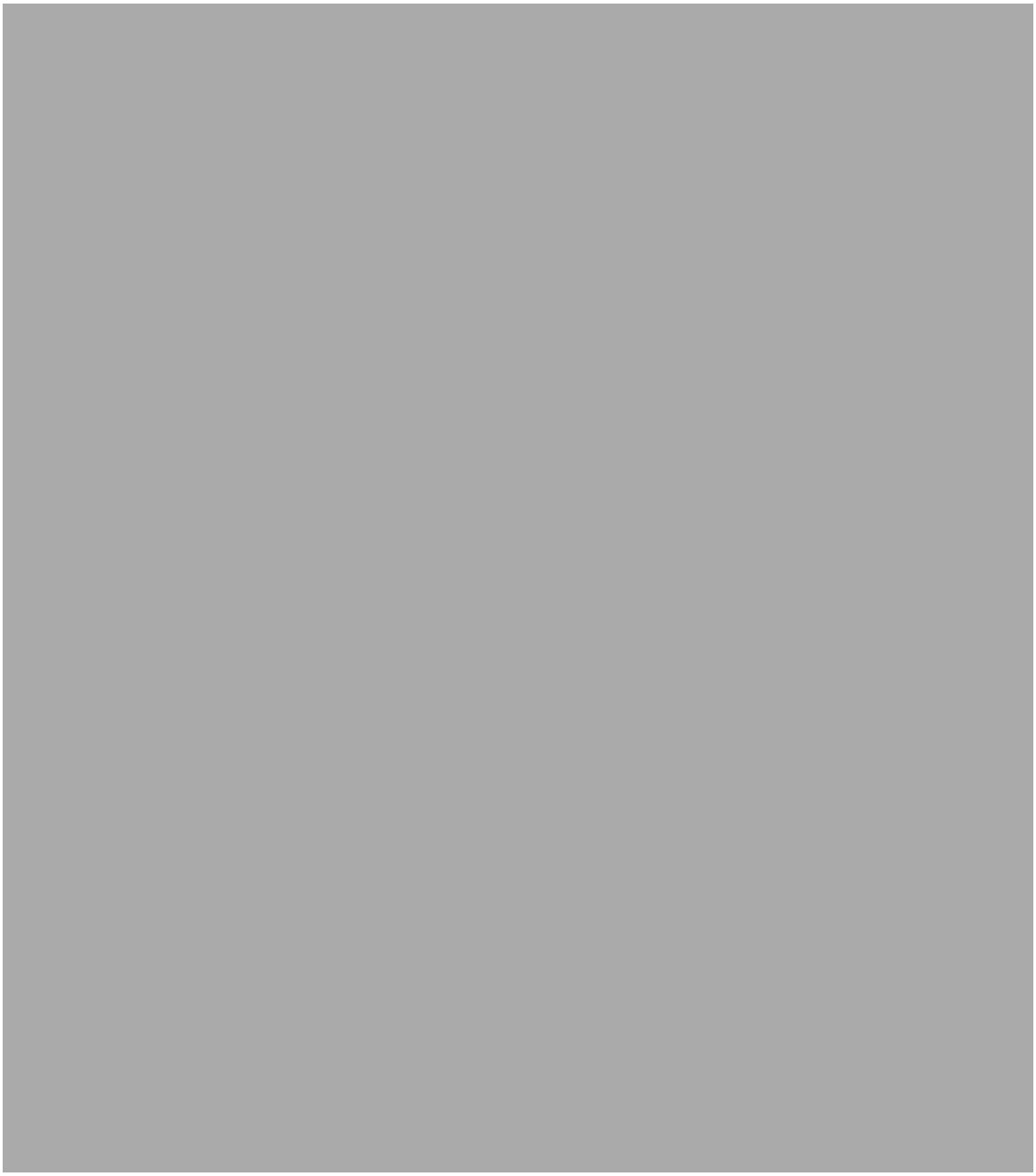

h.

STATEMENT UNDER AFDA s 200G

The Court assembled remotely on 11 October 2024.

Acronym List

ACN(P&T)	Assistant Chief of Navy (Personnel and Training)
AFDA	Armed Forces Discipline Act 1971
aft	After (towards rear of ship)
AIS	Automatic Identification System
AMT(P)	Able Marine Technician (Propulsion)
ASCS	Able Seaman Combat Specialist
BM	Bosun's Mate
BWK	Bridge Watchkeeper
CAPT	Captain
CATZOC	Category of Zone of Confidence
CBM	Chief Bosun's Mate
CBO	Classified Books Officer
CBRNDC	Chemical, Biological, Radiological, Nuclear, Damage Control
CCM	Custodian COMSEC Material
CCTM	Commander Career and Talent Management
CDR	Commander
CDRE	Commodore
CDS	Command Decision Summary
CFOR	Captain Fleet Operational Readiness
CHOGM	Commonwealth Heads of Government Meeting
CN	Chief of Navy
CO	Commanding Officer
COI	Court of Inquiry
COMSEC	Communication Security
CPOMT(L)	Chief Petty Officer Marine Technician (Electrical)
CRR	Class Risk Register
CTG	Commander Task Group
DC	Damage Control
DCO	Damage Control Officer
DCTO	Damage Control Training Officer
DFI	Defence Force Instruction
DEO	Deputy Engineering Officer
DLOC	Directed Level Of Capability
DP	Dynamic Positioning
DTJR	Duty Technical Junior Rate
DTSR	Duty Technical Senior Rate
ECCDs	Engineering Casualty Control Drills
ECDIS	Electronic Chart Display and Information System
ECPINS	Electronic Chart Position Indicating and Navigation System
EO	Engineering Officer
EOOW	Engineering Officer of the Watch
EPIRB	Emergency Position Indicating Radio Beacon
FPTO	Fleet Personnel and Training Organisation
FRAGO	Fragmentary Order
FSXO	Fleet Seamanship Executive Officer
GLX	General List Executive

GMT	Greenwich Mean Time
GPCAPT	Group Captain
GZ curve	Graphical stability curve/lever
H1	Hydrographic Qualification 1
H2	Hydrographic Qualification 2
HADR	Humanitarian Assistance and Disaster Relief
HATs	Harbour Acceptance Trials
HiPAP	High Precision Acoustic Positioning
HMNZS	His/Her Majesty's New Zealand Ship
HMOG	Hydrographic, Meteorological Operational Guidance
HMS	His/Her Majesty's Ship
HOD	Head of Department
HQ1	Headquarters 1
HQ JFNZ	Headquarters Joint Forces New Zealand
HQNZDF	Headquarters New Zealand Defence Force
IBC	Internal Battle Co-ordinator
IBO	Incident Board Operator
IHO	International Hydrographic Organization
IIS	Introduction Into Service
IMDC	Incident Manager Damage Control
IOC	Interim Operating Capability
IOCS	Interim Operating Capability Statement
IOR	Interim Operating Release
IPMS	Integrated Platform Management System
IVO	In Vicinity Of
kts	Knots
LDL	Limited Danger Line
LINZ	Land Information New Zealand
LMT	Leading Marine Technician
LMT(L)	Leading Marine Technician (Electrical)
LT	Lieutenant
LTCDR	Lieutenant Commander
m	Metre
MARREG	Maritime Regulator
MAT	HMNZS MATATAUA
MBES	Multi Beam Echo Sounder
MBLO	May Be Left Open
MCC	Maritime Component Commander
MCR	Machinery Control Room
MCSD	MTG Covered Shakedown
MHP	Military Hydrographic Procedures
MM	Maritime Manual
MONICAR	Management Of Naval Integrated Capability Assessment Reports
MRR	Mission Risk Register
MTG	Maritime Training Group
NA	Navigators Assistant
NAVOSH	Naval Occupational Safety and Health
NCDO	Naval Classified Distributions Office

NFGOs	Naval Forces General Orders
nm	Nautical Mile
NO	Navigating Officer
NZAP	New Zealand Air Publication
NZBR	New Zealand Book of Reference
OCS	Operational Capability Statement
OD	Ordinary Rate
OIP	Orders, Instructions and Procedures
OOD	Officer of the Day
OOW	Officer of the Watch
OP/s	Operation/s
OPDEF	Operational Defect
Ops	Operations Officer
ORM	Operational Risk Matrix
OsOW	Officers of the Watch
PD	Position Description
PERSDEF	Personnel Deficiency
PFRR	Pan Fleet Risk Register
PODSO	Pods Officer
POET	Petty Officer Electronic Technician
POHST	Petty Officer Hydrographic Survey Technician
POMT(P)	Petty Officer Marine Technician (Propulsion)
POSCS	Petty Officer Seaman Combat Specialist
PT	Physical Training
QM	Quartermaster
RAN	Royal Australian Navy
REA	Rapid Environmental Assessment
RHIB	Rigid Hull Inflatable Boat
RMS	Risk Management Strategy
RNZN	Royal New Zealand Navy
RNZNR	Royal New Zealand Naval Reserve
ROV	Remotely Operated Vehicle
SAP	Systems, Applications and Products (for Data Processing)
SARC	Safety and Readiness Checks
SATs	Sea Acceptance Trials
SE	South East
SEMT	Safety Event Management Tool
SHEMSCO	Safety, Health and Environmental Management Committee
SFESA	Samoa Fire and Emergency Services Authority
SHS	Senior Hydrographic Surveyor
SIC	Surveyor in Charge
SIS	Seafloor Information System
SITREP	Situation Report
SMET	Ships Medical Emergency Team
SO	Staff Officer
SOCs	Standard Operator Checks
SOLAS	Safety of Life at Sea
SOPs	Standard Operating Procedures

SQEP	Suitably Qualified and Experienced Personnel
SRO	Safety Responsible Officer
SRP	Standing Risk Profile
SSEP	Standing Sea Emergency Party
SSTO	Sea Survival Training Officer
SwA	Seaworthiness Authority
SwB	Seaworthiness Board
SwCAR	Seaworthiness Corrective Action Requirement
SwRT	Seaworthiness Review Task
TOR	Terms of Reference
VDR	Voyage Data Recorder
VHF	Very High Frequency (radio)
VIP	Very Important Person
VLO	Visit Liaison Officer
VSD	Virtual Sea Day
WECDIS	Warship Electronic Chart Display and Information System
WOCSS	Warrant Officer Combat Systems Specialist
WOMT	Warrant Officer Marine Technician
WSC	Whole Ship Co-ordinator
WUP	Work Up
XO	Executive Officer

REPORT OF THE COURT OF INQUIRY

The grounding and loss of HMNZS MANAWANUI over the period 5-6 October 2024.

PRELIMINARY

General

1. The Court's inquiry commenced on 11 October 2024. The Court was required to submit an interim report by 14 November 2024 setting out the Court's findings on TORs 1-20 based on the evidence it had been able to collect up to that date. The Court's final report covering all TORs was required to be submitted on 28 February 2025.

2. The requirement to submit an interim report caused the Court to approach its task in two phases. Phase 1 focused predominantly on TORs 1 – 20, although the Court did not stop witnesses called in Phase 1 from giving evidence relevant to the remaining TORs. In Phase 2, the Court called witnesses predominantly focused on the remaining TOR. Again, the Court did not prevent witnesses called in Phase 2 from giving evidence relevant to TORs 1-20. Further evidence relevant to Phase 1 (for example enhanced evidence from the VDR) also became available. Because of this, the Court was clear that the Court's final report may not reflect the Court's interim report in all respects.

3. The Court is grateful to the Transport Accident Investigation Commission for their assistance in preserving and exploiting certain data systems relevant to this Inquiry.

Identification of witnesses

4. Witnesses are identified by their witness number, however their role or position is included where that is necessary to aid in reader understanding.

Terms of reference

5. On the basis of the Court's interim report, a sound understanding was developed of the direct causes of the grounding and loss of the Ship, together with the contributory factors. On this basis, the Court recommended the Assembling Authority update the TORs to remove individual TORs which the interim report had rendered clearly irrelevant to the purpose of the Inquiry. A further TOR around the loss of the Ship was added. The updated TORs contained 39 individual TORs and enabled the Court's inquiry in Phase 2 to be more clearly focused on the purpose of the inquiry.

Threshold

6. Unless otherwise stated, the threshold for the Court making findings is the civil standard of the balance of probabilities. This means that the Court will make a determination (or resulting recommendation) if it considers that the evidence indicates that an occurrence is more likely than not.

Causal analysis

General

7. In inquiring into the cause of the grounding, the Court adopted an approach which considered the following:[1]

    a. **Direct causes**. Actions or omissions, events, conditions or a combination of those factors, but for which the accident would not have occurred.
    b. **Contributing factor**. A factor that made the accident more likely.
    c. **Aggravating factor**. A factor that made the outcome worse.

8. The direct causes are the triggers on the day for the incident and are addressed at TOR 10. The "factors" are considered to be issues that collectively resulted in defensive weaknesses making the incident either more likely, or the outcome worse and are addressed at TOR 36.

Root cause analysis?

9. The Court carefully considered whether root cause analysis would be a helpful tool for assessing causal factors. In considering this, the Court proposed defining "root cause analysis" as the single cause (or in some cases small number of causes) from which all other causal factors stem.[2] It follows from this that removal of the root cause/causes would prevent recurrence of the incident. The Court considered that this approach would hinder analysis of the potential for multiple contributing factors interacting with each other in a complex system and would risk driving the Court to focus on just one or two causes. The Court noted that the Transport Accident Investigation Commission in conducting their investigations in relating to civilian transport accidents appear to avoid adopting a root cause analysis in recent investigations.[3] The Court ultimately decided to avoid root cause analysis and instead identify all the interacting factors that may have either directly caused, contributed to, or aggravated this incident. The Court considered that this approach would allow it to make recommendations that encompass the whole system.

Definitions

10. For the purposes of this final report the Court uses the following definitions of "grounded", "stranded" and "lost", which are based on those terms in the Commander's Guide to Military Law with necessary modifications for the context of this Inquiry:[4]

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[1] President's and Assembling Authority's Guide to Courts of Inquiry, P107. The Court notes that this framework is envisioned for aircraft accidents, but finds this a helpful framework for applying in the context of the grounding and loss of HMNZS MANAWANUI.

[2] In considering whether to adopt root cause analysis, the Court considered how a root cause was defined in Australian/New Zealand Standard Root Cause Analysis (RCA) AS/NZS IEC 62740:2016.

[3] See taic.org.nz/inquiries.

[4] DM69 (2 ed) volume 1, chapter 4, section 9, paras 4.9.5 – 4.9.6, referring to *Dorn v Maritime Safety Authority* [1999] 2 NZLR 482.

a. **Grounded.** Any contact or collision with rocks, sea floor or the shore, regardless of whether the collision or contact is transitory or "touch and go", or whether the Ship subsequently strands.

b. **Stranded.** While a ship is conventionally regarded as having "stranded" when all or part of it has grounded in a more than transitory or "touch and go" sense, for the purposes of this report, the Court defines "stranding" as meaning a situation where a ship is aground and is not able to be moved under its own propulsion.

c. **Lost.** Lost means totally lost. A ship which is wholly submerged and incapable of coming to the surface by its own efforts is lost.

11. Unless otherwise stated, all times used in this report are Samoa Standard Time (GMT+13).

12. Ship's headings are referred to as numerical compass bearings as follows:

a. **North**: 000°

b. **East**: 090°

c. **South**: 180°

d. **West**: 270°

Interim report

13. In preparing its interim report, the Court heard evidence from 28 witnesses (including six expert witnesses) across 40 interviews. The Court heard over 30 hours of oral evidence and received 135 exhibits. The Court was able to obtain a sound understanding of the direct causes of the grounding and the factors which contributed to this incident occurring.

Final report

14. In preparing its final report, the Court heard evidence from 64 witnesses across 101 interviews. The Court heard over 75 hours off oral evidence (totalling 2243 pages of transcription) and received 348 exhibits.

Aids to understanding

15. Finally, to understand the track the Ship took in the immediate lead up to the grounding, the reader is encouraged to refer to Figure 1. To appreciate the layout of the Ship's bridge, the reader is encouraged to use as a guide Figure 2. To understand acronyms, the reader is encouraged to refer to the acronym list at page 16.

INCIDENT OVERVIEW

Background to the incident

16. On Saturday 5 October 2024, the Ship was conducting survey operations on the southern side of Upolu, Samoa, in support of the upcoming CHOGM. The wind was from a direction of 120° at 20 -25 kts with a high sea state 3, and visibility at greater than 10 nm.

17. At approximately 1815 (Samoa Standard Time) the Ship was around half a nm south of Sinalei Reef on a heading of 340° at approximately 6 kts. The Ship ceased logging survey information in anticipation of a turn to starboard to keep the Ship within the designated survey area.

18. Attempts by the Ship's bridge staff to alter the course to starboard had no appreciable effect. Shortly after, as the Ship left the approved survey area and in an effort to stop the Ship, control orders were made that the OOW believed would have resulted in the Ship applying full power astern.

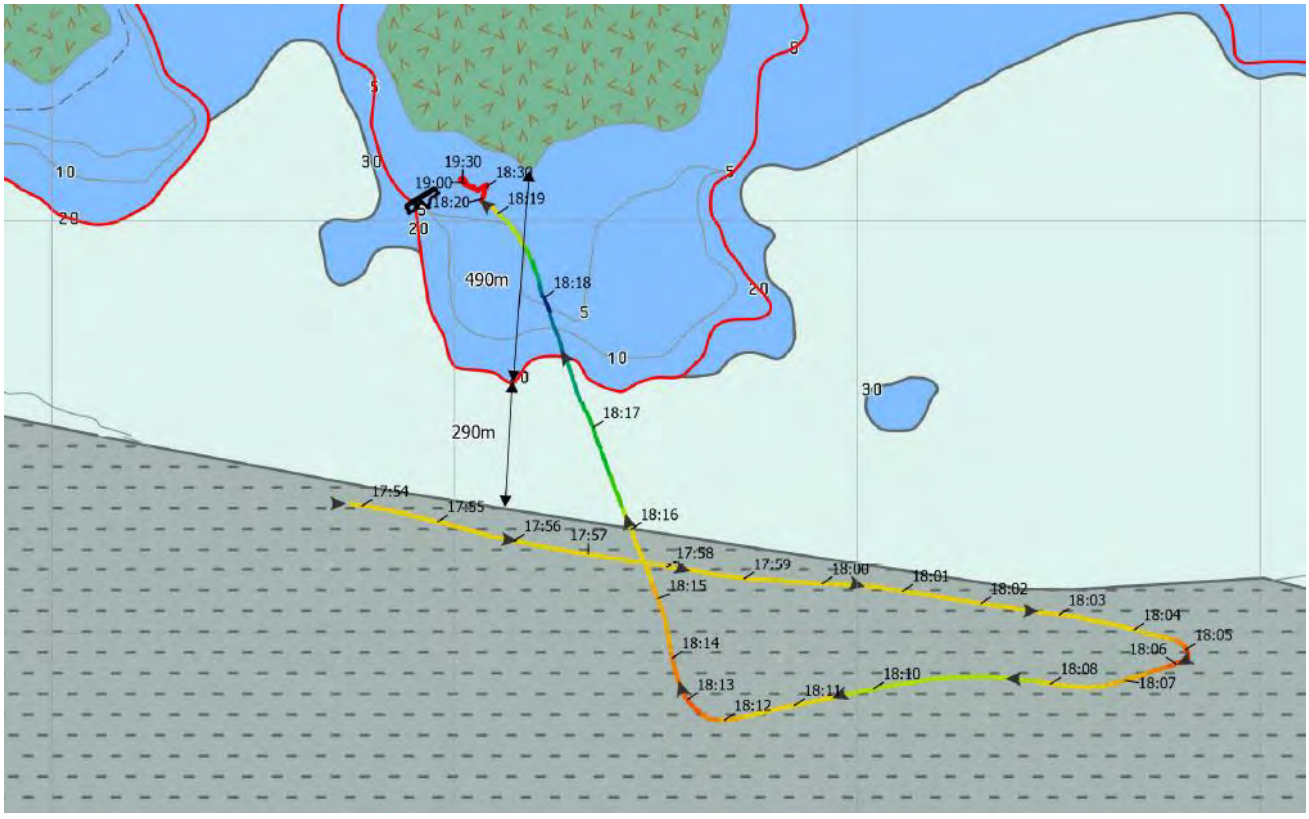

Figure 1: Reconstruction of the track the Ship took in the lead up to the grounding (produced on the basis of Exhibit KX.)

19. These control orders did not result in the Ship stopping, rather the Ship started to accelerate, maintaining an approximate heading of 340° towards the reef. The Ship grounded for the first time at or about 18:17:59 at a speed of around 10.7 kts. The Ship

proceeded to travel an additional 365 metres before becoming stranded, grounding multiple times along the way.

20. Full control of the Ship's propulsion system was not regained until approximately 10 minutes later at 18:27:40 when the Ship's autopilot was disengaged. Attempts were then made to manoeuvre the Ship off the reef. These efforts were not successful.

Cause of the grounding

21. The direct cause of the grounding has been determined as a series of human errors in that the Ship was put on a heading towards land and the autopilot mode was not disengaged to enable the Ship to turn in an easterly direction. Remaining in autopilot resulted in the Ship maintaining a course of 340° toward land, until grounding and eventually stranding.

22. The correct initial actions for an azimuth thruster failure were not initiated upon realising that the Ship was not responding to the planned starboard turn, the first action being to take the Ship in hand, which means to take the Ship out of autopilot mode.

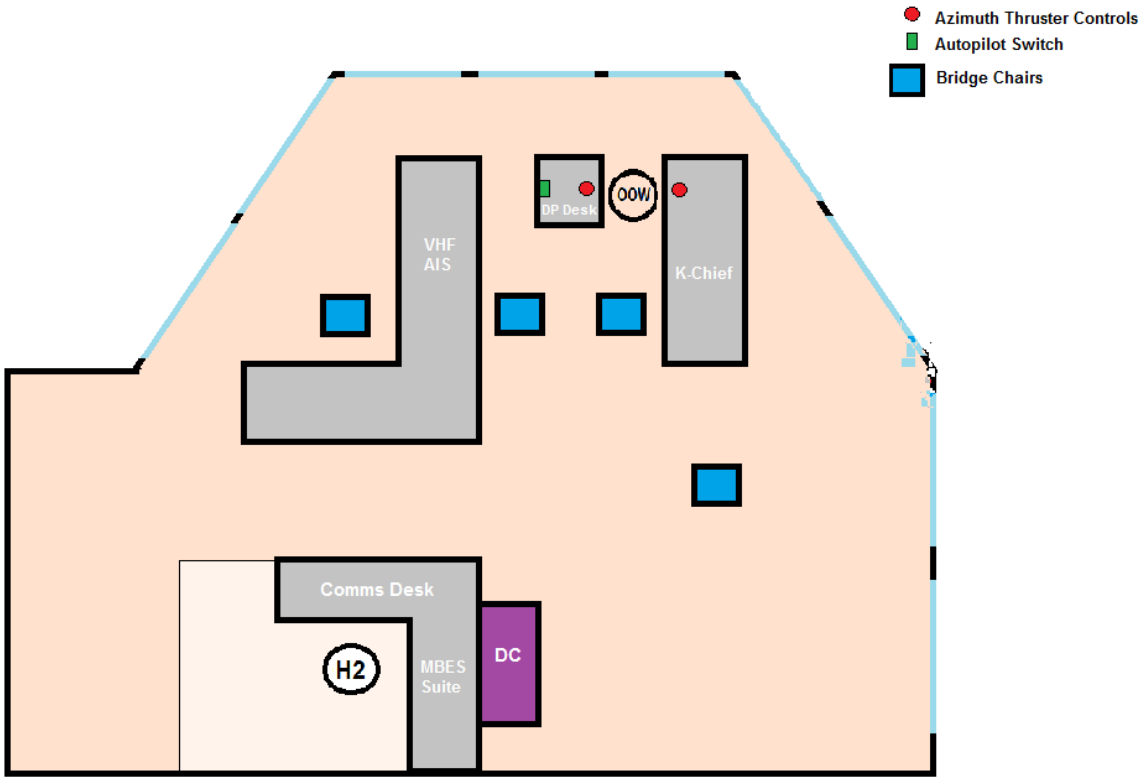

Figure 2: Diagrammatic layout of HMNZS MANAWANUI's Bridge based on exhibit J

Contributing factors

23. In addition to the direct causes of the grounding a number of contributing factors, which made the incident more likely to occur were identified. These are set out in brief below and are discussed in more detail later in this incident overview:

    a. training and experience;

    b. military hydrographic planning;

    c. OIP;

    d. ORM;

    e. force generation;

    f. operational release;

    g. supervision;

    h. violations;

    i. haste;

    j. leadership;

    k. distraction/interruption; and

    l. hollowness.

24. The following aggravating factors made the incident worse:

    a. incorrect procedures; and

    b. inadequate preparedness.

Actions following the grounding

25. Four concurrent lines of effort were pursued following the grounding:

    a. blanket searches were commenced immediately after the grounding;

    b. the Ship was brought to emergency stations;

    c. the anchors were dropped at approximately 18:22; and

d. when the control of the propulsion system was re-established, attempts were made to manoeuvre the Ship off the reef.

26. While no damage or flooding was detected inside the Ship during multiple blanket searches, the command team assessed that the Ship had suffered damage to the tanks and void spaces that lined the Ship's hull during the grounding (an assessment later confirmed by the Court following a subsequent inspection of the wreck). The design (largely double skin construction) of the Ship, with no sounding tubes to check tank states and heavy/violent ship movement meant the crew could not accurately assess the extent of the damage.

27. Stability assessments based on suspected damage and the fact the Ship had lost propulsion were key in the decision to abandon ship despite damage not being obvious inside the Ship. Damage control efforts ceased once the decision to abandon ship had been made and the focus shifted to abandoning the Ship.

Abandonment of the Ship

28. Broad guidance was available to the Ship's crew to abandon ship however, there was no clear RNZN abandon ship policy available that was specific to the Ship. Despite the lack of guidance, the Ship's crew used their knowledge and initiative to prepare and support all personnel on board the Ship to safely evacuate into liferafts and RHIBs.

29. [redacted]

30. Later assessments of the Ship's state as part of the Court's inquiry found that the angle of list had reached the designed safe abandonment point meaning that the decision to abandon ship at that time was the right decision that enabled all those on board to abandon safely. The decision to keep the Ship's generators running after abandonment also contributed to the successful abandonment process and in all likelihood prevented serious injury or worse from occurring.

31. Most of the lifesaving equipment operated and performed as it was designed to do, however some of the equipment was found to be 'one-size' which restricted movement and dexterity for those smaller in size and was found to be a hindrance.

32. Much of the confusion and dissatisfaction in regard to the lifesaving equipment was due to a lack of familiarisation and training with the lifesaving equipment that was unique to HMNZS MANAWANUI.

33. Bringing together and towing the liferafts was made more difficult due to the lack of obvious towing points on the liferafts. There had been no training undertaken by Ship's crew to tow liferafts which added to the overall frustration and stress of the situation.

Loss of the Ship

34. At some point after abandonment the Ship suffered a series of catastrophic fires prior to capsizing and sinking. The fire was likely caused by electrical circuits being damaged in the grounding which then ignited a fuel source.

35. The loss of the Ship was as a result of hull damage sustained over the period the Ship was in contact with the reef that resulted in downflooding[5] leading to the Ship capsizing and eventually sinking.

36. A visual inspection of the wreck was conducted by an ROV and divers in the weeks after sinking. This confirmed that the Ship suffered extensive damage to the hull plating. There are several areas of deformation including a number of holes and tears in the hull. The port azimuth thruster is detached and all propeller blades are extensively damaged.

ORGANISATIONAL ASPECTS RELEVANT TO THE LOSS

Background information

37. The Ship departed New Zealand on Saturday 28 September 2024 and was planned to undertake a number of tasks north of New Zealand and in the South Pacific. An azimuth thruster defect prior to sailing meant the Ship's normal preparation time was reduced and the Ship sailed a day later than scheduled. After sailing, the Ship's programme was amended to include the survey task south of Upolu in support of CHOGM. The extra task had been planned prior to the Ship sailing but had not been confirmed until after sailing from New Zealand.

38. The Ship sailed with a crew of 45. At the time of the incident, the Ship was also carrying 15 personnel undertaking on-the-job training, seven personnel from other government agencies, four personnel from Pacific Island partner militaries and four embarked forces including a three-person survey team. The Ship had reported 20 personnel deficiencies which is considered to be a high number against a crew of 45.

Training and experience

39. At the time of the incident, the Ship was undertaking a survey task of an unchartered stretch of water close to the reef. The planning and conduct of the survey task was found to be inadequate with the person tasked to be the SHS, not appropriately qualified as a survey planner and without sufficient navigation qualifications and experience to provide advice to the bridge staff. There were also insufficient numbers of qualified survey personnel to conduct the planned prolonged survey task.

[5] Downflooding is the angle at which water can enter a vessel through openings that cannot be closed weathertight impacting stability, such as vents.

40. The key Ship's personnel involved in the incident on the bridge were found to have deficiencies in ship qualifications and platform endorsements[6] [redacted]. An authoritative document detailing the minimum qualifications and experience requirements for the Ship had not been completed since the Ship's initial operational release.

41. The individual deficiencies in the [redacted] platform related training, and the SHS qualifications and experience in planning and conducting survey operations of the nature being conducted by the Ship collectively combined to contribute to the Ship grounding.

Operational tempo and fatigue

42. The operational tempo on the deployment was effectively managed so as not to create any residual pressure or fatigue on the crew however, the lower operational tempo was able to be achieved by not completing relevant activities including SATs.

43. Fatigue was not an operative factor in the grounding of the Ship, however there were members of the Ship's crew especially the engineering branch who were exhausted by the high tempo to get the Ship to sea after the thruster defect rectification.

Operational risk management

44. The ORM steps taken on board the Ship were inadequate and risks related to the survey task were not sufficiently identified, discussed and mitigated. The risk management culture was found to be deficient and weighted heavily on achieving the mission without the necessary balance to ensure the mission was completed safely. This culture can also be seen in some areas of the wider organisation including force generation and readiness.

45. Risk management training within the Navy is inadequate and risk is not well understood. Some parts of the risk procedure are confusing and risks are being taken without fully understanding the impacts and/or consequences and who is responsible for taking specific action.

Navigation

46. The Ship's ECPINS and SIS computers could not be provided as evidence but there was no evidence that the ECPINS was defective or the chart catalogue insufficient. There was no evidence of incorrect chart data or missing navigation warnings.

[6] In reviewing Exhibit AR, Annex 3B, the Court considers that a platform certification issued to an officer building on that officer's prior training and experience and acknowledging that officer's competence and understanding of the particular ship's systems, SOPs and handling characteristics.

47. However, the Ship was not being navigated in accordance with all relevant RNZN OIP. In particular, there was no navigation plan for the survey task loaded into the Ship's ECPINS.

Military hydrographic planning

48. While there was some policy and guidance around the conduct of the task that the Ship was undertaking at the time of the grounding, there were no procedures for the SHS to follow in the planning and conduct of the activity. There are systems and processes in the maritime community that could have improved situational awareness related to surveying and helped prevent the loss of the Ship, which can be reviewed and considered in more depth by the RNZN. While complete procedures would have provided better guidance to the SHS to assist with planning the survey, they may not have made an appreciable difference since the SHS was neither qualified nor experienced for the role being undertaken.

Materiel state

49. The materiel state of the Ship did not contribute to the grounding or subsequent loss of the Ship nor did it impinge on the abandonment activity. At the time of the grounding, there is no evidence that the Ship had a loss of power or a steering/control failure.

Seaworthiness and operational release

50. The SwB had approved a number of tasks through a phased release process since the Ship had been introduced in to service, however the Court found no evidence that surveying had been operationally released or had been approved by the SwB. In the absence of evidence, the Ship was found to be conducting an activity without having completed the required seaworthiness review process.

Orders, instructions and procedures

51. Significant deficiencies existed in a wide range of OIP related to the incident, and in places were inadequate or poorly managed. The deficiencies are not isolated to one area. The Court found in relation to OIP that there were areas of no instructions or procedures which left a void to be managed, areas where different resources contradicted one another leading to a lack of clarity, and areas where OIP were violated.

OTHER RELEVANT MATTERS

Contributory factors

52. The following contributory factors are covered in the section above:

    a. training and experience;

b. military hydrographic planning;

c. OIP;

d. ORM; and

e. operational release.

53. The following are also contributory factors:

a. Force generation: Three key elements within the force generation operational continuum were not completed and the ship had not completed a work-up since being introduced in to service. The Court found that the lack of force generation resulted in the ship not having the appropriate readiness for the survey task that it was undertaking at the time of the incident.

b. Violations: A number of violations from extant OIP were noted, including not complying with the NZ Manual of Navigation, not completing the platform endorsement process, failing to follow the operational risk management process, failing to maintain SOPs up to date or ensuring SOPs existed for surveying, and failing to ensure the ship was undertaking a task that had been operationally released through the capability release process.

c. Haste: Time pressure influenced the way the survey task was conducted and considered that the time pressure could have been avoided if the task had been properly planned.

d. Leadership: The force generation and readiness, survey planning and risk assessment for the survey task as well as advice to MCC was found to be inadequate and reflects negatively on the leadership of those who had responsibilities for these tasks.

e. Distraction/interruption: During the survey task, Witness 2 says he was distracted by a question from Witness 4. The Court considers that this should not have distracted Witness 2, but that Witness 4 could have chosen a more opportune time to have this discussion given the proximity of the Ship to danger.

f. Supervision: The role of the supervisor was not clearly defined however it was commonly known to involve safety oversight of the survey task. While the supervisor had inadequate situational awareness and understanding of how the ship operated to effectively supervise the OOW. The supervisor had not completed all of the azimuth thruster training courses and had not been platform endorsed for the ship.

g. Hollowness: Hollowness was raised by a number of witnesses in relation to personnel gaps throughout the organisation. This was found to be an

organisational risk that influenced or impacted a number of contributory factors relevant to the loss.

Courage in the face of adversity

54. The damage control, abandonment and rescue phases of the incident saw many personnel on board the Ship show courage, bravery and leadership. The Court heard of a number of individuals who lead and stepped up for their ship and shipmates, putting others before self. While the Court heard many accounts of areas where there were deficiencies, there were also many areas where leadership, professionalism and teamwork were present and the ship's company of HMNZS MANAWANUI should be proud of their efforts to ensure everyone got to shore safely.

55. The Court was also presented with evidence that related to the many rescuers who went to the aid of the crew of HMNZS MANAWANUI in dark and treacherous conditions, at risk to themselves. Their leadership and courage should not be forgotten.

56. Finally, the support provided by the Samoan Government, NZ High Commission, Australian High Commission, their staffs, other NZDF personnel and other government agencies who supported the NZDF was very much appreciated.

General overview of SAR operation locations

Figure 3: General Overview of Search and Rescue operation locations from Exhibit LH, Annex A

TERMS OF REFERENCE

SEQUENCE OF EVENTS LEADING UP TO THE LOSS OF THE SHIP

TOR 1: What was the chain of events and circumstances in the immediate lead up to the grounding and loss of the Ship?

57. At or around 1530 on Friday 4 October 2024 the Sinalei survey brief was delivered by Witness 11 in the mission planning room.[7]

58. At or around 2200 Friday 4 October 2024 the Sinalei survey task began.[8]

59. On Saturday 5 October 2024, the Ship was south of Upolu, Samoa, conducting a survey task in the vicinity of Sinalei Reef.

60. During the forenoon of Saturday 5 October 2024, and as part of the daily sea routine, the Ship had planned to conduct SOCs between 1030 - 1130, and ECCDs 1100 - 1200;[9] however, ECCDs were not conducted. The Court heard evidence that these did not occur due to the proximity of the Ship to the reef.[10] However, SOCs were completed as planned on Friday 4 October 2024[11] with no machinery or bridge equipment defects reported to impact the performance of Ship systems.[12]

61. In the immediate lead up to the grounding, the following events occurred, which, unless otherwise stated, are based on records from the bridge VDR:[13]

    a. **1746** The Ship was in autopilot, altering to 050°, with generators 3 and 4 on load and 2 in standby. Ship was in speed mode and Witness 2 affirms that he has the Ship.

    b. **1748** Conversation between Witness 2 and Witness 4 about going "top to bottom." The Court understands this conversation to be about filling in gaps (holidays) in the survey area.[14]

    c. **17:49:48** Witness 2 advises he is going to start coming "slow right" and Witness 4 acknowledges.

    d. **17:54:03** states "start logging" (an order to commence recording the sonar data from the survey system).

[7] Exhibit AP, Witness 1, Interview 1, P9.
[8] Witness 1, Interview 1, P20.
[9] Exhibit AO.
[10] Witness 10, P12; Witness 1, Interview 3, P3.
[11] Witness 1, Interview 3, P3.
[12] Witness 1, Interview 3, P3.
[13] Exhibit KX.
[14] Witness 4, Interview 1, P23; Witness 2, Interview 1, P9 and P10.

e. At or around **1800** Witness 2 asked Witness 4 for advice on if he can go "all the way and turn," to which Witness 4 advises Witness 2 he can go all the way and turn.

f. At **1804** Witness 2 states "stop logging." (An order to cease recording the sonar data from the survey system. It is customary to not log data while undertaking a turn).

g. **18:04:10** Ship commences turn to starboard in hand.[15]

h. **18:04:24** Voice heard confirming starboard quarter is clear.

i. **18:06:20** Ship assessed to be in autopilot based on observation that the port azimuth thruster is 'fore and aft' with the starboard azimuth thruster manoeuvring to maintain course.[16]

j. **18:06:30** Witness 4 is heard to state "I think you will find it easier if you come further right and just drive it [redacted]."

k. **18:07:40** Witness 2 states "start logging."

l. At **18:08:04** Witness 2 states "check port quarter", an established procedural requirement to ensure the quarters are clear and safe prior to commencing a turn. A voice is heard confirming "clear."

m. At or around **18:08:12** Witness 2 discusses his intentions after the next turn, to then turn again and head in an easterly direction.

n. **18:08:22** Witness 11 arrives on the bridge and asks, "who piped me?" Ship maintains a westerly mean line of advance between 255° and 280° and assessed to be in autopilot.

o. **18:11:04** Witness 2 states "check starboard quarter." A voice is heard confirming "starboard quarter clear."

p. **18:11:13** The Ship altered course to 340°, but no verbalisation of this is heard on the VDR.[17] Ship is now assessed to be in hand due to Court's observations of the VDR at 18:11:25[18] whereby the demand is placed on both azimuth thrusters with both thrusters responding.

[15] Based on VDR and Witness 3's description of how the Ship operates when in hand compared to autopilot. When in autopilot, the Starboard Azimuth is the dominant thruster and controls the manoeuvring however, in this instance, both azimuth thrusters are seen manoeuvring. Witness 3, Interview 3, P24-27; Exhibit KX
[16] Witness 3, Interview 3, P24-27.
[17] Witness 2, Interview 1, P13 onwards; Exhibit K P7; Exhibit U; Exhibit BQ; Exhibit CY.
[18] Exhibit KX.

q. At or around **18:13:08** Ship assessed to have been placed in autopilot mode based on Court's observation that the port azimuth thruster is 'fore and aft' with the starboard azimuth thruster manoeuvring to maintain course.[19]

r. **18:13:36** Discussion between Witness 2 and Witness 4 about machinery breakdown drills, the requirement for getting anchors ready for letting go and use of nautical emergency.

s. At or around **1814** Darken ship commenced.[20]

t. **18:14:47** Demand placed on both thrusters can be seen with intent to result in alteration to starboard, however the thrusters do not follow and instead maintain the 340° heading. On this basis the Court assesses the Ship to still be in autopilot at this time.

u. **18:15:05** Witness 2 directs "stop logging."

v. **18:15:20** ECDIS alarm starts sounding. No comment on the alarm is noted in the audio recording. No further instances of the alarm sounding on the VDR will be noted in this narrative.

w. **18:15:29** Increased demand on thruster angle and increase of power (from 40% to at/around 50%) applied to both azimuth thruster 4 and 5.

x. **18:15:53** Increased angle on thruster 4 and 5 to 90^0 and increase of power (from 50% to at/around 75%) applied.

y. **18:15:57** Witness 2 advises Witness 4 "no steering to starboard."

z. **18:16:18** Witness 2 advises Witness 4 "it's not really doing what I want it to do."

aa. **18:16:17** Witness 4 states "thruster on" to which Witness 2 seeks clarification by asking "bow thruster? And Witness 4 confirms "yes."

bb. **18:16:33** Witness 2 again states "it's not really doing what I want it to do."

cc. **18:16:26** Witness 4 states "let's do it the other way" and makes an assessment "use the environmentals."

dd. At and around **18:16:34** dialogue between Witness 2 and Witness 4 as follows:

    i. Witness 2 "start thrusting astern?"

[19] Exhibit KX.
[20] Witness 16, P2.

ii. Witness 4 “yeah, let’s do it now.”

iii. Witness 4 “come on.”

iv. Witness 2 “yeah, it’s on full speed astern.”

v. Witness 4 “are you turning as well?”

vi. Witness 2 “no, I’m trying to save the Ship.”

ee. **18:16:43** Azimuth thruster 4 and 5 ordered astern and power increased to 80%. Clear discrepancy between ordered angle and actual angle.

ff. **18:16:55** Witness 4 pipes “CO requested on the bridge.”

gg. **18:16:58** Witness 2 states “it’s on full astern and it’s not stopping.”

hh. **18:17:00** 100% power applied to azimuth thruster 4 and 5, however both thrusters still thrusting ahead and Ship maintaining 340^0 heading.

ii. **18:17:03** Witness 2 states “emergency shutdown, emergency shutdown.”

jj. **18:17:12** Witness 4 pipes “cable party close up on Bridge.”

kk. **18:17:17** Witness 2 states “anchors close up, anchors close up, the Ship is not stopping.”

ll. **18:17:18** Witness 4 pipes “nautical emergency, nautical emergency, nautical emergency.”

mm. **18:17:20** Witness 1 (CO) arrives on the bridge and Witness 2 reports that he has full astern on and the Ship is not stopping.

nn. **18:17:21** Witness 16 [redacted] asks “how many shackles on deck?”

oo. **18:17:24** Witness 4 pipes “let go three cables.”

pp. **18:17:32** Witness 1 asks “have we got any steerage way?” Witness 2 replies “…haven’t got any steerage way, came full astern on both engines.”

qq. **18:17:36** Witness 1 states “get [redacted] up here.”

rr. **18:17:41** Witness 4 pipes “[redacted], bridge.”

ss. **18:17:45** Witness 2 talks about shutting the engines down and asks if they could call the engine room to shut them down.

tt. **18:17:53** Witness 1 asks “what speed have we got?” Witness 2 replies “10 kts increasing and I’ve got fucking full astern here and nothing is happening.”

uu. **18:17:59** Witness 1 states “turn instead of going astern.” Grinding and shaking noises heard on VDR.

vv. **18:18:10** Witness 4 pipes “stand to, stand to, conduct blanket search.”

ww. **18:18:17** Witness 1 calls for calm.

xx. **18:18:23** Witness 2 advises Witness 1 that he has shut the engines down. Observation of VDR shows the response on both azimuth thrusters reduces to zero, followed by the demand reducing to zero.

yy. **18:18:24** Witness 1 states “so now we’ve got nothing.”

zz. **18:18:35** Witness 1 states “so now we’ve got nothing, have we got anything, have we got bow thrusters?”; Witness 2 replies “we have bow thrusters Ma’am”; Witness 1 responds “see if we can thrust to port.”

aaa. **18:18:37** Witness 4 pipes “hands to emergency stations, hands to emergency stations, hands to emergency stations. Hands close up in aft DC. Conduct blanket search.”

bbb. **18:18:45** Witness 1 orders “pipe machinery breakdown.”

ccc. **18:18:49** Witness 4 pipes “machinery breakdown, machinery breakdown, machinery breakdown. Engineers close up.”

ddd. **18:18:55** Witness 1 heard “I don’t want to come too far round or we will get caught on the stern.”

eee. **18:19:10** Witness 1 says “I want you to look at the system, because you understand the system, see if we can get propulsion back up.”

fff. **18:19:27** Pipe heard “HQ1 closed up. Make all reports to HQ1.”

ggg. **18:19:33** Witness 1 states “I’ve got no sternway.”

hhh. **18:19:40** Witness 1 states “see if we can thrust to port also.”

iii. **18:19:53** Voice heard “thrust to port, nothing from 4 and 5”. Witness 1 responds “no response from thrusters.”

jjj. **18:19:55** Voice heard “…control of 1 and 2. Nothing from 4 and 5.”

kkk. **18:19:58** Voice heard “backup selected on both. No response.”

lll. **18:20:02** Witness 1 “confirm thrusting to port using 1 and 2”; reply heard stating “thrusting to port using 1 and 2 Ma’am.”; Witness 1 replies “OK.”

mmm. **18:20:07** Pipe heard “SSEP Aft DC.”

nnn. **18:20:08** Witness 1 states “somebody call out what’s happening astern.” Response heard from Witness 3 “Ma’am I’m looking astern and can’t see anything.”

ooo. **18:20:19** Witness 3 states “Ma’am I’m seeing nothing astern that would indicate that we couldn’t thrust.”

ppp. **18:20:25** Witness 1 states “somebody get the recorder on and start recording.”

qqq. **18:20:36** Witness 1 “I need a report from the cable party XO.”

rrr. **18:20:49** Voice “no response from 4 or 5.”

sss. **18:20:56** Pipe heard “aft steering close up.”

ttt. **18:21:03** Witness 1 asks “where are we with regards to emergency stations?”

uuu. **18:21:01** Pipe heard “DC priority conduct blanket search.”

vvv. **18:21:16** Pipe heard “all of Ship’s Company to get above the waterline aft.”

www. **18:22:00** Witness 1 states “I can see the stern swinging back around to port.”

xxx. **18:22:06** Voice heard saying “captain, Ma’am, intention is to drop both anchors.”

yyy. **18:22:20** Report heard “MCR closed up.”

zzz. **18:22:39** Aft steering closed up, thruster room clear. Nil damage.

aaaa. **18:22:51** Witness 3 states “Captain Ma’am, we have sand coming from astern.”

bbbb. **18:23:17** Voice heard “if you aren’t doing anything, secure the bridge.”

cccc. **18:23:40** Witness 1 heard “what are the thrusters doing at the moment? The problem is we keep getting set down on the reef….”

dddd. **18:24:48** Pipe heard “standby to launch port sea boat.”

eeee. **18:25:00** Witness 1 states “so from a command perspective I want to look and see if I can get a sea boat in the water so that if we have to abandon ship then I’ve already got something in the water.”

ffff. **18:26:05** Voice heard reporting “aft steering closing up now. We’ve got [redacted] closing up.”

gggg. **18:25:10** Pipe heard “line handlers close up. Standby to launch port sea boat.”

hhhh. **18:25:39** Scene Leader confirms blanket searches complete.

iiii. **18:26:05** Pipe heard “ship is at emergency stations.”

jjjj. **18:26:55** Report that port sea boat is ready heard.

kkkk. **18:27:05** Communications with sea boat directing that they are to be ready to recover people if they need to evacuate.

llll. **18:27:34** Discussion about “do you want to take it out of auto now?”

mmmm. **18:27:38** Voice heard “ready in the boat, ready on deck.”

nnnn. **18:27:43** Conversation heard regarding propulsion control re-established and [redacted] “it was in auto and I didn’t realise Ma’am ……cross off now.”

oooo. **18:28:00** Conversation about control of thrusters. Witness 1 states “I think we can get thrust now, standby.” Observation of VDR shows demand and response regained on port and starboard azimuth thrusters.

pppp. **18:28:30** Witness 1 asks “do you think we are getting any movement?”

qqqq. **18:29:10** Pipe heard ordering “all Ship’s Company to evacuate Yellow Deck.”

rrrr. **18:30:05** Witness 1 states “…we have managed to get steering back, what I’m trying to do is get us off the reef……”

ssss. **18:31:41** Pipe heard “SMET has relocated to the Sickbay.”

tttt. **18:32:06** Pipe heard “Aft DC has relocated to the ROV Hangar” and communications between scene leader and HQ1 confirming intent for which DC equipment to move. Background noise of grinding and ship lurching.

uuuu. **18:32:47** Voice heard saying “my sterns come further round to starboard.” Witness 1 says “….let’s do a shimmy.”

vvvv. **18:33:08** Witness 3 heard stating “confirm state of anchors.”

wwww. **18:33:35** Internal radio discussion saying “connect up the capstan and veer to 6.”[21]

xxxx. **18:34:34** Discussion about intent for attempted manoeuvring Witness 1 states “keep shimmying.”

yyyy. **18:34:55** Witness 1 has discussion regarding state of tide and confirming “we are moving to high water.”

zzzz. **18:35:05** Voice heard stating “the anchors aren’t paying out.”

aaaaa. **18:35:10** Witness 1 heard stating “I’ve made a decision I’m not going to call command yet. I’m going to wait ten minutes until we have stabilised.”

bbbbb. **18:35:55** Witness 1 asks if someone can “find out from the fo’c’sle is the anchor cable paying out?”

ccccc. **18:36:15** Witness 1 heard responding to Witness 9’s question regarding a Command Huddle - “I don’t intend to call a command huddle just yet…”

ddddd. **18:36:35** Voice Heard “I briefly lost power on 4 but it’s come back.”

eeeee. **18:36:47** Witness 1 heard asking “so now we are going to bring our stern back round to starboard, are we?” Response heard saying “yep.”

fffff. **18:36:55** Witness 1 states “bow thrust to port because we need to turn I don’t want to come side on to the weather.”

ggggg. **18:37:05** Voice heard “both thrusters trained 100 port.”

hhhhh. **18:37:24** Pipe heard “DC SITREP. All blanket searches proven clear. DC priority remains conduct blanket searches.”

iiiii. **18:37:34** Witness 1 asks “are we getting anything yet?”

jjjjj. **18:37:36** Voice heard “no rate of turn continuing to starboard.”

kkkkk. **18:37:50** Witness 1 states “we are not stabilised yet.”

lllll. **18:37:50** Witness 1 assesses that “I think what’s happening with the thrusters is that because of the loss of oil they aren’t being as effective.”

mmmmm. **18:38:20** Witness 1 states “ can you get me my work phone that’s on my desk”. replies “aye Ma’am.”

[21] “Veer to 6” is a seamanship command commonly understood in the maritime community that results in 6 shackles of anchor cable being let out from the cable locker. A shackle is 27.5 metres of anchor cable/chain.

nnnnn. **18:38:32** Witness 1 says “can we also now start thinking about getting the PAN PAN out.”

ooooo. **18:39:00** Radio communications heard at HQ1 confirming priority is to continue blanket searches and relocate DC equipment from aft DC to the ROV hangar.

ppppp. **18:40:57** Report from Witness 3 stating they “assess the starboard thruster is not thrusting and the port thruster is still thrusting.” Background noise of grinding and ship lurching.

qqqqq. **18:42:29** Witness 1 heard to ask if there are any other ships in the area that could provide a tow.

rrrrr. **18:42:40** Witness 1 heard to ask of [redacted] location.

sssss. **18:43:20** Witness 1 instructs MAYDAY call to go out on VHF Channel 16.

ttttt. **18:43:29** Indistinct report from Witness 4 and plans for making MAYDAY call. Voice heard saying “for the log MAYDAY at 1843.”

uuuuu. **18:44:00** Witness 1 heard making a report stating that they are holding, they are preparing to abandon ship and “I am also pushing out a MAYDAY on Channel 16.”

vvvvv. **18:44:26** MAYDAY call heard being made by Witness 3.

wwwww. **18:44:47** Witness 1 orders “I want all upper deck lights on.”

xxxxx. **18:45:03** Communications between section base and HQ1 seeking priority for blanket searches. Background noise of grinding and ship lurching.

yyyyy. **18:45:41** Communications heard stating that “…78 persons on board and nil casualties.”

zzzzz. **18:45:45** Witness 1 heard stating “get the starboard sea boat away and let’s just drop the port sea boat.”

aaaaaa. **18:45:50** Voice asks “state of the plant” response heard “…control of the thrusters but stuck on the thing.”

bbbbbb. **18:46:00** MAYDAY call heard being made.

cccccc. **18:46:45** Witness 1 pipes “prepare to abandon ship, prepare to abandon ship.”

dddddd. **18:47:15** Voice heard saying “hands to liferaft stations.” Witness 1 heard saying “get the check off cards” and voice responds “I’ve got the check off cards, your bag is ready to go Ma’am.”

eeeeee. **18:47:24** Witness 1 heard making amplifying pipe advising “personnel are to get bottles of water, go to the toilet if they can and they are to get layers of clothing if able.”

ffffff. **18:47:43** Witness 3 makes radio call stating they are preparing to abandon ship.

gggggg. **18:48:40** Pipe heard “hands to liferaft stations, hands to liferaft stations.”

hhhhhh. **18:48:55** Witness 1 pipes “…this is the Captain. This isn’t a great situation, however I have faith that you all know what you need to do. We’ll get to our liferaft stations, we’ll get in our liferafts and we‘ll survive this and then we’ll wait for help to arrive. Make sure that you can do what you can to prepare yourself for getting in that liferaft if that means getting extra clothes then do that. All personnel are to try to get to the loo before they get in the liferaft.”

iiiiii. **18:49:45** Discussion about order of leaving.

jjjjjj. **18:50:00** Witness 1 states “we are heeling to port and to starboard now, we are beam on to the sea.”

kkkkkk. **18:50:10** Witness 1 states “let’s expedite leaving the Ship, let’s expedite leaving the Ship.”

llllll.

mmmmmm. **18:50:45** Witness 3 heard on radio communications with unknown call sign reporting they preparing to abandon Ship.

nnnnnn. **18:51:43** Witness 3 confirms he is on bridge with Witness 5 only. Witness 5 conversation with Witness 3 about stopping thrust and Witness 3 replies “no hold it as long as you can.”

oooooo. **18:52:50** Witness 3 heard making radio call to unknown call sign reporting they are on the reef and informing them that safe water is to the south of the Ship’s position**.**

pppppp. **18:53:35** Witness 3 makes the decision to evacuate/abandon the MCR and people are to go to their liferaft stations.

qqqqqq. **18:54:06** Witness 3 checks if personnel on the fo’c’sle.

rrrrrr. **18:54:12** Witness 1 shouts “is anyone still up here….come on lets go.”

ssssss. **18:54:17** Witness 5 confirms stopping thrust.

tttttt. **18:54:20** Witness 1 orders make the pipe "away lifeboats, launch the lifeboats."

uuuuuu. **18:54:25** Pipe heard "away lifeboats, away lifeboats."

vvvvvv. **18:55:00** No more voices heard from Ship's Company personnel on the VDR beyond this point.

SHIP ACTIVITY AT THE TIME OF THE GROUNDING

TOR 2: What task was the vessel conducting at the time of the grounding?

62. At the time of the grounding, the Ship was acting in accordance with orders from HQ JFNZ which directed it to conduct a "hydrographic survey of the area IVO Sinalei whilst *en route* to Samoa using embarked elements from MAT."[22] This task was at the request of CHOGM command which requested the Ship conduct a survey of the area in support of the upcoming CHOGM.[23] The task saw the Ship utilise its MBES capability to survey a defined area of uncharted waters[24] in accordance with existing guidance.[25]

TOR 3: Who was on watch prior to and at the time of the grounding, and what was their involvement in the incident?

63. In accordance with daily orders[26] the Ship was at sea in a daily sea routine[27] in a cruising watch state[28] conducting OP CALYPSO 03/24, and between 0001-2359, was detailed to be conducting the Sinalei survey task.

64. The following personnel were on watch in the lead up to the grounding:

    a. [redacted] (Witness 4) – Witness 4 was on the bridge in a supervisory function. This was due to the nature of the survey task being conducted[29] and was in accordance with existing orders[30] and at the direction of Witness 1 (CO).[31] Witness 4 joined the Ship in June 2023.[32] Witness 4 was not platform

[22] Exhibit C, para 5.a.(1) and para 6.b.(1).
[23] Witness 64, P3.
[24] Exhibit Y.
[25] Exhibit I.
[26] Exhibit AO.
[27] Peacetime work routine when ships are at sea.
[28] Determined state of materiel and personnel for peacetime operations at sea allowing for maximum rest.
[29] Witness 1, Interview 1, P37; Witness 2, Interview 1, P22; Witness 4, Interview 4, P4; Witness 3, Interview 1, P15.
[30] Witness 1 Interview 1, P16; Exhibit I.
[31] Witness 1 Interview 1, P31.
[32] Witness 4, Interview 1, P2.

endorsed for the Ship.[33] The Court observes that Witness 4 was under the same requirement as Witness 1 to be command platform endorsed.[34]

b. [redacted] (Witness 2) – Witness 2 was on the bridge and had charge of the Ship[35] at the time of the grounding.[36] Witness 2 joined the Ship in May 2024.[37] Witness 2 was platform endorsed for the Ship.[38] [redacted].[39]

c. [redacted] (Witness 16) – Witness 16 was on the bridge as a lookout and had responsibility for making pipes and assisting as a spare hand.[40] When Witness 1 was piped to the bridge, Witness 16 went down to the fo'c'sle and assisted with trying to drop the anchors.[41] Witness 16 joined the Navy in September 2020 as a seamanship combat specialist. He had been on the Ship for coming up two and a half years.[42]

d. [redacted] (Witness 59) – Witness 59 was on the bridge operating the survey system and reporting depths to the OOW.[43] The Court considered that this role assisted with aspects of navigation but did not have overall responsibility for the safe navigation of the Ship. Witness 59 joined the Navy in January 2023.

e. [redacted] (Witness 18) – Witness 18 was the on-call senior engineering rating and closed up in the MCR immediately prior to the grounding.[44] Witness 18 joined the Navy in 2015 and joined the Ship in August 2023.

f. **DTJR.** (Witness 15) – Witness 15 was the on-call junior engineering rating and also closed up in the MCR immediately prior to the grounding.[45] Witness 15 joined the Navy in August 2018 and joined the Ship in 2022.

65. The following personnel were not on watch, but were either already on the bridge in the lead up to the grounding, or were called to the bridge immediately prior to the grounding:

a. **CO** (Witness 1) - assumed command of the Ship in December 2022 and had conducted surveys with the Ship prior to the grounding.[46] Before the grounding she was in her cabin, reviewing night orders with Witness 3 [redacted],

[33] Witness 4, Interview 1, P22.
[34] Exhibit AR, para 3.04.i.
[35] Exhibit A, 4.06, Exhibit B, chapter 2.
[36] Witness 1, Interview 1, P40; Witness 2, Interview 1, P6; Witness 4, Interview 1, P3.
[37] Witness 2, Interview 1, P2.
[38] Witness 1, Interview 1, P41; Witness 2, Interview 1, P3.
[39] Witness 1, Interview 1, P41.
[40] Witness 16, P10.
[41] Witness 16, P2 and P3.
[42] Witness 16, P1.
[43] Exhibit AQ.
[44] Witness 18, P2.
[45] Witness 15, P2.
[46] Witness 1, Interview 1, P5.

before being piped to the bridge.[47] Witness 1 was not platform endorsed for the Ship.[48] The Court notes that she should have held a command platform endorsement, the requirements for which are set out at paragraph 3.04i of MM33.45 - New Zealand Manual of Navigation.[49]

b. [redacted] (Witness 3) – Witness 3 accompanied the CO up to the bridge when she was piped and provided SME advice [redacted] and assisted with the supervision of bridge reactions to the incident.[50] Witness 3 joined the Ship [redacted] in July 2024 and had previous platform experience on the Ship as an OOW. He was platform endorsed for the Ship.[51]

c. [redacted] (Witness 9) – Witness 9, [redacted], went up to the bridge when he heard the CO piped to the bridge.[52] He attempted to understand what was going on and made contact with the MCR to confirm whether they were aware of any steering issues.[53] After the grounding Witness 9 assumed the IBC function with oversight of damage control and plant and system availability.[54] Witness 9 had posted back to the Ship in September 2024 [redacted].[55]

d. [redacted] (Witness 11) – Witness 11 was not on watch but was on the bridge in the lead up to the grounding discussing with on-watch personnel where to put cross lines to validate the survey data.[56] Witness 11 was attached to the Ship for the conduct of the survey task [redacted][57] in the role of SHS. This was the first time she had held the role of SHS. She had previous survey experience in the Ship from the survey tasking in Tonga in May 2023 [redacted].[58]

e. **NA** (Witness 43) – Witness 43 was posted to the Ship as the NA and was part of the quartermaster watchbill.[59] Witness 43 was on the bridge in the lead up to the grounding and was in discussion with Witness 11 on where to put cross lines to validate the survey data.[60] Witness 43 was in the process of becoming fully qualified as a RHIB coxswain[61] and following the decision to abandon Ship, was designated as the coxswain of one of the RHIBs.[62]

[47] Witness 1, Interview 1, P39.
[48] Witness 1, Interview 3, P23.
[49] Exhibit AR, para 3.04.i.
[50] Witness 3, Interview 1, P24.
[51] Exhibit FF.
[52] Witness 9, Interview 1, P8.
[53] Witness 9, Interview 1, P8 and P9.
[54] Witness 9, Interview 1, P31.
[55] Witness 1, Interview 4, P10; Witness 9, Interview 1, P2.
[56] Witness 11, Interview 1, P3.
[57] Witness 11, Interview 1, P2.
[58] Witness 11, Interview 1, P2.
[59] Witness 43, P1 and P2.
[60] Witness 43, P18.
[61] Witness 43, P4.
[62] Witness 43, P5.

66. In response to the pipe for the CO to go to the bridge, or subsequent pipes, the following additional personnel closed up in key positions and were involved in the immediate response to the incident:

    a. [redacted] (Witness 5) – was piped to the bridge by Witness 1, following the grounding, [redacted].[63] He did not formally take charge of the Ship from Witness 2[64] but was directed by Witness 1 to take over the azimuth thruster controls from Witness 2 and attempted to regain control of the Ship and move it off the reef.[65] He was platform endorsed for the Ship.[66]

    b. **DCO** (Witness 8) – the DCO gave evidence that they were responsible for listening to the CO's priority and then assessing the state of the damage control on the Ship. The DCO was not IMDC or OOD qualified, and had not received any assessment or endorsement to be DCO on the Ship.[67] The Court's assessment is that despite this, the DCO performed the role in an exemplary manner.

    c. [redacted] (Witness 20) – joined the Ship in 2023, initially in a leading hand role but was promoted to Petty Officer and assumed duties [redacted] in December 2023. [redacted] initially closed up on the fo'c'sle on hearing the pipe for the cable party to close up where he supervised the cable party preparing to drop the anchors. He then moved to the port boat deck after hearing the pipe to "standby to launch port sea boat."[68]

    d. **IBO.**[69] The IBO controlled the incident board, updating it with damage control information as it came in to enable a command understanding of the incident.[70]

    e. **EOOW** (Witness 18) – Witness 18 was in the MCR for cleaning stations when he heard the CO being piped to the bridge. He handed over his EOOW role to Witness 6 and commenced blanket searches.[71] Witness 18 joined the Ship in August 2023.[72]

[63] Witness 1, Interview 1, P40.
[64] The Court makes no criticism of Witness 5 in this regard.
[65] Witness 5, Interview 1, P22 and P23.
[66] Exhibit FF.
[67] Witness 8, P22 and P24.
[68] Witness 20, Interview 1, P4 and P5.
[69] Witness 17, P3.
[70] Witness 8, P4.
[71] Witness 6, P2; Witness 18, P2.
[72] Witness 18, P1.

TOR 4: What condition of watertight integrity was the Ship in at the time of the grounding?

67. The Court heard consistent evidence that the Ship was in damage control state 3 condition XRAY.[73] The damage control state was not identified in the Ship's daily orders[74] which the Court considers would have been best practice.

68. [redacted][76] The Court heard evidence that the Ship had poor discipline in relation to watertight integrity.[77] No witness was able to satisfy the Court that the HiPAP compartment was closed after the grounding.[78] The Court concluded that it was more likely than not that the hatch to this compartment was left open after the grounding. For the reasons set out at TOR 12 and 23, the Court considers that this was not an operative cause of the loss of the Ship.

69. The Court determined on the weight of the evidence that the Ship was in damage control state 3 condition XRAY.

TOR 5: Was the Ship at a degree of readiness appropriate for the task being undertaken, given the proximity to hazards and the prevailing conditions?

70. In answering this question the Court focused on the tactical readiness of the Ship to conduct the survey task at the time of the grounding. The readiness for the Ship to deploy for the task more generally is addressed at TOR 36.

71. The degree to which the Ship's readiness was appropriate for the survey task can be measured against MM33.45 - New Zealand Manual of Navigation.[79] The Court heard evidence from several witnesses that this requirement was understood and that they believed the Ship was operating in accordance with these orders.[80]

72. The Court heard evidence on this aspect from a number of witnesses and determined that there were the following deficiencies in complying with this order:

    a. **Pre-survey briefing**. The minimum attendance for the pre survey briefing at 1530 on Friday 4 October 2024[81] was not met due to the fact that the EO, (or

[73] Witness 4, Interview 1, P17; Witness 2, Interview 1, P7; Witness 5, Interview 1, P16.
[74] Exhibit AO.
[75] Witness 12, P18.
[76] Witness 12, P18.
[77] Witness 18, P5 and P6.
[78] Witness 18, P4 and P5; Witness 14, P3 and P4.
[79] Exhibit I; Exhibit AR 2.27.
[80] Witness 1, Interview 1, P16 and P17; Witness 3, Interview 1, P3; Witness 11, Interview 1, P25.
[81] Ordered in Exhibit AP.

an engineering representative in his absence), was not present to provide engineering advice in support of the Witness 1's (CO) authorisation process.[82]

b. **Personnel requirements.** The Ship did not meet the personnel requirements for the Ship to ensure an effective watch rotation to prevent fatigue during the prolonged survey task.[83] In particular, the Ship was required to have a H2 qualified surveyor closed up on the bridge during the survey to inform the OOW of the depth and navigational hazards.[84] With only one H2 qualified surveyor as part of the embarked survey team, the Ship was not able to comply with this requirement. [85] The Court considers with this limitation, the Ship should have either planned the task in a manner which allowed them to meet the requirements with the personnel who were part of the survey team, or otherwise raised the risk with the MCC/CFOR and sought to apply mitigations (for example ensuring the H2 was closed up for the period of the task when the Ship was closest to land). While the H2 was on the bridge in the immediate lead up to the grounding, she had come up to consider the crosslines to validate the data[86] rather than advise the OOW on navigational hazards. The Court considers that not having an H2 on the bridge throughout the survey task likely increased the pressure on bridge personnel. For completeness, the Court considers that the MM33.45 New Zealand Manual of Navigation should specify that the H2 position on a ship needs to have navigation training (i.e. be OOW qualified) in order to provide guidance on navigational risks.

c. **SRPs and bridge check offs for survey operations.**[87]

   i. The Court heard evidence regarding the survey brief that was conducted prior to a survey and the SRPs related to the survey task. [redacted].[90] Despite the SRPs' content not being included in the slide, there was also no amplifying discussion regarding the risks and mitigations set out in the SRPs.[91]The Court considers there should have been.

[82] Witness 9, Interview 1, P18; Witness 11, Interview 1, P27.
[83] Exhibit I, Para 2.27F
[84] Exhibit I, Para 2.27K(2).
[85] Witness 1, Interview 3, P15 and P16.
[86] Witness 11, Interview 1, P3.
[87] Exhibit I, section 2.27 h.
[88] Exhibits CZ and DD.
[89] Witness 11, Interview 1, P11.
[90] Witness 2, Interview 3, P5 and P6.
[91] Witness 11, Interview 2, P18.

ii. [redacted].[92] The Court considers that this assessment was unsound as the survey SRP had not been reviewed against the task. In any event it was an SRP applicable to surveys conducted by small boats rather than surveys conducted by a major fleet unit like the Ship. Witness 1 should have recognised the inadequacy of the survey SRP prior to the task commencing.

iii. [redacted][94] Having reviewed the survey SRP against the evidence provided by a number of witnesses[95], the Court considers that:

a. the survey SRP the Ship purported to operate under was wholly inappropriate for the task;

b. as the survey SRP was wholly inappropriate, a CDS was not the appropriate mechanism to remedy the deficiencies;[96] and

c. having recognised the inadequacy of the SRP, Witness 1 should not have started the task or immediately ceased the task and developed an applicable and sufficient risk assessment which would have identified how the Ship operated and the risks actually involved with the task.

iv. The Court determined that Witness 1's failure to develop an appropriate risk assessment for the survey task put the Ship and its crew in unacceptable risk and was inconsistent with what was required by the MM33.45 – New Zealand Manual of Navigation, chapter 2 para 2.27p which states:[97]

> Regardless of the precautions undertaken, the CO shall be clear in the delineation of safe operating parameters. These parameters shall be reviewed regularly as the survey progresses and the situation changes, requiring a regular re-examination of constraints and operational limits to

[92] Witness 1, Interview 1, P13 and P14.
[93] SRP 07-Military Hydrographic Ops (All) (Exhibit DD).
[94] Witness 1, Interview 3, P9.
[95] Witness 1, Interview 3, P9; Witness 44, P19; Witness 46, P23.
[96] Exhibit GS, (NZBR 97), para 21.05.
[97] Exhibit I.

ensure the vessel and, more importantly the crew, are never put in a position of unacceptable risk.

v. In relation to the conduct of survey operations in shallow waters, the New Zealand Manual of Navigation at paragraph 2.27h requires:

> When conducting survey operations in shallow waters where confidence in the established charts is low, additional safety precautions will be required to reduce the risk of grounding, collision or other such navigational mishaps. Collecting data in these areas may result in the vessel being on or beyond the LDL or even across charted land. In this event the following considerations should be taken into account as appropriate:
> (1) Reviewing the Ship's Standing Risk Profile (SRP), taking into account the date of the previous chart and current observable depth; and
> (2) Completing Bridge Check Offs for Survey Operations to ensure the Ship is in the correct posture.

vi. The Court determined that there were no approved bridge check off cards for survey operations. [redacted] .[98] The Court was not able to obtain a copy of these check off cards in development as the only copies were on the ship. There was also no applicable survey SRP.

Pilotage SRPs

vii. The Court heard evidence that instead of applying the pilotage SRP, the Ship in fact applied MM 33.45. If that was the case, the Court considers that a CDS should have been developed as the decision to use MM33.45 saw the Ship operate outside of the relevant SRP for pilotage/confined waters navigation.

73. **Safe navigation**. Due to the fact the SHS was not always closed up on the bridge, as required,[99] an assessment of the swath could not be made nor the provision of "a recommendation to the CO/XO and OOW for the next line."[100] The Court was satisfied that the SHS did not provide appropriate guidance to the OOW to conduct the survey task safely, guidance which should have been of heightened importance because of the lack of a survey plan. [redacted]

74. To conclude, due to the deficiencies set out above the Court determined that the Ship was not at a degree of readiness appropriate to the task.

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[98] Witness 3, Interview 1, P34.
[99] Exhibit AR, P2-21 para k2.
[100] Exhibit I, section 2.27(L).
[101] Witness 2, Interview 1, P10.

LOCATION

TOR 6: What was the time and location of the grounding?

75. The Court reviewed evidence from the Ship's VDR[102] and Witness 1 (CO) regarding the time and location of the grounding.

76. Witness 1 in Exhibit K (RNZN 232 Report of Collision or Grounding) stated that the Ship grounded at 1830 on 5 October 2024 in position 14° 01.46'S 171° 49.47'W.[103]

77. In reviewing the Ship's VDR, the Court has determined that the Ship grounded multiple times before stranding in a position commensurate to that provided by Witness 1.[104] In particular:

    a. At 18:17:59 a rattling noise commences on the audio recording, a depth reading of zero is recorded in the VDR and the crew on the bridge become noticeably agitated.[105] The Court is satisfied that the Ship grounded for the first time at or about 18:17:59 in position 14° 01.619'S 171° 49.380'W, when the grounding being audible up the bridge by 18:17:59.

    b. The Ship continued to move on an approximate heading of 340° for about 90 seconds before becoming near stationary at 18:19:30 in position 14° 01.476'S 171° 49.467'W.[106] Applying the Court's definition, this is the point the Ship was stranded.

TOR 7: What were the light, sea and weather conditions at the time of the grounding?

78. At the time of the grounding Witness 1 (CO) assessed the visibility at greater than 10 nm with 7/8 cloud coverage.[107] The Court determined that the wind was from a direction 120° at 20 - 25 kts with a high sea state 3.[108]

79. On 5 October 2024 sunrise in Apia Samoa was 0607 and sunset was at 1824.[109]

TOR 8: What was the state of the tide at the time of the grounding?

80. On 5 October 2024, the Admiralty TotalTide prediction for Apia indicated that the previous low water to the grounding was at 1406 with a height of 0.2 m and the next high was at 2021 with a height of 0.9 m. At 1830 the height of tide was 0.75 m - 0.8 m flooding to 0.9 m.[110] The RNZN 232-Report of Collision and Grounding submitted by

[102] Exhibit CY.
[103] Exhibit K, P1.
[104] Exhibit KX.
[105] Exhibit KX T18:17:59.
[106] Exhibit KX T18:19:30.
[107] Exhibit K, P1.
[108] Exhibit K, P1; Witness 2, Interview 1, P6; Witness 4, Interview 1, P19.
[109] Exhibit AX.
[110] Exhibit AX.

[redacted].[111] The Court does not consider the 10 cm discrepancy between Admiralty TotalTide and the RNZN 232 to be material.

TOR 9: What is the current location of the Ship?

81. The Ship came to rest on the seabed in position 14° 01.48503'S 171° 49.55769'W.[112] The Ship lies on her starboard side in 33 m of water heeled to an angle of approximately 110° on a heading of 050°.[113] The port azimuth thruster, (thruster number 4), is detached from the Ship and lies approximately 100 m from the stern at a depth of 10 m in position 14° 01.4502'S 171° 49.5520'W.[114] Both deployed anchors lie in close proximity to each other with the port anchor in position 14° 01.2743'S 171° 49.2987'W and the starboard anchor in position 14° 01.2726'S 171° 49.2952'W in approximately 7 -9 m of water 150 m off the bow.[115] Both anchors are still attached to Ship by their respective cables.[116]

THE GROUNDING

TOR 10: What was the cause of the grounding?

Direct causes

82. The Court heard competing evidence on the cause of the grounding and subsequent stranding.

83. [redacted]

84.

[111] Exhibit K, P4.
[112] Exhibit DS.
[113] Exhibit DS.
[114] Exhibit DS.
[115] Exhibit MF.
[116] Witness 26, Interview 2, P2 and P3; Exhibit MF.
[117] Witness 4, Interview 1, P19; Witness 2, Interview 1, P39.
[118] Witness 6, P14; Witness 7, P7; Witness 9, Interview 1, P16 and P25; Witness 10, P14; Witness 12, P14; Witness 14, P3.
[119] Witness 13, Interview 1, P19; Witness 5, Interview 1, P11; Witness 4, Interview 1, P39.
[120] Witness 5, Interview 1, P18; Witness 3, Interview 1, P50.
[121] Witness 5, Interview 2, P 15.

[redacted]

85. The Court sought to understand when the Ship was switched to autopilot. A navigation expert reviewed the track the Ship took[123] and gave evidence that he considered it likely that the Ship was in autopilot for the turn onto the 340° heading.[124] [redacted].[125] On the weight of the evidence then available, the Court, in its interim report, concluded that the Ship had been switched to autopilot prior to the turn to the 340° heading.

86. In Phase 2, the Court was able to obtain amplified data from the VDR which showed the power demand and directional control of the thrusters.[126] [redacted]. On the basis of the Court's understanding of how the Ship operated,[128] the Court considers that it was more likely that autopilot was switched on after the Ship completed the turn to the 340° heading and that it remained in autopilot from that point until after it grounded.

87. The Court was satisfied that the direct cause of the grounding of the Ship was a series of human errors by Witnesses 2 and 4. In particular, Witness 2:

[redacted]

[122] Witness 2, Interview 2, P2.
[123] Exhibit K.
[124] Witness 13, Interview 1, P21.
[125] Witness 3, Interview 1, P29.
[126] Exhibit KX.
[127] Witness 3, Interview 3, P26.
[128] Witness 3, Interview 3, P26.
[129] Witness 2, Interview 1, P17.
[130] Witness 3, Interview 1, P9 and P10.
[131] Witness 5, Interview 1, P11.
[132] Witness 2, Interview 1, P31.
[133] Exhibits W.

[redacted]

88. Witness 4, who was in a supervisory role; a role he accepted involved an element of safety oversight [redacted]

TOR 11: In respect of action immediately after the grounding:

a. What actions, emergency or otherwise, were taken immediately after the grounding?

89. The Court heard that immediately after the grounding the Ship's company pursued four concurrent lines of effort. These were to drop both anchors, bring the Ship to emergency stations, conduct blanket searches and to attempt to manoeuvre off the reef.[142]

b. Were these actions in accordance with relevant RNZN, or Ship, orders, regulations and procedures?

90. In the MM 33.45 - New Zealand Manual of Navigation, the bridge cards for collision or grounding state that the Ship should be taken to emergency stations and consideration should be given to the use of full power and/or rudder for an escape and the use of anchor to assist turn or check headway.[143] The Court was satisfied that all actions taken were in accordance with relevant orders and procedures.

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[134] Witness 4, Interview 1, P11.
[135] Exhibit A, P6-43, section 6.01 para c.
[136] Witness 3, Interview 1, P9 and P10.
[137] Witness 2, Interview 2, P22.
[138] Witness 4, Interview 1, P35.
[139] Witness 4, Interview 1, P16, P34 and P35.
[140] Exhibits W and X.
[141] Witness 4, Interview 1, P16.
[142] Exhibit KX, 18:18:00-18:28:00.
[143] Exhibit AR, P5E-229.

c. Were all actions taken immediately following the grounding adequate and proper given the circumstances?

91. The Court notes that a pipe should have been made to close watertight doors, and a check of this conducted on IPMS.[144] The Court heard no evidence that this occurred, however considers that blanket searches, which was the priority after the grounding, should have resulted in watertight doors being checked. The Court was satisfied that the actions taken immediately after grounding by the Ship's company in all other respects were adequate and proper given the circumstances and in accordance with extant OIP.

TOR 12: In respect of damage sustained as a result of the grounding:

a. What was the extent of the damage sustained?

92. The Court heard from an expert witness, Witness 22 , into the damage sustained by the Ship. Based on analysis of images and video footage of the hull of the Ship, Witness 22 was able to plot the observable damage on a shell plate diagram.[145]

93. The Ship suffered extensive damage to the hull with large areas of the forward part of the Ship displaying a dishing effect where the hull plates are deformed by being pushed in between the frames. There are several holes, tears and cracks in the hull along the length of the Ship. The MBES gondola has been crushed against the hull and the port azimuth thruster is detached. All propellers on the port and starboard azimuth thrusters are extensively damaged with several blades being sheared off.[146]

94. Witness 22 stated that available imagery indicated large deflections on the hull meant that there would have been extensive structural damage to adjacent tanks and compartments.[147]

95. The damage is consistent with Ship's VDR audio channel which indicates that the Ship grounded multiple times before stranding.[148]

96. Witness 22 stated that the longitudinal (fore and aft) tears and damage are consistent with the initial grounding sequence, and the transverse damage (athwartships) was likely caused as the Ship capsized and slid off the reef.[149]

b. What was the cause of the damage?

97. Witness 22 presented the damage analysis as part of Exhibit MI. The report describes the damage that occurred in three phases. Phase 1 represents the period after initial

[144] Exhibit AR, P5E-229.
[145] Exhibit EC; Witness 22, Interview 2, P3.
[146] Exhibit EA, Slides 8-12.
[147] Witness 22, Interview 2, P5.
[148] Exhibit KX, T18:17:51 – T18:19:30.
[149] Witness 22, Interview 2, P15 and P16

impact where the Ship suffers numerous impacts causing hull breaches on the starboard side. Phase 2 represents a period where the Ship becomes stranded on the reef with the port side towards the reef.[150] The Ship is initially listing to angles of 10-15^0 and the Ship is abandoned by the Ship's company. The Ship is considered unstable at this point.

98. It is assessed that the initial grounding in phase 1 likely caused relatively minor structural damage with the majority of the port side and central hull damage occurring during phase 2 as the Ship bounced on the reef in the waves.[151] During phase 3, the list increases to the point that weathertight openings allow downflooding into lower spaces. Progressive flooding of the engine room vents occurs resulting in rapid loss of stability and buoyancy. The Ship heels to nearly 90^0 sliding aft and to starboard in a south easterly direction as it capsized and sank, resting starboard side on the sea floor. The Court is satisfied that the damage to the Ship was caused by the Ship grounding on the reef, then being bounced by wave action on another part of the reef before listing to the point of allowing downflooding via engine room vents and ultimately capsizing.

TOR 13: Did any stability issues contribute to the grounding?

99. Witnesses were consistent in their evidence that the Ship had no issues with stability before the grounding, or that stability in any way contributed to the grounding.[152] The Court found that stability issues played no role in the grounding.

DAMAGE CONTROL FOLLOWING THE GROUNDING

TOR 14: Was a survey of the Ship's watertight integrity undertaken after the grounding and if so, what did it reveal?

100. As part of the actions taken by the Ship's company after the Ship grounded, the Court heard that blanket searches were conducted to check for damage and water ingress.[153]

101. [redacted]

102. The Ship has a network of tanks between the inner and outer hull, effectively creating a double skin.[155] These tanks have electronic level monitoring sensors that transmit the level of fluids inside to the K-Chief platform management system.[156] The level monitoring sensors are the only mechanism by which to measure the level of fluids in

[150] Exhibit MI, P2.
[151] Exhibit MI, P4 and P5.
[152] Witness 1, Interview 1, P63; Witness 9, Interview 1, P28; Witness 10, P17 and P18.
[153] Witness 4, Interview 1, P6; Witness 2, Interview 1, P23; Witness 9, Interview 1, P30.
[154] Witness 9, Interview 1, P30 and P33.
[155] Witness 9, Interview 1, P30.
[156] Witness 9, Interview 1, P28.

the tanks. There are no sounding tubes (as are commonly fitted to warships) to enable the manual measurement of fluids in a tank.[157]

103. The violent motion of the Ship after grounding caused an alarm state across a majority of the electronic level monitoring sensors.[158] No usable information could be gained from the K-Chief system to assess the watertight integrity of the tanks surrounding the Ship.[159]

TOR 15 In respect of damage control:

a. What damage control steps or procedures were undertaken?

104. Immediately after grounding, the Ship was sent to emergency stations.[160] As part of the emergency stations pipe the Ship's company were ordered to conduct blanket searches of the Ship to check for any damage or flooding in the Ship.[161]

105. The DC priority of blanket searches was confirmed by HQ1 when they closed up.[162] Approximately five minutes later the first reports come back to HQ1 that blanket searches were completed with no reported damage or water ingress.[163] A further five minutes later the aft DC station was relocated to the ROV hanger.[164]

106. Blanket searches continued to be conducted until the order to prepare to abandon ship was made.[165] At no point while at emergency stations was any damage reported or flooding identified within the Ship.[166]

b. Were any damage control steps or procedures taken consistent with relevant orders, training, and SOPs?

107. The Court heard from expert Witness 19 , on the actions expected on the grounding of a vessel.[167] Witness 19 provided a summary of actions expected on grounding a vessel drawing upon his experience, and extant OIP.[168]

108. Witness 19 indicated that there were three interconnected primary concerns once grounding that need to be addressed immediately and simultaneously. They are stability, damage and safety assessments.[169] To action these concerns Witness 19

[157] Witness 22, Interview 2, P13.
[158] Witness 9, Interview 1, P27.
[159] Witness 9, Interview 1, P27.
[160] Exhibit KX, T18:18:27.
[161] Exhibit KX, T18:18:27.
[162] Exhibit KX, T18:21:01.
[163] Exhibit KX, T18:26:39.
[164] Exhibit KX, T18:32:06.
[165] Exhibit KX, T18:18:27-18:46:43.
[166] Witness 1, Interview 1, P62-P64; Witness 9, Interview 1, P30; Witness 8, P17.
[167] Witness 19, P3 and P4; Exhibit BH.
[168] Exhibit BH.
[169] Exhibit BH, P1.

stated that the Ship should take draught mark readings, conduct blanket searches and calculate stability.[170]

109. The Court heard from multiple witnesses that launching a boat to read draught marks was considered, but did not proceed due to the rough sea state.[171]

110. Witness 9 provided Witness 17 with a list of compartments he suspected were breached to input into the stability computer programme.[172] The Court heard conflicting evidence from Witnesses 9 and 17 on which side of the Ship was damaged, and subsequently modelled for the stability calculations.[173] Witness 17 indicated that the Ship's tank configuration was mirrored between port and starboard and would result in the same outcome irrespective of which side was damaged.[174] The Court was satisfied that this discrepancy did not materially affect the outcome and that no criticism can be made of the given the circumstances.

111. The Court heard from Witness 17 that the resulting initial calculation from the stability computer programme still had the Ship as stable.[175] Witness 17 realised that he had not applied a grounding force to the preliminary damage assessment. With no draught marks to input into the stability computer programme, Witness 17, told the Court that he inputted his best professional estimate based on what he could observe from the bridge of the Ship.[176] The resulting stability calculation, which included no damage, indicated that the Ship was highly unstable.[177]

112. The Court was satisfied that the damage control steps and procedures taken after the grounding were consistent with relevant orders, training and SOPs. While draught marks were not observed, the Court was satisfied that the decision to not launch a boat and attempt to observe the draught marks was a reasonable decision, noting the prevailing weather and sea conditions, the potential risk to personnel that doing so would have entailed and that the draught marks would not have made a substantial difference to the assessment of stability.

c. When was the decision made to cease damage control efforts and on what basis?

113. The Court heard evidence that the cessation of damage control efforts was a result of the decision to abandon ship.[178] The decision to abandon ship was made by Witness 1 (CO) and was based on the unstable condition predicted by the Ship's stability computer programme.[179]

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[170] Exhibit BH, P1.
[171] Witness 9, Interview 1, P35; Witness 3, Interview 1, P47; Witness 17, P19.
[172] Exhibit BF, P2; Witness 9, P27.
[173] Witness 17, P9 and P10.
[174] Witness 17, P10.
[175] Exhibit BF, P2, para 16.
[176] Exhibit BF, P2, para 20.
[177] Exhibit BF, P2, para 22.
[178] Witness 1, Interview 1, P64 and P65.
[179] Witness 17, P7; Witness 9, Interview 1, P40; Witness 1, Interview 1, P65.

d. Could any further damage control steps or procedures have been taken?

114. As no damage or flooding internal to the Ship was identified by the blanket searches the Court was satisfied that no further damage control steps or procedures could have been taken.

115. Witness 22 [redacted] gave evidence that the design standard of the Ship is based around safe abandonment at 15^0 and that outside of that there is a risk that lifesaving appliances will not work and people will not be able to safely exit the Ship[180]. [redacted]

116. In exhibit MI[182], it was assessed that the Ship would have been listing to angles of 10-15^0 during the abandonment and this list increased to 20^0 plus after abandonment. The Court determined that, despite damage not being obvious inside the Ship, the extensive damage referred to in TOR 12 was impacting the Ship's stability and the decision to abandon ship at that time was the right decision that enabled all those on board to abandon safely.

LOSS OF SHIP

TOR 16: What time and by whom was the decision made to abandon Ship?

117. The decision to abandon ship was made by Witness 1 (CO).[183] Prepare to abandon ship was piped by Witness 1 at 18:46[184] and 'hands to liferaft stations' is piped at 18:48.[185]

TOR 17: What were the sequence of events leading up to the decision to abandon Ship?

118. The Court concluded that the Ship became stranded at approximately 1840. This is the time Witness 5 [redacted] reported that the starboard azimuth thruster was not thrusting.[186] Although he reported that the port azimuth thruster was still thrusting[187] the Court determined that the propulsion was no longer providing sufficient thrust to assist the Ship off the reef. Exhibit DS shows the depth under the Ship was zero, the Ship was no longer moving through the water and the Ship was atop a reef.[188] A number of witnesses describe the movement of the Ship after the grounding as violent[189] or heeling heavily.[190]

[180] Witness 22, Interview 2, P12.
[181] Witness 22, Interview 2, P12.
[182] Exhibit MI, P2.
[183] Witness 9, Interview 1, P40; Witness 1, Interview 1, P66.
[184] Exhibit KX.
[185] Exhibit KX.
[186] Exhibit KX.
[187] Exhibit KX.
[188] Exhibit DS.
[189] Witness 3, Interview 1, P37; Witness 4, Interview 1, P30; Witness 17, P2.
[190] Witness 01, Interview 1, P58.

119. Witness 17 was directed by Witness 9 to conduct a stability assessment.[191] The initial stability assessment found the Ship to be stable however when the grounding force was reviewed, the Ship was found to be unstable and "could not correct itself if it was tipped over by wind or waves."[192] After further assessments that confirmed the Ship's unstable condition, Witness 17 recommended to Witness 9 that the Ship be abandoned.[193]

120. [redacted][195] The Court preferred the evidence of Witness 4 but did not consider it necessary to definitively resolve this discrepancy about who was in attendance. The Court heard that Witness 3 was present at the stability discussion[196] and was satisfied that he was there.

121. At around 1842 Witness 9 advised Witness 1 that the Ship's stability was becoming marginal, the Ship had lost propulsion and there were no options to be able to propel the Ship off the reef against the environmental factors.[197] Witness 9's recommendation was to consider abandoning ship.[198]

122. At 1843 Witness 3 reported that the MAYDAY call was being made and the MAYDAY is heard with location as 143.01 degrees 45 minutes south and 171 degrees 49.47 minutes west.[199]

123. At 1846 Witness 1 pipes "prepare to abandon ship, prepare to abandon ship."[200]

124. At 1848 "hands to liferaft stations" is piped.[201]

TOR 18: In respect of sensitive or classified stores, documents, systems and equipment:

a. What steps were taken to secure or destroy classified documents, systems or equipment on board the Ship?

125. [redacted]

[191] Witness 17, P3.
[192] Witness 17, P6.
[193] Witness 17, P7.
[194] Witness 1, Interview 1, P65; Witness 9, Interview 1, P40.
[195] Witness 4, Interview 1, P27.
[196] Exhibit Z, 13:37.
[197] Witness 9, Interview 1, P38; Exhibit AK P3; Exhibit KX.
[198] Witness 9, Interview 1, P40; Exhibit AK P3.
[199] Exhibit KX.
[200] Exhibit KX.
[201] Exhibit KX.
[202] Witness 3, Interview 1, P33.

b. Were steps taken to secure or destroy classified documents, systems or equipment on board the Ship sufficient, if not, why not?

126. 

c. What sensitive or classified stores, equipment, documents, systems or equipment remain on the Ship?

127. 

[203] Exhibit V.
[204] Witness 1, Interview 1, P68; Exhibit KX (18:50:18).
[205] Exhibit KX (18:50:32).
[206] Witness 1, Interview 1, P68; Exhibit KX (18:50:18).
[207] Witness 48, P5.
[208] Witnesses 41, P29 and P30; Witness 50, P1 and P2.
[209] Witness 47; Exhibit JN.
[210] Witness 9, Interview 2, P1-6; Exhibit JC.
[211] Witness 54, P2; Exhibit JZ.
[212] Witness 47, P2.
[213] Witness 9, Interview 2, P3.
[214] Witness 9, Interview 2, P3.
[215] Witness 54, P4.

128. [redacted]

TOR 19: What steps were taken to secure or preserve relevant logs, recordings or other evidence relevant to the loss of the Ship?

129. The Court heard evidence from four witnesses[221] with knowledge of or involvement in attempts to secure or preserve relevant logs, recordings or other evidence relevant to the loss of the Ship.

130. [redacted]

[216] Exhibit ED.
[217] Witness 28, P3 and P4.
[218] Exhibit EE.
[219] Exhibit AG.
[220] Witness 28, P5 and P6.
[221] Witness 1, Interview 1, P70; Witness 3, Interview 1, P40; Witness 2, Interview 1, P37 and P38; Witness 4, Interview 1, P32.
[222] Witness 1, Interview 1, P70.
[223] Witness 2, Interview 1, P37 and P38.
[224] Exhibit V.
[225] Witness 2, Interview 1 P38.
[226] Witness 1, Interview 1, P70.
[227] Witness 1, Interview 1, P68.
[228] Witness 1, Interview 1, P68 - 70.
[229] Witness 2, Interview 3, P6 and P7.
[230] Witness 1, Interview 1, P67 and P68.

131. [redacted]

132. [redacted]

TOR 20: What was the likely cause of the fire?

133. [redacted]

134. The Court found the evidence of Witness 19 [redacted] to be the most compelling. He assessed that the cause of the fire was likely to be electrical.[235] He said it was likely that violent shock resulting from the grounding caused damage to the electrical circuits which then ignited a fuel source.

135. Witness 19's assessment is two things happened with the fire. In relation to the first fire:[236]

> The initial fire has occurred in the engine room and then it's extinguished itself. Then the compartment started to cool, sucked in more air again and there's likely been an explosion or something… [redacted], there clearly had been a fire but there was no smoke, i.e. the fire has likely gone out…when the Ship actually capsized, there was gross black smoke, which indicates that when the fire restarted there's likely been an explosion of types or in the meantime a lot of fuel has leaked out of one of the fuel tanks in the interim, that's ignited again…

136. The second fire was considered a very significant fire as evident from the nature of the smoke and flames coming out of the vents when the Ship sank.[237] Witness 19 believes the fire started in the engine room with fuel from one of the two service tanks providing the source before transiting all the way up through the main engine room vents. This resulted in the burn marks up the side of the Ship and is where the flames exited.[238] The Court accepts the evidence of Witness 19 and finds that the likely cause

[231] Witness 2. Interview 1, P37 and P38.
[232] Witness 1. Interview 1, P67.
[233] Witness 1, Interview 1, P68.
[234] Witness 12, P20; Witness 17, P24; Witness 19, P31.
[235] Witness 19, P31.
[236] Witness 19, P31.
[237] Witness 19, P32.
[238] Witness 19, P32.

of the fire electrical ignition of a fuel source as a result of damage caused following the grounding.

TOR 21: Did all lifesaving equipment operate as required?

137. The Court heard significant evidence regarding the operation and performance of lifesaving equipment.[239] The Court assessed, on balance, that whilst most of the equipment operated and performed as intended (i.e. designed), some equipment was not optimum for the different personnel sizes and the weather and environmental conditions at the time of the incident.

138. Of greater significance is the Court's determination that much of the confusion and dissatisfaction expressed through oral evidence, and in regard to the lifesaving equipment utilised on the night of the incident, could be attributable to the lack of familiarisation of the equipment used by personnel; either due to lack of training on the specific and unique equipment carried in the Ship and/or the lack of currency of sea survival training amongst the embarked personnel.

139. On the broader subject of sea survival training, (including abandonment and liferaft familiarisation), the Court heard evidence that the only time RNZN personnel are exposed to a directed one day sea survival training package is during *ab initio* training or very early in their career.[240] Continuation training throughout an individual's career is completed on an "ad-hoc basis"[241] and largely covers CBRNDC and firefighting versus sea survival. The Court heard evidence that the Ship conducted a sea survival refresher session at the fleet pool on 16 September 2024, led by Witness 20 , aimed at capturing the whole Ship's company[242] but only 70% of the Ship's personnel attended.[243]

140. The Court did hear evidence from key witnesses, including the fleet seamanship and executive officer, suggesting that the RNZN's sea survival training policy should be reviewed[244] to include abandon ship drills, with Witness 62 stating that his team and facilities could support an increase in training for RNZN personnel, such as dedicated sea survival refresher course for personnel prior to sea service.[245]

141. A detailed breakdown regarding key equipment and the Court's findings is as follows:

    a. **Liferafts.** The Court heard some evidence that certain items of equipment were missing from the liferafts.[246] Other witnesses gave evidence that the equipment was, or was likely present, but that it was not initially found due to the extenuating circumstances of the night, which included sea state, light,

[239] Exhibit MG.
[240] Witness 62, P2.
[241] Witness 62, P2.
[242] Witness 41, P16.
[243] Witness 20, Interview 2, P24.
[244] Witness 37, P27; Witness 62, P4.
[245] Witness 62, P5.
[246] Witness 20, Interview 2, P16 and P17; Witness 41, P19; Witness 1, Interview 6, P59.

prevailing stress and the crowded nature of the liferafts.[247] The Court assessed that the equipment was more likely than not to have been present, but that it was not readily located due to the extenuating circumstances, exacerbated by the unique[248] nature of the Ship's liferafts, lack of familiarity and lack of comparable shore side training facilities.[249] The Court also heard significant evidence about the inadequacy of fixed towing points and painters which, under load during tow and/or when trying to keep the liferafts together, snapped or tore from the towing point.[250] This resulted in a number of people having to link arms or hold onto each other's lifejackets to maintain integrity of the liferaft group throughout the night.[251] In addition, the Court also heard evidence that, whilst the requirement and occasions to tow a liferaft was understood, there is no formal training in how to do so.[252] The Court was satisfied that whilst unique in nature the liferafts were certified and in date in accordance with manufacturer's instructions and SOLAS requirements.[253]

b. **Lifejacket**. The Court heard conflicting evidence regarding the performance of the emergency personal flotation devices but preferred the evidence of Witness 20, as the embarked survival equipment specialist. He reported that there were enough available and that in his opinion the auto-inflation capability saved lives that evening but did suggest further training in how to deflate the lifejacket (if trapped underneath a RHIB) and the use of ancillary equipment.[254] Witness 20 did identify that the efficacy of the lifejackets could be improved if they also had a function that enabled rapid deflation for situations where a person became trapped under a flipped liferaft or RHIB.[255],

c. **Abandonment suit.** The Court heard evidence from several witnesses who stated that the in-service "one size fits all" abandonment suits do not work because the gloves are "oversized" and "very hard to work with"[257] with some personnel reportedly then cutting them off to aid dexterity.[258] Additionally the Velcro tabs, designed to prevent air pockets within the suit, were not strong enough and, when they failed, led to significant water ingress and air

[247] Witness 5, Interview 2, P6.
[248] Witness 20, Interview 2, P17.
[249] Witness 5, Interview 2, P10.
[250] Witness 5, Interview 2, P7; Witness 42, P9; Witness 43, P9.
[251] Witness 42, P9; Witness 45, P5.
[252] Witness 43, P19-21.
[253] Witness 20, Interview 2, P18; Witness 38, Interview 2, P3-8.
[254] Witness 20, Interview 2, P18-20.
[255] Witness 20, Interview 2, P19.
[256] Witness 1, Interview 6, P63 and P64.
[257] Witness 20, Interview 2, P21.
[258] Witness 41, P20.

pockets forming making it difficult to manoeuvre in the water.[259] Lastly the Court heard evidence that the neoprene hood was not suited to the conditions in the Pacific and that they restricted hearing and situational awareness, and that whilst doctrine exists as to how to don the suit[260] it does not detail how to wear it.[261]

d. **J3 RHIB**. The Court heard evidence from a number of witnesses commenting on the performance of the J3 RHIBs, post abandonment, with specific reference to the degraded state of the jet propulsion system. The Court assessed that it was more likely than not both J3s were degraded due to the ingress of silt and detritus from the water, including stray lines and materiel from the liferafts[262], and acknowledged the assessment from Witness 43 that even traditionally propelled boats (i.e. with a propeller/outboard) would have suffered the same challenges in that situation.[263] Additionally, the Court heard evidence suggesting that when boat crews were trying to access equipment in the RHIBs boat bag items would just "spill out and they'd lose items in the chaos".[264] The Court assesses that whilst there is a standard list of equipment required in a J3 RHIB that the stowage of equipment could be improved, and familiarity with its location, if a fleet wide standard boat bag was implemented.

TOR 22: Was the RNZN abandon ship policy followed and was it fit for purpose?

142. The Court has determined that whilst broad abandon ship guidance is available[265] there is no clear RNZN abandon ship policy and certainly nothing specific for the Ship. The only specific abandon ship procedures detailed are those which exist for HMNZS CANTERBURY (due to the unique nature of its marine evacuation system)[266] and some guidance and procedures for platforms operating in the Southern Ocean.[267]

143. The Court heard evidence from a number of witnesses detailing the steps taken during the abandon ship process and, in the absence of an overarching policy, understands the liferaft stations check off card[268] was utilised to guide the actions to be taken from the bridge. The Court was satisfied that all steps detailed within this check off card, albeit "not a well-defined SOP,"[269] were completed; [redacted]. Furthermore, following the decision to abandon ship, specific instructions were followed related to individual items of lifesaving equipment e.g. abandonment suits and liferafts.[270]

[259] Witness 20, Interview 2, P21 and P22; Witness 1, Interview 6, P53 and P54.
[260] Exhibit IO.
[261] Witness 1, Interview 6, P53 and P54.
[262] Witness 42, P13; Exhibit MG.
[263] Witness 43, P21.
[264] Witness 20, Interview 2, P29.
[265] Witness 20, Interview 2, P12; Exhibit IO, chapter 6 para 6.05.
[266] Witness 20, Interview 2, P12; Exhibit IO, chapter 6 para 6.08.
[267] Exhibit IQ, chapter 4.
[268] Witness 2, Interview 1, P33; Exhibit V.
[269] Witness 1, Interview 1, P66.
[270] Exhibit IO.

144. Lastly, the Court endorses the recommendations by key witnesses that a comprehensive review of RNZN lifesaving policies and procedures is conducted, including the more detailed guidance within Exhibit IQ, to reflect each RNZN unit and then included within Exhibit IO, and that the frequency at which the abandon ship procedures are drilled is increased to biannually.[271]

TOR 23: What was the likely cause of the loss of the Ship?

145. Witness 22 [redacted] presented a report titled: Technical Assessment of the capsize and sinking of HMNZS MANAWANUI.[272] The Court was satisfied with the assessment in the report that the loss of the Ship was as a result of hull damage sustained over the period the Ship was in contact with the reef[273] that resulted in downflooding that lead to the Ship capsizing and eventually sinking.[274]

ORGANISATIONAL ASPECTS RELEVANT TO THE LOSS – PEOPLE AND SYSTEMS

TOR 24: In respect of Ship's company:

a. Was the Ship appropriately crewed for the tasks being undertaken?

146. For the specific task being conducted at the time of the incident, the Court concluded that the Ship was not appropriately crewed for the task being undertaken as it did not carry sufficient numbers of qualified personnel to conduct the planned prolonged survey task[275] resulting in inadequate planning and supervision of the survey task from the outset.

b. Were there any personnel deficiencies?

147. The Court heard evidence confirming that at the time of the incident the Ship was carrying a total of 20 PERSDEFs. This was reported by Witness 1 (CO) as resulting in some risk that was manageable.[276] The Court considers that this risk assessment of 'manageable' did not highlight personnel risks. [redacted].[278]

The Court considers that Witness 1 should have been more robust in identifying relevant PERSDEFS. A more robust identification of relevant PERSDEFS should have led to a more complete picture of the risk this represented.

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[271] Witness 1, Interview 6, P65; Witness 33, P11.
[272] Exhibit MI.
[273] Exhibit MI, P9.
[274] Exhibit MI, P9-10.
[275] Exhibit I, section 2.27 e-f; Witness 1, Interview 3, P15 and P16.
[276] Exhibit JK.
[277] Exhibit FG; Exhibit LK; Witness 31, Interview 1, P18.
[278] Witness 53, P18; Exhibit IC; Witness 1, Interview 7, P18; Witness 31, Interview 3, P4.

c. If any of Ship's company were carrying waivers, what were those waivers?

148. The Court heard evidence detailing the process followed for assessing individual fitness for both sea and operational service prior to deploying on operations; in this case OP CALYPSO 3/24.[279]

149. At the time of the incident the Ship was carrying three personnel with an approved medical waiver[280] and five personnel who didn't meet individual readiness requirements but whose deficiencies were assessed and mitigated by both HQ JFNZ and the Ship.[281]

150. The Court has determined that this process can be flawed, particularly when personnel post to seagoing units at short notice prior to deploying. This can hinder a CO's ability to maintain an up to date picture of readiness and suitability to be at sea. This occurred in the case of the Ship, where an individual posted at short notice and was not in date for dental; a fact not known by Witness 1 until after the incident.[282]

151. The Court is satisfied that none of the medical waivers issued, the identified and mitigated individual readiness deficiencies for OP CALYPSO, nor the missed requirement for a dental waiver contributed to the grounding or hampered actions post the grounding.

d. Was Ship's company appropriately trained and experienced?

152. The Court interpreted this question in light of its stated purpose of inquiring into the circumstances that led to the loss of the Ship. Accordingly, the Court limited its investigation into the training and experience of personnel identified as having overall responsibility for the safe navigation of the Ship [redacted] or the planning and conduct of the survey task the Ship was executing at the time of the grounding [redacted]. While other bridge staff assisted with aspects of navigation and the conduct of the survey task, the Court considered they did not have a level of overall responsibility for these matters. The Court approached this question by reference to the survey task it was conducting at the time of the grounding.

153. Witness 31 [redacted] was unable to provide the Court with an objective framework for assessing experience[283] although Witness 30 presented the HMNZS MANAWANUI position competencies summary.[284] This included the current posting length, total days posted to the Ship (reflecting previous experience on board the Ship), and position competencies as a fraction and as a percentage. The Court was unable to establish if the 'Position Competencies Summary' was used by FPTO as it was not mentioned by Witness 31. In the absence of an objective framework, the Court had to

[279] Witness 1, Interview 6, P22-26, Witness 39, P2-8.
[280] Witness 39, P2-4; Exhibit HP; Exhibit HQ; Exhibit HR.
[281] Witness 39, P5 and P6; Exhibit HQ; Exhibit HR.
[282] Witness 1, Interview 6, P24; Witness 39, P6 and P7; Exhibit HR.
[283] Witness 31, Interview 1, P34 and P35.
[284] Exhibit EW.

rely on the experience and knowledge of its members in assessing the available evidence of the experience of relevant personnel.

154. **Training and experience** [redacted]. The Court was unable to obtain an authoritative document detailing the minimum platform experience and qualification requirements necessary to hold the [redacted] positions in the Ship other than the requirement to hold a platform endorsement.[285] On the balance of probabilities the Court determined there was no authoritative document [redacted]

155. The Court was presented with conflicting information from SAP[288] regarding the courses and qualifications held by the [redacted]. The Court sought the source evidence used to enter information into SAP but was unsuccessful because many qualifications are only listed in SAP and not all course certificates are attached.[289] Further, there is no accounting for data-entry 'typos' for which the Court heard evidence in support of personnel having qualifications loaded against them, but they had not completed the training.[290] The documentation provided was a mix of SAP information and hard copy certifications that did not resolve the conflict but was the best information available.

156. The Court heard evidence demonstrating a lack of clarity and consistency regarding the course requirements for the Ship. In the PD, there is a qualification requirement for the [redacted] to complete the 'dynamic positioning introductory course' but not for the CO[293] [redacted] The MM48.1-1 states RNZN OOW personnel are to have completed "DP induction", and "DP simulator courses" prior to platform endorsement.[295] SAP lists 'advanced DP' and 'advanced azimuth pod' operator courses as requirements for the CO, [redacted] and also lists the advanced ship handling course (Port Ash) as requirements for the [redacted].[296]

157. Without an authoritative document detailing the minimum experience and qualifications and uncertainty regards the completeness of the records the Court considered it necessary to revert to the course and qualification requirements

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[285] Exhibit AR, chapter 3 section 3.04; Witness 13, Interview 1, P25-31.
[286] Witness 31, Interview 3, P1.
[287] Witness 31, Interview 1, P13.
[288] Exhibit FH.
[289] Exhibit LL.
[290] Witness 31, Interview 1, P16.
[291] Exhibit EZ, P3.
[292] Exhibit FA, P3.
[293] Exhibit EX, P4.
[294] Exhibit EY, P4.
[295] Exhibit EM, annex A "DP Checklists" para 5b.
[296] Exhibit FH.

established during IIS[297], an approach supported by Witness 29 [redacted].[298] Exhibit EF listed the same four courses as platform training requirements for the CO, [redacted] which were: advanced ship handling, induction/basic DP course, azimuth pod ship handling and simulator/advanced DP course. The Court assessed that these courses or a variant of them were the minimum requirements related to HMNZS MANAWANUI, to have charge or conduct of the Ship. The watchkeepers and supervisors should also hold a platform endorsement.[299]

158. The Court asked Witness 2 [redacted] if he was able to draw a comparison between the training he had received and that received by other [redacted] in preparation for their platform endorsement. [redacted]

159. The Court concluded that whilst Witness 2 held a platform endorsement he did not hold any other platform qualifications. However since Witness 2 had not completed the training courses as detailed at paragraph 157 (above) the Court determined that he was not eligible to hold a platform endorsement.

160. There is evidence that Witness 1 completed the advanced ship handling course (Port Ash),[303] DP induction, DP simulator[304] and the RNZN podded propulsion training.[305] Witnesses 1 was not command platform endorsed.[306]

161. Witness 4 [redacted] advised the Court he had not completed the azimuth thruster handling course.[307] Witness 4 had completed the DP induction and DP simulator courses[308] and the advanced ship handling course (Port Ash).[309] Witness 4 was not platform endorsed.[310]

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[297] Exhibit EF.
[298] Witness 29, Interview 1, P6-8.
[299] Exhibit AR, chapter 3 section 3.04.
[300] Witness 2, Interview 4, P8 and P9
[301] Witness 2, Interview 4, P8 and P9.
[302] Witness 2, Interview 3, P1; Witness 2, Interview 4, P9.
[303] Exhibit LL, enclosure 1-1 P3.
[304] Exhibit LL, enclosure 1-1 P5-6.
[305] Exhibit LL, enclosure 1-1 P9.
[306] Witness 1, Interview 3, P23; Witness 4, Interview 1, P22.
[307] Witness 4, Interview 3, P16.
[308] Exhibit LL, enclosure 1, P6.
[309] Exhibit LL, enclosure 2, P11.
[310] Witness 1, Interview 3, P23; Witness 4, Interview 1, P22.

162. Witness 3 had completed the azipod training at the NZ maritime school[311] he was platform endorsed,[312] however since Witness 2 had not completed the training courses as detailed at paragraph 157 (above) the Court determined that he was not eligible to hold a platform endorsement.

163. The Court concluded that the individual deficiencies in the CO's, [redacted] platform related training, and experience in planning and conducting survey operations of the nature being conducted by the Ship, collectively combined to contribute to the Ship grounding. The Court also concluded that the lack of an authoritative reference or training framework for Ship specific training accounted for the variance in training provided to the GLX officers in the Ship.

164. [redacted]

165. [redacted]

166. The RNZN Hydrographic Trade Employment Profile – Exhibit IA, which covers Witness 11's rank[318] does not include the role of SIC or SHS in the generic task inventory.[319] The RNZN employment profile general list seaman (hydrographic) – Exhibit HY, states that a SIC is a duty undertaken by a Lieutenant Commander and the role is authorised by LINZ.[320]

167. The Court was satisfied that while the role of SIC or SHS is not clearly defined the intended meaning was the person who is responsible for the planning and conduct of

[311] Exhibit LL, enclosure 1, P9.
[312] Exhibit FE, P15.
[313] Witness 11, Interview 1, P1.
[314] Exhibit I, P2-20.
[315] Exhibit IB, Piv.
[316] Witness 40, Interview 1, P10.
[317] Witness 40, Interview 1, P19.
[318] Exhibit IA, P20
[319] Exhibit IA, P20 and P21.
[320] Exhibit HY, P21.

the survey. The Court considers that this necessarily implies that the person is appropriately qualified to plan and conduct a survey task.

168. Exhibit HY states that in their generic task inventory, a Lieutenant GLX(H) is expected to plan a survey operation.[321] Exhibit IA, which covers Witness 11's rank does not include a competency (called a "task") to plan survey operations.[322]

169. The Court found the evidence presented in relation to the qualifications required to be the SIC/SHS as contradictory and confusing. The Court preferred the evidence in Exhibits IA and HY. While acknowledging they are old documents, they are the most current and clearly list the tasks that each rank is to undertake. More contemporary references such as NZBR 69 (Exhibit IB) and MM33.45 (Exhibit I), while newer, do not adequately describe the role of SHS or SIC, to the extent that there is any difference between a SHS and a SIC.

170. The Court was satisfied that Witness 11 could not be formally appointed as an SHS as this role is appointed by LINZ and is a technical competency reserved to a Lieutenant Commander.[323] Despite this, the Court considers that by planning and briefing the survey task in accordance with Exhibit I, Witness 11 was in substance fulfilling the role of the SHS. To fulfil the role of SHS, a hydrographer should be appropriately qualified to plan and conduct a survey task. Witness 11's employment profile does not include hydrographic planning.[324] The Court considers that without that qualification, Witness 11 should not have been expected to fulfil the role of SHS.

171. The Court further established that the policy and instructions were inadequate and led to confusion about what qualifications were required to plan and conduct a survey task like the one the Ship was doing at the time of the incident.

e. Was any alcohol consumed by Ship's company in the lead up to the survey task?

172. The Court was satisfied that no alcohol was consumed by any member of the Ship's company or embarked personnel in the lead up to the survey task. [redacted].[326] Additionally, both Witness 1 and Witness 41[327] provided evidence that states "No alcohol is to be sold or consumed in any mess bar in MAN, when the Ship is at sea or at anchor."[328]

[321] Exhibit HY, P19.
[322] Exhibit HY, P20.
[323] Exhibit HY, P21.
[324] Exhibit IA, P20 and P21.
[325] Exhibit ID.
[326] Witness 41, P25.
[327] Witness 1, Interview 6, P26; Witness 41, P25.
[328] Exhibit A, P5-34, chapter 5 section 5.16 c.

TOR 25: In respect of operational tempo in the lead up to, and including, the deployment:

a. What was the training demand on the Ship?

173. The Court heard evidence stating that the priority in the lead up to the deployment was largely on defect rectification[329] due to the OPDEFs being carried, specifically on the propulsion system. As such the Court was satisfied that there was not a significant training demand on the Ship in the lead up to the deployment above that routinely required. Key training activity that required whole ship engagement was the sea survival refresher training held on 16 September 2024;[330] a Ship led virtual sea day on 19 September 2024;[331] and the MTG covered virtual sea day on 27 September 2024[332] which ultimately resulted in a declaration to MCC that the Ship was safe to proceed to sea and echoed the CO's reports that they were ready in all respects to deploy for OP CALYPSO 3/24.[333]

b. What was the operational tempo on the deployment?

174. The Court assessed that the operational tempo on the deployment was effectively managed so as not to create any residual pressure or fatigue on the crew that may have then contributed to the incident. [redacted]."[335] While the operational tempo was effectively managed, the Court considers that this resulted in curtailing force generation, a matter which is addressed at TOR 36.

c. What were fatigue levels among Ship's company at the time of the grounding and was this an operative factor in the grounding?

175. The Court heard evidence from a number of witnesses regarding fatigue levels among the Ship's company,[336] and in satisfying this question, has focussed on those personnel charged with key roles prior to and at the time of the grounding; specifically, those with command and/or bridge responsibilities at the time of the incident.

176. In summary the Court assessed that, overall, fatigue was not an operative factor in the grounding based on the following evidence:

[329] Witness 9, Interview 2, P15.
[330] Witness 41, P16; Witness 20, Interview 2, P24.
[331] Witness 1, Interview 3, P25; Witness 35, P10.
[332] Witness 1, Interview 3, P25; Witness 35, P6; Witness 1, Interview 4, P10-11.
[333] Exhibit GL P23; Exhibit GK, P5-9 (Sitrep dated 26 Sep 24); Exhibit JK.
[334] Witness 51, P24.
[335] Witness 1, Interview 6, P37.
[336] Witness 1, Interview 6, P31; Witness 51, P25; Witness 17, P29.

a. **Ship's company.**

b. **Command.**

c. **OsOW.**

d. (Witness 4).

[337] Witness 1, Interview 6, P31.
[338] Witness 1 Interview 6, P36 and P37.
[339] Witness 1, Interview 6, P28.
[340] Witness 1, Interview 6, P30.
[341] Exhibit AF; Witness 1, Interview 6, P27 and P28.
[342] Exhibit IM 19.1, chapter 4 Art 4.25(b).
[343] Witness 1, Interview 1, P10 and P11; Witness 3, Interview 1, P12 and P13.
[344] Witness 1 Interview 6, P30.
[345] Witness 3, Interview 1 P12 and P13.
[346] Witness 4, Interview 5, P2.
[347] Witness 1, Interview 6, P29.

[redacted]

e. **Engineering department.** The engineering department was the only part of Ship's company where the Court found evidence of fatigue [redacted]

TOR 26: Were the charts and navigation aids being used suitable and sufficient for the safe operation of the Ship?

177. Noting the RNZN's electronic navigation policy,[351] the Court focused on the suitability and sufficiency of the ECPINS and SIS systems. The Court heard that the bridge systems, including the ECPINS system, had been checked in the lead up to the grounding and that the only defect was an earth fault with the AIS, which had no impact on the operation of the system[352] and a chart check had been completed prior to sailing to ensure that they were all up to date.[353]

178. [redacted].[354] The Court determined that this was not a contributory factor to the grounding of the Ship.

179. The Court notes that it was not able to access the ECPINS or SIS systems. However, on the basis of the available evidence, the Court was satisfied that the charts and navigation aids being used were suitable and sufficient for the safe operation of the Ship.

TOR 27: Were the charts up to date with the latest changes and navigation warnings?

180. While the Court was unable to obtain data from the Ship's ECPINS computers, the Court heard no evidence of incorrect chart data or missing navigation warnings.

181. [redacted].[355] While the

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[348] [redacted]

[349] Witness 17, P29.

[350] Witness 9, Interview 2, P17.

[351] Exhibit AR, P4-38.

[352] Witness 12, P8 and P9.

[353] Witness 3, Interview 2, P10.

[354] Witness 1, Interview 7, P13; Microsoft versions are outdated and not able to support the processing.

[355] Witness 3, Interview 2, P11.

Court could not independently validate this information, the Court found [redacted] to be a reliable witness and was satisfied on the balance of probabilities, that the charts were up to date with the latest changes and navigation warnings.

TOR 28: Had appropriate operational risk management steps been taken and were these sufficiently robust?

182. The Court concluded appropriate ORM steps were not taken so ORM was not robust. The findings of the Court are as follows:

a. **SRPs.** [redacted]

b. [redacted].[366] The Court noted the RNZN ORM process requires the use of a CDS to justify "excursions" from an SRP.[367] The Court considers that while a CDS can be used to address departures from an otherwise appropriate SRP, it is not an appropriate mechanism to address a SRP that is, as it was in this situation, wholly inappropriate for a task. Instead Witness 1 should have developed an appropriate and sufficient SRP for the task taking into account how the Ship operated and the risks the task entailed.

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[356] SRP NAV 02 – Pilotage/Confined Waters Navigation (Exhibit CZ); SRP EXS 01-Launch/Recovery J3 (Exhibit DA); SRP EXS 04-Personnel Transfer via Pilot Ladder (Exhibit DB); SRP 08-MAT Small Boat Operations (Exhibit DC) and SRP 07-Military Hydrographic Ops (All) (Exhibit DD).
[357] Witness 1, Interview 3, P6-8.
[358] Exhibit IK, P3, provided by Witness 1 with handwritten note "No SRP for survey."
[359] Witness 5, Interview 2, P2.
[360] Exhibit DD.
[361] Witness 46, P11.
[362] Exhibit DD.
[363] Witness 1, Interview 3, P9.
[364] Witness 1, Interview 3, P9.
[365] Witness 1, Interview 6, P5.
[366] Witness 46, P22.
[367] Exhibit GS, para 21.05a.

c. [redacted].[369] The Court considers that the Maritime Manual should have been used together with a relevant SRP and that in this case, a CDS should have been raised for operating outside of that SRP.

d. **MRR.** Witness 1 as CTG 648.11[370] was ordered to maintain a MRR and ensure that all personnel were aware of relevant risks and the associated controls and mitigations that should be in place to manage risks.[371] [redacted].[372] The Court notes the MRR should have been completed before the survey task began.

183. The Court identified the following issues which it concluded may explain the lack of appropriate ORM associated with the task:

a. **Training.**

i. The Court noted Witnesses 1, 3 [redacted], 4 [redacted], 5 [redacted], and 11 [redacted] had received no or very limited (1 hour presentation) formal risk management training.[373]

ii. [redacted]

iii.

iv.

[368] Exhibit I.
[369] Witness 1, Interview 6, P15; Exhibit CZ.
[370] Exhibit HT, para 16d.
[371] Exhibit C, Annex Q, paras 5 and 6.
[372] Witness 1, Interview 6, P6.
[373] Witness 1, Interview 6, P8; Witness 3, Interview 3, P4; Witness 4, Interview 6, P2; Witness 5, Interview 2, P2; and Witness 11, Interview 2, P18.
[374] Witness 36, P17.
[375] Witness 37, P14.
[376] Witness 1, Interview 6, P20.

b. **Culture.**

i. [redacted]

ii. [redacted]

iii. [redacted]

iv. [redacted][382] a comment the Court considers inconsistent with the compliant and necessary application of ORM processes in NZBR 97,[383] the associated guidance,[384] [redacted].[385]

v. The Court noted [redacted] are inconsistent with someone who understands risk and or affords risk management the necessary priority. The Court concluded while Witness 1 thought she was doing appropriate ORM by referring to risk and safety, the lack of commitment to the

[377] Witness 1, Interview 6, P10.
[378] Capabilities and limitations.
[379] Exhibit IK.
[380] Witness 1, Interview 3, P8 and P9; Witness 11, Interview 1, P11.
[381] Witness 1, Interview 6, P19.
[382] Witness 1, Interview 3, P29 and P30.
[383] Exhibit GS.
[384] Exhibit HA.
[385] Exhibit IK.
[386] Witness 1, Interview 6, P5.
[387] Witness 1, Interview 6, P6.

application of the prescribed policy and procedures fostered a culture where appropriate ORM was not practiced in the Ship.

c. **Planning.** NZBR 97 states integrating ORM into planning at all levels and as early as possible provides the greatest opportunity to make well-informed risk decisions and implement effective risk controls.[388]

d. **Application.** .[394] However, the Court believes this means an opportunity was lost to establish if a SRP was fit for purpose.

e. **Risk management.** The Court determined there was a lack of clarity, uncertainty and confusion regards the roles and responsibilities for risk management administration on the Ship. The Court noted Captain's standing orders part one identified a position of a risk management officer.[396]

[388] Exhibit GS, para 21.02f (3).
[389] Witness 1, Interview 6, P2.
[390] Witness 3, Interview 2, P27.
[391] Witness 3, Interview 3, P8.
[392] Witness 3, Interview 2, P27.
[393] Witness 11, Interview 2, P21.
[394] Witness 1, Interview 6, P4.
[395] Witness 2, Interview 3, P5.
[396] Exhibit A, section 4.01d(4).
[397] Witness 4, Interview 6, P1.

[redacted]

184. The Court considers that the ORM policy and process is confusing and when combined with deficiencies in education and training makes ORM unnecessarily difficult and results in 'box ticking', and enables non-compliance and in turn a poor risk management culture. The Court identified examples of a number of anomalies and issues with the RNZN ORM process in NZBR 97[401] that were not central to the ORM contributory factors leading to the loss of the Ship but are worthy of review.

a. **Link between safety case and ORM.** [redacted].[402] The Court notes Exhibit GS contains no direction on the link between the safety case and ORM,[403] and the Court was unable to establish whether policy, direction and or guidance exists to ensure hazards identified in the safety case requiring preventative and recovery/mitigation control measures[404] are considered as part of ORM.

b. **Endorsement/approval.** The endorsement and approval process in the RNZN ORM process is confusing. The ORM guidance states:[405]

> Once the above has been completed the SRP will be checked by the SHEMSCO and navigating officer before being taken to the CO for approval and risk acceptance. As part of the approval process, a copy will be sent to the Office of CFOR for validation and endorsement prior to being signed and approved by the Commanding Officer.

c. The next paragraph in the ORM guidance states:[406]

> The RMS on unit will be managed by the SRO and the SHEMSCO. All SRP or ORM will be validated by either the SRO or the SHEMSCO prior to being sent to the Office of Captain Force Readiness for endorsement and the Commanding Officer for signature and approval prior to being signed and approved by the Commanding Officer.

d. The Court determined these paragraphs confuse the responsibilities for the endorsement/approval process of SRPs as COs have delegated ownership and control of LOW risks.[407] [redacted]

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[398] Witness 3, Interview 3, P2.
[399] Witness 3, Interview 3, P3 and P4.
[400] Witness 3, Interview 3, P4.
[401] Exhibits GS and HA.
[402] Witness 1, Interview 7, P4.
[403] Exhibit GS.
[404] Exhibit LD.
[405] Exhibit HA, para 14f.
[406] Exhibit HA, para 15.
[407] Exhibit GS, para 21.03a.
[408] Witness 36, P11.

e. **SRP format.** The SRP template[409] does not support the approval and ownership of risks with only an endorsement signature required.[410] SRPs provided as evidence were only endorsed.[411] The ORM process refers to control owners[412] but the template does not drive the need to identify control owners.[413]

f. The details in the SRP 'Treat, Tolerate, Mitigate, Accept' column do not identify which of these is applicable, and who is responsible for any mitigation.[416]

g. **Compliance with process.** The Court was provided with an endorsed SRP in a different format to the NZBR 97 example.[417] SRPs could exist on a ship with no copies held elsewhere[418] which is contrary to the ORM process which requires all standing risks to be held within DDMS under CFOR. [419]

[421] NZBR 97 refers to the use of SRPs in conjunction with the risks identified in the PFRR, and CRR and MRR.[422]

[409] Exhibit HA, Appendix A.
[410] Witness 46, P3.
[411] Exhibits DA, DB, DC, and DD.
[412] Exhibit HA, para 14c.
[413] Exhibit HA, Appendix A.
[414] Witness 1, Interview 6, P7
[415] Witness 1, Interview 6, P8.
[416] Witness 1, Interview 6, P7.
[417] Exhibit GP.
[418] Witness 36, P11.
[419] Exhibit GS, para 21.04 c.
[420] Witness 46, P6.
[421] Witness 1, Interview 6, P17.
[422] Exhibit GS, para 21.05a.
[423] Witness 36, P8 and P10.
[424] Witness 36, P10.
[425] Witness 1, Interview 6, P16.
[426] Exhibit GS, para 21.04e.
[427] Witness 46, P5.

h. **NZBR 97.** The terminology in NZBR 97 is in places confusing with SRP used as an acronym for ships standing risk profiles and ship's standing operation risk management.[428] [redacted].[432] The Court considers that these orders should be clearly expressed and that a CDS should be raised if operations cannot be conducted in accordance with any aspect of an approved SRP.

i. **Assurance.** NZBR 97 requires PFRRs and CRRs to be reviewed on a bi-annual basis.[433] [redacted]

j. The Court determined that the lack of a stipulated requirement to review SRPs, and the ability for a ship's CO to approve LOW risks without any mandatory independent oversight is a deficiency in risk management. In addition a review of all SRPs by CFOR as part of the pre ship sailing activities would provide a level of independent assurance.

k. **Culture.** The Court noted an outstanding SwRT (SwRT-MAN-026) related to the Ship's risk register and safety case not being 100% complete which identified the following seaworthiness deficiency: [436]

[428] Exhibit GS, paras 21.04b, and 21.05a.
[429] Witness 1, Interview 6, P18.
[430] Witness 1, Interview 6, P5.
[431] Exhibit GS, P21-262.
[432] Witness 1, Interview 6, P16 and P17.
[433] Exhibit GS, paras 21.04d and 21.04e.
[434] Witness 46, P3.
[435] Witness 46, P2.
[436] Exhibit LU. SwRT-MAN-026 Risk Register and Safety Case Update.

The MAN Risk Register and Safety Case document is not 100% complete, has not been fully updated from Phase 2 and 3 content prepared to-date, does not take into account new hazards and management/mitigations from Phase 4 staged releases of capability; specifically subsea operations with divers under DP, the more detailed and recent risk assessments conducted and manuals / SOPs now in use.

l. The impact of the seaworthiness deficiency was stated as "The management of safety, the awareness of hazards and how they are managed and mitigated, and the overall appreciation of the extant level of risk that operations present, is key to operating safely." The risk assessment was HIGH. The SwRT was raised on 13 December 2022 with a due date of 30 June 2023, it remained open at the time the Ship grounded.

m. [redacted]

n. The Court concluded the risk management culture within the organisational was deficient as the necessary priority and attention was not afforded to risk management as typified by this evidence and the lack of application of policy and procedures described in the earlier paragraphs of the response to this TOR. In some areas, the focus is weighted heavily on achieving the mission without sufficient focus on safety.

TOR 29: In respect of navigation:

a. Was the navigation plan sound and appropriate for the passage of the Ship in the location where the incident occurred?

185. [redacted].[439] The Court was clear in its assessment that a navigation plan should have been loaded.

b. Was the Ship being navigated in accordance with all relevant RNZN orders, regulations and procedures?

186. The Court made attempts to have the Ship's ECPINS system recovered for further analysis. While the hard drives were recovered, usable data was unable to be extracted within the time frame of this COI.[440]

[437] Witness 3, Interview 3, P13.
[438] Witness 3, Interview 3, P13 and P14.
[439] Witness 3, Interview 2, P14.
[440] Exhibit MJ.

187. Witness 29 (NTO) gave evidence that the primary reference for navigation in the RNZN is the admiralty manual of navigation series (BR 45), Exhibit MH. [441] In terms of requiring a navigation track to be loaded into ECPINS Witness 29 provided four extracts from the BR 45 series (Exhibit MH).

a. BR 45(8) states that "SOLAS requires ships to carry nautical charts sufficient to plan and execute the intended voyage, including plotting and monitoring the position along the route (paraphrased from SOLAS chapter V Regulation 19)."[442]

b. In the execution procedures for WECDIS, BR 45(8) states it is a requirement to "Ensure the correct routes are displayed and locked, that one is selected as the active route, and that the correct leg is selected as the active leg."[443]

c. As part of the OOW handover process BR 45(8) lists as a safety critical item for the OOW to "Ensure the required Active Route is loaded."[444]

d. BR 45(4) also states that "The oncoming OOW should check that a route is loaded into WECDIS, and where the Ship is in relation to it."[445]

188. [redacted]

189. The Court was satisfied that the Ship was not being navigated in accordance with all relevant RNZN orders, regulations and procedures [redacted]

c. Were all persons involved in the navigation of the Ship at the time of the incident appropriately trained and qualified to perform their duties adequately?

190. The training and qualification of persons involved in the navigation of the Ship is answered at TOR 24d.

d. Was any person involved in the navigation of the Ship under training at the time of the incident and if so was a qualified supervisor present at the time of the incident?

191. The Court heard no evidence that anyone involved in the navigation of the Ship was under training at the time of the incident.

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[441] Witness 29, Interview 2, P1 and P2.
[442] Exhibit MH(8), P4-2.
[443] Exhibit MH(8), P7-13.
[444] Exhibit MH(8), P7A-1.
[445] Exhibit MH(4), P1-65.
[446] Witness 29, Interview 2, P4 and P5.
[447] Witness 3, Interview 2, P14; Witness 29, Interview 2, P3 and P4.

e. Other than navigation, what duties or activities had the persons involved in the navigation of the Ship conducted in the 24 hours prior to the grounding?

192. The Court has determined that Witness 2, as [redacted] and with charge of the Ship[448] at the time of the grounding; Witness 4 [redacted] (in a supervisory role at time of the grounding); Witness 3 (as the [redacted]); and Witness 1 all had varying degrees of responsibility for the navigation of the Ship prior to the grounding.

193. In regard to the duties or activities conducted by these four individuals in the 24 hours prior to the grounding the Court heard the following evidence:

a. Witness 2. Witness 2 was, in accordance with the approved watchbill, rostered on watch 1800-2100 on 4 October 2024, 0600-0900 on 5 October 2024 and 1800-2100 on the night of the incident.[450]

b. [redacted]

c. [redacted]

[448] Exhibit A(1) para 4.06; Exhibit DM, chapter 7, article 0.7.03, para a-b.
[449] Exhibit A(1) para 4.05; Exhibit FB sub section 3.
[450] Exhibit AF.
[451] Witness 5, Interview 1, P4.
[452] Witness 2, Interview 1, P6.
[453] Witness 2, Interview 1, P5.
[454] Witness 1, Interview 6, P29; Witness 4, Interview 5, P3.
[455] Witness 1, Interview 6, P29; Witness 4, Interview 5, P3 and P4.
[456] Witness 4, Interview 1, P2 and P3; Witness 4, Interview 5, P4.
[457] Witness 3, Interview 1, P4.
[458] Witness 3, Interview 1, P12.

d. 

TOR 30: What roles were duty personnel performing prior to, during and immediately after the incident?

194. The roles performed by duty personnel prior to, during and immediately after the incident are covered earlier in this report at TOR 3.

TOR 31: In respect of procedures for the task that the Ship was conducting:

a. What procedures are meant to be followed for the conduct of the task?

b. Where are these procedures detailed?

c. Were these procedures followed?

195. The Court's approach to answering TOR 31 was to focus on the procedures for military hydrographic survey planning for the task that the Ship was undertaking at the time of the grounding. The Court heard no evidence that the hydrographic survey equipment fitted to the Ship was itself defective or being operated incorrectly.

196. In answering TOR 31, the Court found it difficult to separate the findings between the three listed sub-questions. A consolidated answer to TOR 31 is provided.

197. The Ship was tasked via FRAGO 001 to Operation Order 177/24 - OP CALYPSO 03/24 (Exhibit C) to conduct a hydrographic survey IVO Sinalei.[464] The Court was presented with evidence that the principal document relating to the task being undertaken by the Ship was NZBR 69 – Military Hydrographic Instructions (Exhibit IB).[465]

[459] Witness 3, Interview 1, P15.
[460] Witness 3, Interview 1 P12 and P13.
[461] Witness 1, Interview 1, P26 to P31.
[462] Witness 1, Interview 1, P32.
[463] Witness 1, Interview 1, P34-38.
[464] Exhibit C, P2.
[465] Exhibit IB.

198. NZBR 69 (Exhibit IB) states that it applies to hydrographic tasking not directly related to mine countermeasure activity.[466] [redacted].[467] NZBR 69 (Exhibit IB) lists REA as a type of survey task.[468] The Court was therefore satisfied that the content of NZBR 69 (Exhibit IB) was applicable to the task that the Ship was undertaking.

199. NZBR 69 (Exhibit IB) provides no specific guidance on planning or procedures, stating:[469]

> This document does not provide detail on the technical and procedural aspects of survey data collection; the primary reference is the IHO Manual on Hydrography. Procedures for use of equipment and software in service with the RNZN are held within the Survey Toolbox as Procedural Instructions.

200. NZBR 69 (Exhibit IB) contains a chapter title "Military Hydrographic Procedures". This chapter is not populated.

201. The IHO Manual on Hydrography – C13 (Exhibit IG) states in the preface that that manual's objective is to "provide knowledge on the concepts involved in hydrography as well as guidance to plan and execute hydrographic surveys."[470] The IHO manual on hydrography (Exhibit IG) does not contain any instruction on the conduct of REA or any military hydrographic tasks.[471]

202. The LINZ Contract Specifications for Hydrographic Survey Version 2 (Exhibit IE) and the International Hydrographic Organization Standards for Hydrographic Surveys S-44 (Exhibit IF) were presented as additional references.[472] Neither of these references contain any instruction on the conduct of REA or any military hydrographic tasks.

203. NZBR 69 (Exhibit IB) indicates that a survey in support of an REA will normally occur in situations where data is required for tactical or operational level decision making with little or no lead time.[473] The overarching principle behind an REA is that timeliness takes precedence over data quality.[474] Regarding planning, NZBR 69 (Exhibit IB) states that: [475]

> Integral to the successful conduct of hydrographic survey operations is careful planning ... The time available will determine the extent to which effort can be assigned to planning. In the case of short notice operations, teams may be required to rely upon contingency plans, designed to respond to likely tasking scenarios.

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[466] Exhibit IB P2-2.
[467] Witness 1, Interview 1, P7 and P8.
[468] Exhibit IB, P2-2.
[469] Exhibit IB, P2-5.
[470] Exhibit IG, Preface i.
[471] Exhibit IG.
[472] Exhibit IE; Exhibit IF.
[473] Exhibit IB, P2-2.
[474] Exhibit IB, P2-2.
[475] Exhibit IB, P2-5.

204. The Court received evidence that a feasibility assessment for the survey activity had been completed by the Ship by 12 September 2024 when [redacted] emailed HQNZDF indicating that the hydrographic survey was feasible and that the Ship should be formally tasked.[476]

205. [redacted].[477] The Court was satisfied that with 16 days passing between assessing the task as feasible and the Ship sailing, sufficient time for bespoke and thorough planning to occur was available.

206. NZBR 69 (Exhibit IB) states that a planning framework may assist in developing plans and offers NZDF doctrine for planning as a suggested framework.[478]

207. In terms of general hydrographic survey planning advice, the IHO Manual on Hydrography (Exhibit IG) offers the following,

> "Development of a general survey plan and subsequent site specific survey plans will create a more efficient survey. The general survey plan addresses the way that surveys are planned, performed, and processed. This plan must be well thought out and robust to account for as many contingencies as possible... The site specific survey plan will address local notifications, survey lines, datum, data density, and specific equipment and personnel that will meet the general survey plan requirements."

208. The Court heard from Witness 44 [redacted] that the guidance for military survey planning is fairly limited in terms of policy,

209. [redacted]

210. The Court considers that Witness 11 should have been provided with leadership and oversight by HMNZS MATATAUA in the preparation for and execution of this task.

211. [redacted]

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[476] Exhibit HV, P9.
[477] Witness 1, Interview 1, P12.
[478] Exhibit IB, P2-5.
[479] Witness 44, P11.
[480] Witness 11, Interview 2, P5 and P6.
[481] Witness 11, Interview 2, P24.

212. The Court was not presented with any further evidence detailing what planning procedures are required for military hydrographic tasks. The military hydrographic procedures chapter of NZBR 69, chapter 8 (Exhibit IB) is not populated.

213. [redacted]

214. Based on the evidence heard, the Court determined that NZBR 69 (Exhibit IB), The IHO Manual on Hydrography (Exhibit IG), The LINZ Contract Specifications for Hydrographic Survey Version 2 (Exhibit IE) and the International Hydrographic Organization Standards for Hydrographic Surveys S-44 (Exhibit IF) were the primary documents utilised by the RNZN in the planning and conduct of hydrographic tasks.

215. The IHO Manual on Hydrography (Exhibit IG), the LINZ Contract Specifications for Hydrographic Survey Version 2 (Exhibit IE) and the International Hydrographic Organization Standards for Hydrographic Surveys S-44 (Exhibit IF) are external technical standards that are controlled outside the RNZN. They are broad in nature and offer general guidance on best practice, but are not prescriptive.

216. NZBR 69 (Exhibit IB) is the sole RNZN document utilised for the planning and conduct of hydrographic tasks. NZBR 69 (Exhibit IB) offers planning guidance and considerations but is not prescriptive. The chapter, dedicated to specific procedures for military hydrographic tasks, of which REA is an element of, was not populated.

217. Finally, the Court heard evidence that the Ship was conducting the survey task under MM33.45 - New Zealand Manual of Navigation (Exhibit I).[483] The Court notes that while Exhibit I contains some tactical level guidance on surveying, it lacks the detail on planning and procedures for military hydrographic tasks that would be expected to be contained in NZBR 69 (Exhibit IB).

218. The Court determined that while there was some policy and guidance around the conduct of the task that the Ship was undertaking at the time of the grounding, there were no procedures for the SHS to follow in the planning and conduct of the activity. The Court considers the need for leadership and oversight for the SHS was heightened by these gaps in policy and procedures for planning the activity.

219. The Court found that without appropriate hydrographic leadership from HMNZS MATATAUA, which was of heightened importance given the lack of applicable policy, the “no time to plan” aspect of a fringe REA scenario morphed into “no plan required” for the activity. This manifested itself in the case of the Ship where the embarked survey team under the SHS, despite weeks of notice, conducted no detailed analysis of

[482] Witness 44, P12.
[483] Witness 5, Interview 2, P4.

the task or produced any written plan. The advice provided to the Ship by the SHS, who was inadequately qualified or supported for the role, was not appropriate, careless to the circumstances of the task being undertaken and contributed to the loss of the Ship.

TOR 32: Are there any other systems or processes used within the maritime community that could have improved situational awareness or helped prevent the loss of the Ship?

220.

221. 

222. On the basis of the evidence above, the Court was satisfied that there are systems and processes in the maritime community that could have improved situational awareness or helped prevent the loss of the Ship. The Court's view was that it was not the appropriate body to review and recommend which systems or processes (or parts of them) should be adopted by the RNZN, and considers that these should be reviewed and considered for adoption by the RNZN as appropriate and incorporated into NZBR 69. The Court concluded that while complete procedures would have provided better guidance to the SHS to plan and conduct the survey, it may not have changed the outcome of the incident since the SHS was neither qualified nor experienced for the role being conducted as noted in TOR 24.

MATERIEL STATE RELEVANT TO THE LOSS

TOR 33: Did the materiel state in any way contribute to the:

a. grounding?
b. subsequent loss of the Ship?
c. ability to safely evacuate Ship's company?

223. The Court considered it convenient to address all parts of TOR 33 together.

[484] Witness 55, P23.
[485] Witness 55, P24.
[486] Witness 55, P22.
[487] Witness 55, P26.

224. The Court heard from several witnesses related to the cause of the grounding and whether mechanical or machinery failure could have contributed to the grounding and subsequent loss of the Ship.

225.

226.

227.

228.

229.

230.

[redacted]

[488] Witness 18, P7.
[489] Witness 7, P4-6.
[490] Witness 14, P3.
[491] Witness 9, P11.
[492] Witness 15, P4.
[493] Witness 15, P6.
[494] Witness 10, P7.

231. [redacted]

232. [redacted]

233. [redacted] [499] The Court considers that the failure to complete the SATs required prevented the opportunity to prove the systems were at the correct performance standard before the Ship deployed on operations.[500] The Court considers that the untested performance of the thrusters should have been included in the risk assessment prior to undertaking a task such as surveying close to land, and is a key reason for having the EO attend the survey brief prior to commencing the activity.

234. Despite the Ship having a thruster defect prior to sailing and acceptance trials not being completed, the Court was satisfied that the materiel state of the Ship did not contribute to the grounding or subsequent loss of the Ship. There is no evidence that the Ship had a loss of power or a steering/control failure at any point prior to or at the point of grounding.

TOR 34: What were the findings or outcomes of the Seaworthiness Boards in respect of the Ship since the capability introduction?

235. The Court found no SwB outcomes or findings linked to the direct cause of the Ship grounding. However, the Court noted that at the time of the Ship grounding it was conducting surveying, a role the Court found no evidence of having had SwB approval.

236. Witness 63 [redacted] provided the Court with all of the Ship's seaworthiness material held by MARREG comprising Pre SwB packs,[501] SwB presentations and minutes,[502] SwCARs,[503] SwRTs,[504] RNZN 2180s,[505] and RNZN 180s.[506]

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[495] Witness 9, Interview 1, P8.
[496] Witness 9, Interview 1, P10.
[497] Witness 9, Interview 1, P17.
[498] Exhibit HE.
[499] Exhibit HJ.
[500] Exhibit HH, para 5.10e.
[501] Exhibit LP.
[502] Exhibit LS.
[503] Exhibit LT.
[504] Exhibit LU.
[505] Exhibit LR.
[506] Exhibit LQ.

237. Three SwBs were held as part of the capability introduction of the Ship the first on 10 February 2020, the second on 24 February 2021 and the third on 13 December 2022. The findings and outcomes of the SwBs are summarised in the following paragraphs:

a. **10 February 2020.** The purpose of the SwB was to assess the seaworthiness of the Ship for capability integration phases 1 and 2 (IOR). The roles considered by the SwB for capability integration phases 1 and 2 comprised: sea boat operations for transferring personnel and equipment to other vessels or ashore; maritime search and rescue and aid to vessels in distress; surveillance and reconnaissance; surface contact detection identification and reporting; medical evacuation; participation in Military Assistance Programme training; VIP transport; and Defence diplomacy and representational activities in New Zealand and foreign ports.[507] The SwA determined the Ship was seaworthy for capability integration phases 1 and 2 with limitations requiring further analysis, testing and/or certification to resolve.[508] One SwCAR and five SwRTs were raised based on the SwB findings.[509] The Court noted survey operations were not in scope of the SwB business.[510] The IOCS approved after the SwB stated the MBES and ancillary hydrographic systems were not released for operational use at IOR.[511] [redacted].[512]

b. **24 February 2021.** The purpose of the SwB was to determine the readiness of the Ship to conduct combined subsea operations including: diver training using surface supplied breathing apparatus and IOR of Ship surface supplied breathing apparatus; main crane use; launch and recovery and use of remote operated vehicle; use of dynamic positioning during combined subsea operations; and a review of the Ship's sea state limitations.[513] The SwB raised two SwRTs and six SwCARs.[514] The SwA assessed the Ship safe to operate and could be operated safely during combined subsea operations subject to resolution of the identified SwCARs.[515] The Court noted survey operations were not considered by the SwB.[516] The SwB presentation refers to the IOCS[517] which stated, the MBES and ancillary hydrographic systems were not released for operational use at IOR.[518] The IOCS authorised by CN[519] was also presented by Witness 58 [redacted] and has the same operational limitation on the use of MBES and ancillary hydrographic systems.

[507] Exhibit LS, Minutes dated 11 May 2020 of SwB held 10 February 2020, P1, and enclosure 2.
[508] Exhibit LS, Minutes dated 11 May 2020 of SwB held 10 February 2020, P8.
[509] Exhibit LS, Minutes dated 11 May 2020 of SwB held 10 February 2020, Annexes B to G inclusive.
[510] Exhibit LS, Minutes dated 11 May 2020 of SwB held 10 February 2020, P1, and enclosure 2.
[511] Exhibit KQ, P46 of 116, section 0107, para 1c.
[512] Witness 58, Interview 1, P4.
[513] Exhibit LS, Minutes dated 26 March 2021 of SwB held 24 February 2021, P1 and P2.
[514] Exhibit LS, Minutes dated 26 March 2021 of SwB held 24 February 2021, P1 to P11.
[515] Exhibit LS, Minutes dated 26 March 2021 of SwB held 24 February 2021, P11.
[516] Exhibit LS, Minutes dated 26 March 2021 of SwB held 24 February 2021, P1 and P2.
[517] Exhibit LS, 20210224 Finalised MAN Phase 3SwB Presentation P64 of 80, hyperlink 'Interim OCS'.
[518] Exhibit KQ, Page 46 of 116, section 0107, para 1c.
[519] Exhibit KQ.

c. **13 December 2022.** The scope of the SwB was to determine the seaworthiness of the Ship to conduct all defined operations at operational release. Items within the OCS that had not been proven/released were out of scope which included HADR.[520] [redacted].[521] The SwA did not approve the inclusion of HADR as it had not been considered and proven in accordance with due seaworthiness assurance processes.[522] MCC and MARREG were required to provide information to SwA regards HADR capability and seaworthiness limitations which was completed on 15 December 2022 with both MCC and MARREG recommending the SwA include HADR in scope for SwB consideration.[523] [redacted]

238. [redacted][528] The Court found no evidence that the seaworthiness assurance process was subsequently completed and surveying operationally released. The Court concludes in the absence of any evidence the Ship was conducting an activity without having completed the required seaworthiness review process.

239. [redacted].[530] The Court notes the conduct of Ship based survey operations without a recommendation from MARREG to the SwA on whether the Ship was 'safe to operate' and all appropriate integrated logistics support elements were in place for the Ship to be 'operated safely' is in contravention to DFI 8.3M NZDF Seaworthiness Instructions.[531]

240. The Court notes the IOCS in place at the time the Ship grounded[532] stated the MBES and ancillary hydrographic systems were not released for operational use.[533]

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[520] Exhibit LS, Minutes dated 13 December 2022 of SwB held 13 December 2022, P2.
[521] Witness 60, P3.
[522] Exhibit LS, Minutes dated 13 December 2022 of SwB held 13 December 2022, P9.
[523] Exhibit LV.
[524] Witness 63, P6 and P7.
[525] Witness 64, P14.
[526] Exhibit LS, Minutes dated 13 December 2022 of SwB held 13 December 2022, P1 to P9.
[527] Witness 60, P3.
[528] Exhibit LS, Minutes dated 13 December 2022 of SwB held 13 December 2022, P9.
[529] Witness 63, P7.
[530] Witness 64, P13.
[531] Exhibit LN, P1-13.
[532] Witness 46, P9. Exhibit JG.
[533] Exhibit KQ, P46 of 116, section 0107, para 1c.

241. The Court determined the seaworthiness system would more likely than not have identified deficiencies in the seaworthiness of the Ship's surveying system had this process been complied with. Readiness, risk assessment, review of the OCS, approved operating standards which includes SOPs, internal audit processes, and proficiency were all elements subject to seaworthiness review under the seaworthiness governance processes.[534] The Court determined opportunities were subsequently missed to detect the deficiencies due to incomplete assurance and force generation processes as detailed in TOR 36.

242. In relation to questions of capability release, the Court needed to be satisfied on balance that a particular capability had been released. [redacted] Accordingly, the Court concluded that surveying operations had not been operationally released.

GENERAL COMMENT

TOR 35: Comment on the existence and adequacy of all orders, regulations and procedures, including international maritime regulations, relating to the incident.

243. The Court found significant deficiencies existed in a wide range of OIP related to the incident, and in places were inadequate or poorly managed. The Court has not identified every OIP deficiency so is unable to ascertain the extent of the existence and adequacy of all OIP.

a. **Adequacy.**

i. **Hydrographic procedures.** NZBR 69 chapter 8 Military Hydrographic Procedures is 'reserved', there is no content.[537] The Court concluded the absence of appropriate hydrographic procedures enabled the use of unauthorised OIP to fill the void.

ii. **Hydrographic employment profiles.** Witness 40 [redacted] provided the Court with the employment profiles for the hydrographic trade (Exhibit IA) and General List Seaman – Hydrographic (exhibit HY). While Witness 11 (SHS) had undertaken the H2 hydrographic surveying course, the generic task inventory [redacted] in Exhibit IA does not include a survey planning task or command advisory role.[538] The Court found that the selection of Witness 11 as the SHS by Witness 40 was inappropriate as it was outside the roles that the RNZN reasonably expected Witness 11 to undertake.

[534] Exhibit LN, P2-17 to 2-25. Exhibit LS 20221022 MAN OR SwB Presentation.
[535] Witness 63, P2.
[536] Witness 63, P6 and P7; Witness 64, P13.
[537] Exhibit IB.
[538] Exhibit IA, P20 and P21.

iii. **SOPs.** Witness 36 provided the Court with the list of approved SOPs for the Ship.[539]

iv. **Command supervisor.**

v. **OCS.** .[545] SwRT-MAN-008 [546] states the following seaworthiness deficiency "The MAN OCS is only in draft form, is un-approved and not widely available. MAN's Volume of NZBR 63 is to be brought up-to-date and endorsed." SwRT-MAN-008 also states the impact of the seaworthiness deficiency as "Lack of definition of the capabilities of the Ship, what the Ship will be used for or how it will be operated impacts on a wide range of Seaworthiness issues across both Safe to Operate and Operate Safely." SwRT-MAN-008 was raised on 13 December 2022 and was due 28 February 2023, action was in progress at the time the Ship grounded.

vi. **Safety case.** .[547]

vii. **RNZN Manual of Bridge Resource Management.** .[548]

viii. **Platform endorsement.** MM 33.45 – New Zealand Manual of Navigation only requires 'where possible' a demonstration of the prescribed ship handling characteristics for a bridge watchkeeper to gain a platform endorsement.[549] The Court did not find written tolerances/parameters for assessing

[539] Exhibit GZ.
[540] Witness 1, Interview 6, P22.
[541] Witness 5, Interview 2, P4.
[542] Witness 3, Interview 1, P7; Witness 2, Interview 1, P15.
[543] Witness 3, Interview 2, P30.
[544] Witness 29 Interview 1, P18.
[545] Witness 1, Interview 5, P2.
[546] Exhibit LU. SwRT-MAN-008 MANs Volume of NZBR 63.
[547] Witness 1, Interview 5, P4.
[548] Witness 1, Interview 6, P31 and P32.
[549] Exhibit AR, annex 3A-34.

competency, [redacted][550]

ix. **Position descriptions.** There was no central database of PDs, and the Court was presented with PDs Witness 31 [redacted] should have had access to as he is required to review them as part of the posting process[551] [redacted].[552]

x. **HMNZS MANAWANUI qualification and course requirements.** Exhibit EF listed a range of OOW Ship specific related courses with the steady state intentions to be determined by the Navigation School. The Court was unable to obtain an authoritative document detailing the steady state mandatory course and qualification requirements so concluded more likely than not no such document exists.[553] The Court concluded the lack of an authoritative reference for Ship specific training accounted for the variance in training provided to OsOW, and enabled Witness 2 [redacted] to be posted to the Ship without having completed any Ship specific 'handling' courses. [554] [redacted]

xi. [redacted]

xii. **Abandon ship policy.** The Court was satisfied that no detailed and specific abandon ship policy existed for the Ship noting its unique lifesaving equipment, as discussed in TOR 22.

b. **Unapproved/unvalidated OIP.** [redacted]

c. [redacted]

[550] Witness 5, Interview 2, P17.
[551] Exhibit FN.
[552] Witness 31, Interview 1, P2.
[553] Witness 31, Interview 3, P1.
[554] Witness 2, Interview 4, P9.
[555] Witness 2, Interview 4, P9.
[556] Witness 51, P10.
[557] Witness 3, Interview 1, P34.
[558] Witness 36, P6.
[559] Witness 8, P5 and P6.
[560] Witness 1, Interview 1, P14.

[redacted]

d. **Currency.** [redacted].[563] Exhibit GZ lists numerous SOPs including navigation SOPs which were last reviewed on 4 February 2020.[564]

e. **Violations.** The Court noted a number of violations from OIP including:

   i. **Survey.** The response to TOR 5 details a number of deficiencies in complying with MM33.45 - New Zealand Manual of Navigation.

   ii. **Platform endorsement.** Witnesses 1 and 4 were not command platform endorsed[565] despite this being a requirement.[566] The Court heard evidence the wording around the timing for attaining a command platform endorsement is 'grey' in that Exhibit AR states with reference to timing of attaining a platform endorsement it should ideally be gained prior to the completion of handover.[567] The Court notes that the requirement for platform endorsements came into effect in September 2022.[568] While the order does not specify who is responsible for ensuring that a CO or XO has a command platform endorsement, the Court considers that a CO should reasonably be expected to raise this as an issue. The Court notes that Witness 1 had been on the Ship since December 2022 and Witness 4 since June 2023 and had sufficient time to complete a platform endorsement. The Court considers they should have exercised reasonable diligence to ensure they were platform endorsed either prior to assuming their command positions, or if not, at the earliest opportunity afterwards. Despite Witness 2 and 3 having platform endorsements recorded as being completed, because they had not completed the training courses as detailed at paragraph 157 (above) the Court determined that they were not eligible to hold a platform endorsement.

   iii. **Risk management.** [redacted].[569] Witness 1 as CTG 648.11570 was also ordered to maintain a MRR and ensure that all personnel were aware of relevant risks and the associated controls and mitigations that should be in place to manage those risks.[571]

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[561] Witness 3, Interview 2, P24
[562] Witness 36, P12.
[563] Witness 36, P15.
[564] Exhibit GZ.
[565] Witness 1, Interview 3, P23; Witness 4, Interview 1, P22.
[566] Exhibit AR, P3-30.
[567] Witness 29, Interview 1, P81.
[568] Exhibit AR, Piv.
[569] Exhibit GS, para 21.05a; Witness 1, Interview 6, P15.
[570] Exhibit HT, para 16d.
[571] Exhibit C, annex Q, paras 5 and 6.

[redacted].[572]

iv. **DFI 8.3M and NFGOs.** There were no SOPs for surveying from the Ship[573] as required by DFI 8.3M[574] and NFGOs.[575] [redacted]

v. **IOCS.** The Court notes the IOCS in place at the time the Ship grounded[577] stated the MBES and ancillary hydrographic systems were not released for operational use.[578]

TOR 36: Comment on any other matters the Court considers relevant to the purpose of this Inquiry.

Contributing and aggravating factors

244. In addition to the direct causes of the grounding set out at TOR 10, the Court identified a number of contributing factors, which made the incident more likely to occur, or aggravating factors, which made the incident worse. These are set out below.

245. **Contributing factors.** While the Court has identified human error by Witness 2 [redacted] and Witness 4 [redacted] as the direct cause of the stranding of the Ship it has identified a number of contributory factors. The contributory factors are issues that collectively resulted in defensive weaknesses in the layers of system safeguards or barriers, making the direct cause of the Ship stranding more likely.

a. **Training and experience.** The Court determined the lack of an authoritative training framework prescribing minimum SQEP for individuals holding key positions led specifically to:

i. Witness 2 having charge of the Ship without the necessary training. [redacted]

[572] Witness 1, Interview 6, P6.
[573] Witness 1, Interview 6, P22.
[574] Exhibit LN, P2-24, para 8c.
[575] Exhibit LO, P 6-2-454, para 6.2.22b.
[576] Witness 63, P10.
[577] Witness 46, P9; Exhibit JG.
[578] Exhibit KQ, P46 of 116, section 0107, para 1c.
[579] Witness 2, Interview 4, P13.

ii. [redacted].[584] Had he had that level of knowledge, the correct steps may have been taken from the outset.

iii. The Court considers that Witness 2 should not have been granted a platform endorsement without more robust training and assessment. [redacted][586] The Court considers that referring to the bridge card should have caused Witness 2 to check whether the Ship was in fact in hand.

iv. [redacted]

The Court addresses the inadequacies in the training system further at TOR 24d.

b. **Planning.** The Court found there were no procedures to follow for the planning and conduct of the activity. Refer to TOR 31.

c. **Supervision.** [redacted]

[580] Witness 2, Interview 2, P9; Witness 3, Interview 2, P7.
[581] Witness 2, Interview 1, P31.
[582] Witness 29, Interview 1, P23.
[583] Witness 2, Interview 4, P13.
[584] Witness 2, Interview 4, P21.
[585] Witness 1, Interview 1, P30-32.
[586] Witness 4, Interview 7, P10-12 and P 15-18.
[587] Witness 4, Interview 4, P13.
[588] Witness 3, Interview 1, P3; Witness 4, Interview 1, P10 and P11.

[redacted].[593] As is set out at TOR 25, the Court considers that Witness 4 had inadequate situational awareness and understanding of how the Ship operated to effectively supervise the OOW.

d. The Court notes that the CO [redacted] arrived on the bridge 38 seconds prior to the grounding.[594] On arriving on the bridge, they could have recognised the Ship was in autopilot in the following three ways:

i. ***Difference between actual and ordered position of azimuth thrusters.*** [redacted].[598] The Court considers that it was not reasonable to expect Witnesses 1 or 3 to have recognised that any difference between the ordered and actual position of the azimuth thrusters meant the Ship was in autopilot rather than a loss of thruster control. This is because of the short time between their arrival on the bridge and the

[589] Witness 4, Interview 1, P22.
[590] Witness 4, Interview 6, P5.
[591] Witness 4, Interview 6, P4.
[592] Witness 4, Interview 6, P9 and P10.
[593] Witness 4, Interview 6, P11.
[594] Exhibit KX.
[595] Witness 3, Interview 1, P26.
[596] Witness 1, Interview 1, P41 and P42, P72; Witness 3, Interview 1, P24-P26.
[597] Witness 1, Interview 1, P40-43; Exhibit KX.
[598] Witness 3, Interview 3, P24.

grounding and the mistaken reports they received about a thruster control failure.

ii. ***Confirming that the bridge cards had been followed.*** [redacted]. [600] However, the Court does not consider it reasonable to have expected Witnesses 1 or 3 to have sought confirmation of this in the time available to them prior to the grounding and in the prevailing circumstances. These circumstances included the stress on the bridge, the mistaken reports they received on arrival about a thruster control failure together with the fact that Witness 4 was already present on the bridge. Given the role that Witness 4 was performing, the Court considers that it was reasonable in the time available for Witness 1 and 3 to rely on Witness 4 having ensured that the bridge cards had been followed.

iii. ***Checking the autopilot switch.*** Visual inspection of the autopilot switch through its covering Perspex box would also have indicated whether the Ship was in autopilot.[601] For the reasons set out at paragraph 245(d)(ii) (above), the Court considers that in the circumstances and time available, it was reasonable for Witnesses 1 and 3 to rely on Witness 2 to have physically checked the position of the switch as part of the bridge card checks, and for Witness 4 to have ensured that this check had occurred.

e. For the reasons set out above, the Court does not consider it reasonable to expect Witness 1 or Witness 3 to have identified that the Ship was in autopilot in the time between arriving on the bridge and the Ship going aground. [redacted] [602] However the Court considers if recognised immediately, that there might have been time to turn the Ship away from the reef.

f. **OIP (lack of policy/guidance).** The Court found significant deficiencies existed in a wide range of OIP related to the incident, and in places were inadequate or poorly managed. Refer to TOR 35.

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[599] Exhibit KX.

[600] [redacted]

[601] Witness 4, Interview 3, P28.

[602] Witness 4, Interview 6, P13; Witness 3, Interview 6, P27.

g. **Force generation.**

[redacted]

[603] Exhibit HS.
[604] Witness 1, Interview 3, P25.
[605] Exhibit DH.
[606] Exhibit DI.
[607] Exhibit DH.
[608] Witness 1, Interview 3, P24.
[609] Witness 51, P19.
[610] Witness 1, Interview 4, P10.

h. [redacted][621] The Court determined that the ship was not appropriately force generated to undertake the survey task. [redacted]

[611] Exhibit HJ.
[612] Exhibit GI.
[613] Witness 35, P6.
[614] Exhibit GI.
[615] Witness 35, P9.
[616] Exhibit GI.
[617] Exhibit DP.
[618] Exhibit JK.
[619] Exhibit GK.
[620] Witness 46, P37.
[621] Exhibit FJ.

[redacted] In light of the risk identified, the Court considers that Witness 46 should have insisted on a more robust process to assure the force generation and ensure the Ship was ready to proceed to sea for their next task which included the survey task.

i. [redacted]

j. The Court found that Witness 46 provided support in relation to the SARC waiver[623] and had responsibility to provide advice on the Ship's maritime operational preparedness status prior to the ship deploying.[624] The Court found that in both of these areas, the advice was inadequate, and did not consider all of the risks. [redacted]

k. **ORM.** The Court concluded appropriate ORM steps were not taken so ORM was not robust. Refer to response for TOR 28.

l. **Violations.** The Court noted a number of deviations from OIP which are detailed in the response to TOR 35.

m. **Haste**. The Court heard competing evidence regarding the urgency of completing the task. [redacted]

[622] Exhibit HT, P8.
[623] Exhibit GL
[624] Exhibit HT P7.
[625] Witness 1, Interview 1, P15.
[626] Witness 2, Interview 1, P10.
[627] Witness 2, Interview 4, P4.

n. [redacted].[636] On balance the Court found time pressure was a contributory factor and influenced the way the survey task was conducted. The Court considers that the time pressure could have been avoided if the task had been properly planned.

o. **Leadership.** The Court considers that there were shortcomings in the leadership of Witnesses 1 (CO), 3 [redacted], and 4 [redacted] as key members of the Ship's command team. [redacted].[637] The Court notes a number of occasions when Witness 1 did not comply with OIP as detailed in the response to TOR 35.

p. The Court was concerned about the adequacy of the survey planning and risk assessment for the task the Ship was conducting, the selection of the hydrographic survey team provided to the Ship (including the inadequate supervision), and the lack of necessary orders and instructions to the hydrographic survey team for the task.[638]

q. The Court considers that the advice provided from Witness 46 to MCC regarding the Ship's state of force generation and readiness was inadequate [redacted].[639]

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[628] Witness 2, Interview 4, P2.
[629] Witness 2, Interview 4, P1.
[630] Witness 4, Interview 6, P5.
[631] Witness 4, Interview 6, P2.
[632] Witness 4, Interview 6, P6.
[633] Witness 5, Interview 1, P20 and P21.
[634] Witness 17, P28.
[635] Witness 1, Interview 3, P27.
[636] Witness 3, Interview 1, P15 and P16.
[637] Exhibit I.
[638] Witness 1, Interview 3, P9; Witness 2, Interview 3, P5 and P6; Exhibits I, CZ and DD.
[639] Exhibits GK and JK.

r. [redacted]

s. **Distraction/interruption.** [redacted]

t. The Court considers that this should not have distracted Witness 2, but that Witness 4 could have chosen a more opportune time to have this discussion given the proximity of the Ship to danger.

u. **Operational release.** The Court found no evidence of the SwA declaring the Ship seaworthy [643] for surveying. The Court was satisfied no such declaration existed. The Court notes DFI 8.3M requires a recommendation from MARREG [redacted] to the SwA on whether the Ship was 'safe to operate' and all appropriate integrated logistics support elements were in place for the Ship to be 'operated safely' for operational release.[644] [redacted].[646] The Court concluded that surveying operations had not been operationally released. The Court determined the seaworthiness review processes would more likely than not have identified operating seaworthiness deficiencies in the following areas as they are subject to seaworthiness review: readiness framework (force generation); risk assessment frameworks and policies; planning procedures and policies; approved operating standards which includes SOPs; and training requirements.[647] The Court determined the Ship was operating under its IOR, which did not include survey and that the use of the Ship for surveying without having completed the full operational release process made the Ship grounding more likely.

[640] Exhibit b, Para 2.07.
[641] Exhibit FF.
[642] Witness 2, Interview 4, P6.
[643] Exhibit LN, P6.
[644] Exhibit LN, P1-13.
[645] Witness 63, P7.
[646] Witness 64, P13.
[647] Exhibit LN, P2-17 to 2-25. Exhibit LS 20221022 MAN OR SwB Presentation.

v. **Hollowness.** A number of witnesses referred to hollowness in their testimony related to risk.

w. Witness 32 presented Exhibit FO that states that:[650]

> The major issue under management by the entire Naval System is the workforce hollowness issue due to very high attrition rates that occurred over the last 2-3 years. This has resulted in a very lean and inexperienced workforce in the middle management area...this is severely impacting the ability...to supply the demand for workforce across the Naval System and deliver the right SQEP, specifically for operational units. Churn of personnel within the Naval System to meet demands is a significant risk, as there is no bench ashore to meet the demands.

x.

y. Hollowness was raised by a number of witnesses in relation to personnel gaps throughout the organisation. The Court found this to be an organisational risk that influenced or impacted a number of contributory factors. The Court found hollowness was a factor that had been raised as a risk impacting HMNZS MANAWANUI[652]

246. **Aggravating factors.** The Court considered that the following factors were aggravating factors and made the incident worse:

a. **Incorrect procedure.** Witness 2, with the endorsement of Witness 4, increased thrust to full power and attempted to adjust the direction of the

[648] Witness 32, P20.
[649] Witness 32, P16.
[650] Exhibit FO, P3 and P4.
[651] Witness 64, P16.
[652] Exhibit FJ.

azimuth thrusters to astern to crash stop the Ship,[653] when this could only occur if he had taken the Ship in hand. This caused the Ship to ground at a much faster speed than would have otherwise been the case.

b. **Inadequate preparedness.** The Ship was at an insufficient state of readiness for the task, with the fo'c'sle team not closed up with anchors ready to let go.

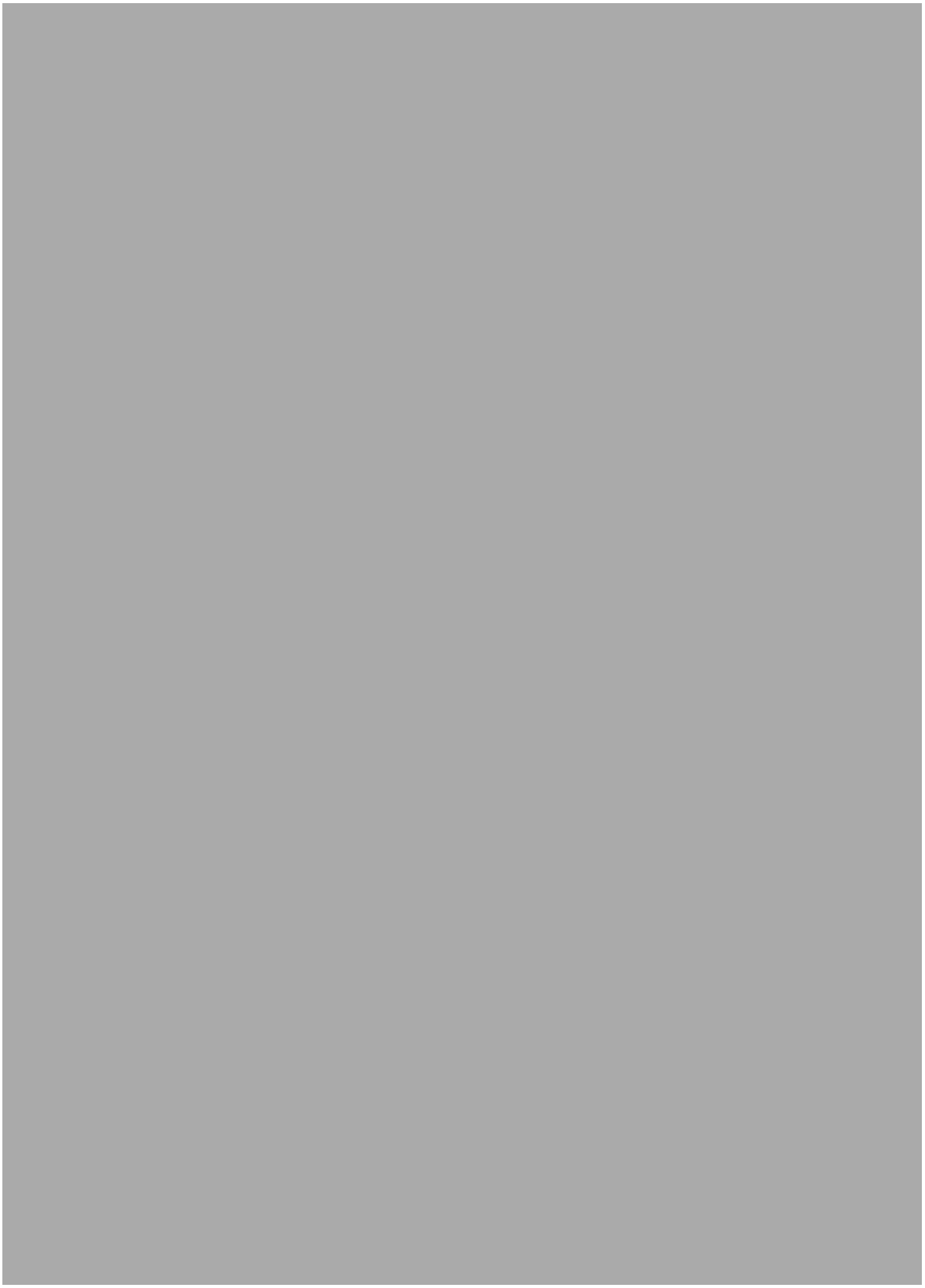
The Court was satisfied that the Ship was inadequately prepared and that had the anchors been ready to let go immediately, the Ship's speed onto the reef could have been slowed. It is possible that this could have lessened the damage and that the Ship could have removed itself from the reef after grounding, although the Court could not determine this with any confidence.

Courage in the face of adversity and support

247. The damage control, abandonment and rescue phases of the incident saw many personnel on board the Ship show courage, bravery and leadership. The Court heard of a number of individuals who lead and stepped up for their ship and shipmates, putting others before self. While the Court heard many accounts of areas where there were deficiencies, there were also many areas where leadership, professionalism and teamwork were present and the Ship's company of HMNZS MANAWANUI should be proud of their efforts to ensure everyone got to shore safely.

248. There were many examples of exemplary conduct by the Ship's crew during the damage control, abandonment and rescue phases of the incident.

[653] Witness 1, Interview 1, P22 and P23; Witness 2, Interview 1, P22, P23, P27; Exhibit CY (voice data) at 18:16:34.
[654] Witness 1, Interview 1, P17.
[655] Witness 20, Interview 1, P3.
[656] Witness 41, P31.
[657] Witness 41, P32.
[658] Witness 20, Interview 2, P38.
[659] Witness 20, Interview 2, P39.



[660] Witness 20, Interview 2, P38 and P39.
[661] Witness 20, Interview 2, P38.
[662] Witness 9, Interview 2, P13.
[663] Witness 9, Interview 2, P13 and P14.
[664] Witness 45, P10.
[665] Witness 45, P10.
[666] Witness 50, P4.

249. The Court was also presented with evidence from Exhibit LH that related to the many rescuers who came to the aid of the crew of HMNZS MANAWANUI. All of the excerpts below are from Exhibit LH.

250. The following vessels, people and organisations were involved in the rescue:

a. "Double Down ultimately brought 10 RNZN personnel ashore in the early morning after assisting the liferafts for many hours overnight"[668] who was captained by Doug Ahnne and crewed by Trevor Meredith and two unknown locals who offered their help on the wharf. They were also able to assist 11 personnel in a liferaft to board the MS Lodbrog, a cable laying ship in the area.

b. SFESA launched in their small RHIB and local Samoan fishermen who had local knowledge, they assisted with the rescue and recovered two personnel from different liferafts and brought them to shore.[669]

c. Maritime Police launched one of their small boats and the Nafanua III. They recovered 18 Ship's crew.[670]

d. A local villager took a kayak that was located nearby and paddled out into the reef and was able to locate a liferaft and evacuated a casualty to shore.[671]

e. 33 crew members who ended up in the water, swam and walked across the reef through the night and in to the early morning to make it ashore and were assisted by SFESA personnel and LTCDR Willans, RAN. SFESA paramedics treated and transported casualties to hospital.[672]

f. Co-ordination between the rescue vessels and the Ship's CO was undertaken by LTCDR Willans RAN,[673] which the Court considers was performed in an exemplary manner

g. The RNZAF P8 Poseidon provided invaluable information to the search and were able to relay messages which greatly assisted the SAR operation.

251. Finally, when the Court President and GPCAPT McWilliam visited Samoa, the support provided by the Samoan Government, NZ High Commission, Australian High Commission, their staff, other NZDF personnel and other government agencies who

[667] Witness 50, P4.
[668] Exhibit LH(1), para 9.
[669] Exhibit LH(1), para 25.
[670] Exhibit LH(1), para 14-15.
[671] Exhibit LH(1), para 23.
[672] Exhibit LH(1), para 24.
[673] Exhibit LH(1), para 23

supported the NZDF and the people of Samoa was highlighted as being of immense assistance.

RECOMMENDATIONS

TOR 37: Are there any recommendations or changes that could be made to prevent a recurrence of such an incident?

252. The Court approached recommendations by setting out the lessons the Court identified and the recommendation(s) that flow from that lesson.

a. Risk management

Lesson

253. The Court determined the lack of understanding of the necessity and criticality of risk management, the confused policy and procedures, and training system inadequacies enabled the poor application of risk management.

Recommendation

254. The Court recommends the risk management framework is reviewed to ensure the following:

    a. policy and procedures are appropriate for the full range of persons involved in the ownership, management and administration of all the different risk management steps;

    b. education is provided on the necessity and criticality of risk management; and

    c. training is provided on the application of the risk management processes.

b. OIP and information management

Lesson

255. The Court found significant deficiencies existed in a wide range of OIP related to the incident, and in places were inadequate or poorly managed. The Court also noted some of the OIP were complex with a mix of orders, instructions, guidance and SOPs making it difficult to determine the importance of material. The Court determined these deficiencies enabled the use of unapproved or unsuitable OIP, and violations. The Court determined routine assurance activities should have identified some of the OIP deficiencies and violations.

Recommendation

256. The Court recommends the management of OIP (including associated information management systems) is reviewed to ensure OIP are:

    a. applicable, accurate and approved;

    b. maintained in good and legible order;

    c. accessible to personnel in a format and medium appropriate to the operational environment;

    d. applicable to the scope and level of the operation being conducted; and

    e. supported by a master document or record allowing the amendment status and document completeness to be ascertained.

c. Force generation

Lesson

257. The Court determined that the force generation continuum for the Ship had not been completed and incomplete activities and deviations were being mitigated by a future activity that didn't occur. This resulted in the Ship not having the appropriate readiness for the survey task.

Recommendation

258. The Court recommends a:

    a. review of the framework under which approval for compression of timelines for HATS, SATS, SARC, MCSD, WUP is decided; and

    b. a review how risk is managed when deviations from the force generation process are approved.

d. Seaworthiness and operational release

Lesson

259. The Court determined the operational release system was poorly understood including the seaworthiness function and involvement. The Court found the documentation regards the intended roles of the Ship and the roles actually operationally released confusing. The Court determined these factors combined to enable the Ship to be tasked for surveying, a role which had not been operationally released.

Recommendation

260. The Court recommends a review of the:

a. seaworthiness education and training activities to ensure all sailors have an understanding of seaworthiness; and

b. operational release approval process to ensure the following:

i. intended roles of the Ship are described in detail to ensure the range of intended tasks clearly fit the intended role;

ii. process for operational release is articulated and understood including the ownership of the application process;

iii. authorisation of operational release is articulated and understood; and

iv. roles operationally released with conditions and limitations are detailed in an authoritative, identifiable and readily accessible document.

e. Training and experience

Lesson

261. The Court determined there were weaknesses in the training, posting and record keeping systems which enabled individuals to hold appointments or posts without necessary levels of proficiency and /or experience in core skills, leadership and supervision.

Recommendation

262. The Court recommends a review of:

a. the processes that assure only SQEP are posted and/or appointed with prescribed levels of proficiency and experience to ensure:

i. minimum qualifications and experience are prescribed for all ship's company positions;

ii. syllabuses of training exist for all qualifications including endorsements, and awarding of an authorisation;

iii. currency and requalification requirements are prescribed;

iv. training is delivered by individuals with appropriate subject matter expertise and an instructional qualification;

v. assessment criteria for training resulting in the award of a qualification, endorsement and authorisation is prescribed;

vi. position descriptions or equivalent exist for all positions with the minimum qualifications and experience included;

vii. a process exists for ensuring personnel's qualifications and experience are checked against the minimum post qualifications before posting;

viii. the source documentation providing the evidence of an individual gaining a qualification is held on file;

ix. existing personnel hold the necessary qualifications, and if not develop a "recovery" plan; and

x. all training states for each individual are held in a database and are available to the Ship's CO.

b. the policies setting out who can waiver SQEP and how risk is managed (i.e. is the PERSDEF policy fit for purpose).

f. Hydrographic capability

Lesson

263. The Court determined that without sufficient OIP to safely plan and execute hydrographic survey tasks, the hydrographic capability within the RNZN is severely degraded. In the case of this incident, these issues were exacerbated by the absence of SQEP hydrographic personnel within the Ship and HMNZS MATATAUA. Insufficient supervision and authorisation was provided for the task, and the MAT hydrographic detachment was not appropriately force generated.

Recommendation

264. The Court recommends:

a. a pause on any non-essential hydrographic activities;

b. a new operational release process be developed for the MAT hydrographic elements; and

c. the adoption of a hydrographic capability system to ensure:

i. the hydrographic capability is defined with roles and tasks clearly identified;

ii. identification and creation of key appointments;

iii. an initial and ongoing competence framework, including assessment, is established;

iv. appropriate supervision and authorisation is given for each task;

v. a risk management process is introduced and maintained; and

vi. appropriate OIP are developed and introduced.

g. Lifesaving equipment, orders, instructions and procedures

Lesson

265. The Court determined that there were several issues related to lifesaving equipment and procedures stemming from the lack of familiarity with the equipment in the Ship, the procedures to be followed and, the currency of lifesaving training.

Recommendation

266. The Court recommends a review of:

a. All RNZN lifesaving related policies and practices to ensure:

i. sea survival training is conducted in representative environments using the identical equipment fitted to or carried by HMNZ ships;

ii. mandatory ancillary equipment carried in RNZN small boats is stored in Fleet standardised bags in all vessels to ensure personnel are familiar with its location;[674]

iii. the frequency and timing of sea survival training and refresher training is mandated and set at appropriate intervals to ensure all seagoing personnel remain current throughout their seagoing career;

iv. training records are maintained for all training activities;

v. abandonment procedures are developed and appropriate for each ship class; and

vi. OIP accurately reflect the lifesaving policies, and practices.

[674] Witness 20, Interview 2, P29.

h. Hollowness

Lesson

267. The Court determined that hollowness has caused the organisation to take risks including delivering the same level of performance to meet demands with a lean and inexperienced workforce.

Recommendation

268. The Court recommends:

    a. a review is conducted of the organisation's hollowness both ashore and afloat; and

    b. hollowness is actively managed at the Navy executive level to ensure risks are mitigated.

TOR 38: Are there any recommendations or lessons that the NZDF needs to learn to better prepare for an incident like this in the future?

Safety Investigation

269. The Court was aware of some uncertainty regards the appropriate and necessary action to preserve evidence and commence initial investigations in the immediate aftermath of the Ship grounding creating some difficulties for the Court.

270. 

TOR 39: Make any other recommendations that the Court considers relevant to the purpose of this Inquiry.

Recommendations made to the Assembling Authority during the course of the inquiry

271. The Court identified the following matters warranting consideration and has already passed them to the Assembling Authority, and appropriate parts of the organisation:

    a. **Immediate actions in the event of an incident.** Review of immediate actions to be taken following a major incident, specifically developing a shared

understanding of how to secure and preserve the site together with any relevant evidence.

b. **Platform endorsements**. Check to ensure all GLX staff in key appointments on board ships have been platform endorsed in accordance with MM 33.45 New Zealand Manual of Navigation, chapter 3.

c. **VDR data.** Ensure the fleet understands how to save VDR data.

d. **SRPs.** An audit to ensure SRPs are fit for purpose.

e. **Grab bags.** Review the appropriateness of the grab bags on bridges.

f. **SARC.** Audit the SARC requirements and waivers.

272. The Court, in its interim report identified additional the following contributory factors and recommended the Assembling Authority consider reviewing in advance of the Court's final report:

a. **Deviations**. Reinforce the need to comply with and use approved OIP unless appropriate approval is given to do otherwise with an associated risk assessment.

b. **Programme compression.** Review the framework under which approval for compression of timelines for HATS, SATS and SARCs is decided.

273. Finally, the Court identified to the Assembling Authority a concern about the way survey tasks are planned and executed together with gaps in the leadership and management of the hydrographic capability. These concerns resulted in an operational pause being directed to RNZN hydrography.[675]

Preliminary Investigations

274. The Court is not a disciplinary body and cannot make findings of guilt.[676] The Court is however required to report to the Assembling Authority allegations of what may be offences that arise during the course of its inquiry for the purpose of a separate Preliminary Investigation. This is a low threshold. Accordingly, the Court recommends that the Assembling Authority considers directing a Preliminary Investigation into possible:

[redacted]

[675] Witness 31, Interview 3, P8.
[676] President's and Assembling Authority's Guide to Courts of Inquiry, P 15.

Recognition

275. The Court determined that a number of Ship's crew showed courage, bravery and leadership during the damage control, abandonment and rescue phases of the incident and should be recognised. The Court noted that the NZDF has recognised a number of units and individuals who were involved in the rescue in Samoa.

276. The Court recommends recognition of individuals from the Ship's crew is progressed.

CONCLUSION

277. The Court concluded that the grounding of the Ship on 5 October 2024 was directly caused by:

a. the Ship being on a 340° heading towards danger (land);

b. a loss of awareness of the fact that the Ship was in autopilot and subsequent attempts to adjust course away from land using the azimuth thruster controls, when this would only work when the Ship was in hand; and

c. a mistaken assessment that thruster control had been lost and a failure to then follow the bridge cards for a thruster control failure which would have required:

iii. switching the Ship from autopilot to in hand (i.e. switch to manual control); and if that had failed

iv. taking all thrust off the affected thruster.

278. In addition to the direct causes, the following contributory factors were identified:

a. training and experience;

b. military hydrographic planning;

c. OIP;

d. ORM;

e. force generation;

[677] Witness 1, Interview 1, P20.

f. operational release;

g. supervision;

h. violations;

i. haste;

j. leadership;

k. distraction/interruption; and

l. hollowness.

279. Finally, the following aggravating factors made the grounding worse:

a. incorrect procedure to stop the Ship; and

b. inadequate preparedness to drop anchors.

Dated at Devonport Naval Base on 31 March 2025

M. ROSS
CDRE, RNZNR
President

J. MCWILLIAM
GPCAPT
Member

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