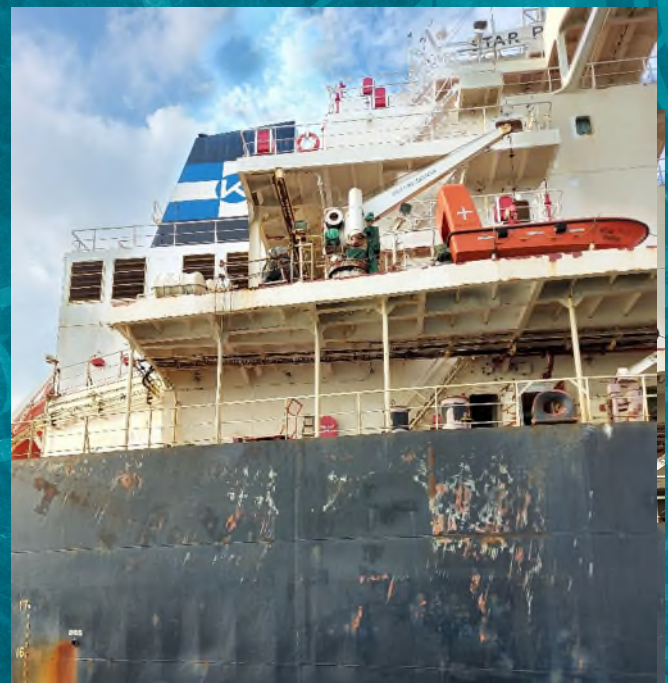


Marine Safety Investigation Report

into a man overboard from Star Peace on
23 October 2021



The Bahamas conducts marine safety or other investigations on ships flying the flag of the Commonwealth of the Bahamas in accordance with the obligations set forth in International Conventions to which The Bahamas is a Party. In accordance with the IMO Casualty Investigation Code, mandated by the International Convention for the Safety of Life at Sea (SOLAS) Regulation XI-1/6, investigations have the objective of preventing marine casualties and marine incidents in the future and do not seek to apportion blame or determine liability.

It should be noted that the Bahamas Merchant Shipping Act, Para 170 (2) requires officers of a ship involved in an accident to answer an Inspector's questions fully and truly. If the contents of a report were subsequently submitted as evidence in court proceedings relating to an accident this could offend the principle that a person cannot be required to give evidence against themselves. The Bahamas Maritime Authority makes this report available to any interested individuals, organizations, agencies or States on the strict understanding that it will not be used as evidence in any legal proceedings anywhere in the world. You must re-use it accurately and not in a misleading context. Any material used must contain the title of the source publication and where we have identified any third-party copyright material you will need to obtain permission from the copyright holders concerned.

Date of Issue: 30 June 2023
Bahamas Maritime Authority
120 Old Broad Street
LONDON
EC2N 1AR
United Kingdom

Contents

1.	Summary	1
2.	Factual Information	2
3.	Analysis	8
4.	Conclusions	12
5.	Actions taken	13
6.	Recommendations	14
7.	Glossary and Definitions	15
	Appendices	16

1. Summary

What happened

On 23 October 2021, the Bahamas flagged bulk carrier Star Peace was on passage, approximately 130' west southwest of Cape Town, in heavy weather. With access to the open decks restricted, two supernumeraries who were on the sheltered cross deck alleyway noticed the provision crane's lashings were loose.

Having sent his colleague to the engine room to collect a chain block, the supernumerary fitter climbed on to the crane's access platform to start securing it. Whilst on the platform, the vessel took a heavy roll, the crane's remaining lashings parted and the crane travelled at speed to the end of its rail and was lost overboard, along with the supernumerary fitter. He was not recovered.

Why it happened

The provision crane had been secured for sea on departure from its last port but the crane's securing arrangements were not effective. After it broke loose, the travel beam's end stops did not arrest the crane's movement.

The victim's role - separate to the crew - may have informed his decision to address the provision crane's lashings without asking for further assistance.

At the time of the casualty, heavy weather precautions, including limiting access to the deck, were in force but the completion of the checklist did not include physical checks of any high-risk items.

What can we learn

Securing devices and safety measures (such as end stops) may not be fit for purpose, even if they are approved and have been in use for a significant period of time.

Heavy weather precautions that limit access to open decks may not be sufficient to control risks.

Supernumeraries need to be included in shipboard work planning and communications for the safety management system to function.

2. Factual Information

Star Peace

Vessel Type	Bulk carrier	Flag	Bahamas		
Owner	Vermio Shipping Corp	Manager	Charterwell Maritime SA		
Classification Society	Nippon Kaiji Kyokai (ClassNK)	Gross/Net Tonnage	43,445 / 27,197		
Built	2011, Nanjing Yichuan Wujiazui, China	Propulsion	Single 7S50MC-C engine driving fixed pitch propellor		
IMO No.	Callsign	Length overall	Breadth	Moulded Depth	
9568718	C6EY7	229m	32.3m	20.25m	
Last BMA Inspection			Last PSC Inspection		
Initial: 02 October 2021. No deficiencies			Paranagua, 05 October 2021. No deficiencies		



Star Peace at anchor, Singapore

Crew details

Rank/Role on board	Supernumerary Fitter (Victim)	Master	Chief Officer
Qualification	None	Master (unlimited)	Master (unlimited)
Certification Authority	N/A	China	China
Nationality	Polish	Chinese	Chinese
Age	64	51	38
Time in rank	>10 years	10 years	<1 year
Time on board	8 weeks	6 months	6 months

Environmental Conditions

Wind Direction	Wind Force	Wave Height	Swell Height	Precipitation / Sky	Visibility Range	Light Conditions
South westerly	7 (Beaufort)	3.5-4m	4-5m	Overcast	Good	Light

Voyage Details

Departure Port	Rio Grande, Brazil	Arrival Port	Port Elizabeth, South Africa
Time of departure	11 October 2021	Estimated time of arrival	26 October 2021
Voyage duration	15 days	Voyage distance	Approx. 4000'
Cargo	67,437 tonnes of soybeans	POB	26
Stage of passage	Deep sea	Traffic density	Light

Narrative

All times used in this report are UTC+1.

On 22 October 2021, Star Peace was on passage from Rio Grande, Brazil, to Port Elizabeth, South Africa. As well as its normal complement of crew, there were three supernumeraries onboard, a fitter, a technician and a superintendent who had joined the vessel to assess its condition and carry out essential maintenance as part of the new Owner's refurbishment program.

In the afternoon, with weather conditions deteriorating and gale force winds forecasted, the officer of the watch completed the heavy weather checklist which included restricting access to the open decks.

The following day, 23 October, gale force winds continued and heavy weather precautions remained in force. At around 15:30, after a coffee break in the crew recreation room, the supernumerary fitter and the technician left the accommodation on A deck, into the sheltered cross deck to smoke.

Whilst there, they noticed the vessel's provision crane moving as the vessel rolled and set about trying to secure it. The supernumerary fitter climbed on to the crane's service platform and sent his technician colleague to get a chain block from the engine room.

At 16:31, in position 34°50.9'S 015°56.8'E while the supernumerary fitter was on the crane's service platform, the vessel took a heavy roll, first to port and then to starboard – the crane's remaining lashings parted, the crane travelled at speed to the end of its rail and was lost overboard, along with the supernumerary fitter.

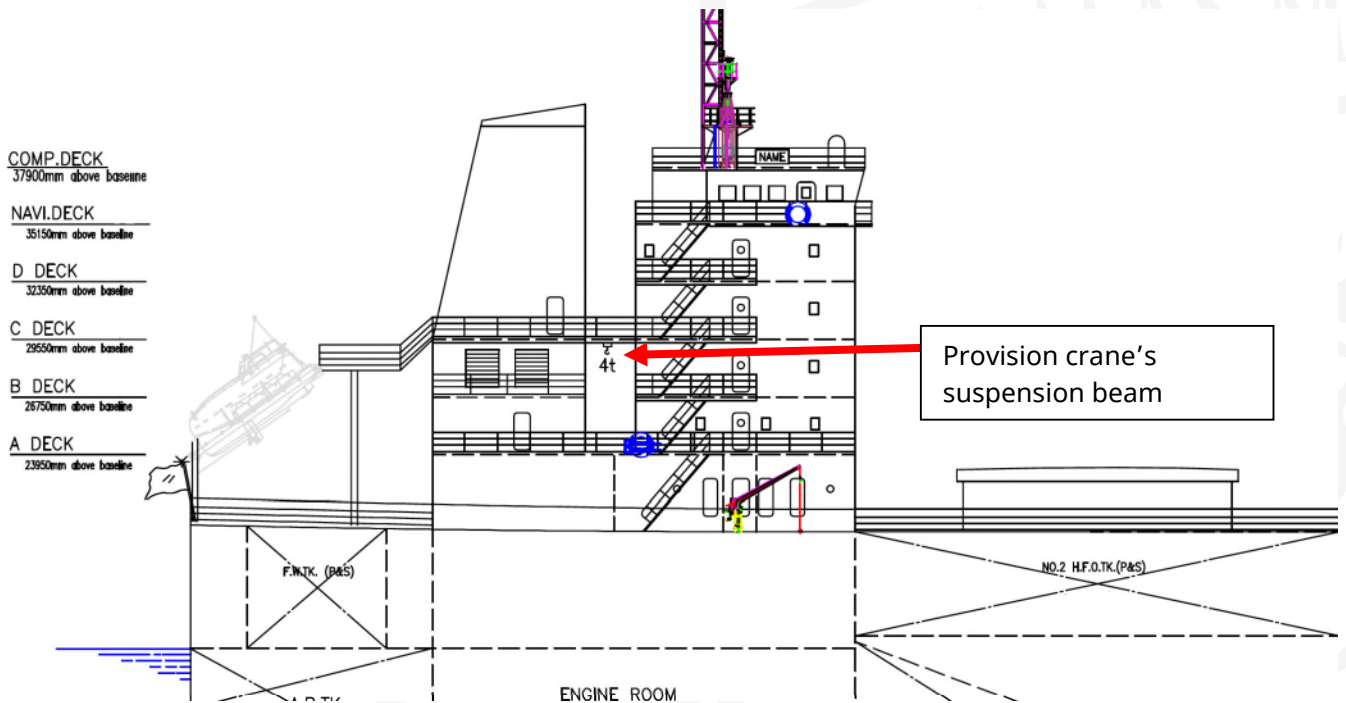
His colleague, who had just returned from the engine room as this happened, immediately notified the bridge where the man overboard alarm was raised and a distress message was transmitted. Both bridging light and smoke lifebuoy markers were released, the vessel started a round turn to starboard and then conducted a search pattern as directed by MRCC Cape Town.

The bridging lifebuoy markers released as part of the initial actions were found on completion of the initial round turn but, after over 18 hours, the search was suspended. On the advice of MRCC Cape Town. The victim was not recovered.

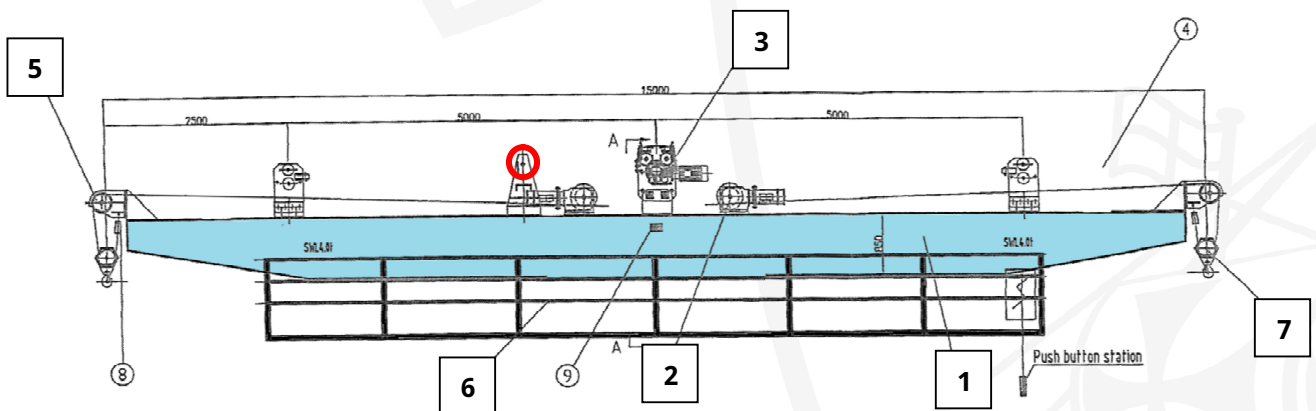
Provision Crane

The provision crane was an EMC electric monorail provision crane with a safe working load of four tonnes. It was not designed to be used in a seaway and could not be used if heel/list exceeded 5° or if the trim exceeded 2°. It was manufactured by Zhenjiang Just Marine Equipment Co. and fitted during the ship's build. It was last inspected by the vessel's classification society - ClassNK - on 25 March 2021, when it was subject to a load test. It was last subject to scheduled maintenance by the crew on 02 October 2021.

The crane was located on the cross deck, between the aft bulkhead of the accommodation and the forward bulkhead of the engine funnel casing. At the vessel's departure loaded condition, it was located 16.25m above the water line.



Star Peace: extract from general arrangement, arrow indicates location of provision crane



Schematic drawing of the provision crane, securing point ringed

The crane was constructed as a girder (1) with hoisting machinery (2) running a single wire fall through an upper block (5) to a travelling block (7) at either end of the girder. It was suspended from the ship's structure by a single I-beam fitted with a rack on the underside. The crane's travel machinery (3) drove a gear that engaged with the rack to move it athwartships. Underneath the girder was a service platform (6) to facilitate access.

The crane was operated using a hard-wired remote-control box, designed so that the operator could control the crane whilst stood on deck. When not in use the provision crane was secured by a locking pin that passed through a lug (ringed) and into the suspension beam. Additionally, the hooks were secured with wire strops to pad eyes welded on deck.



Provision crane machinery and suspension beam, taken from the service platform (forward side, pre-casualty)

The suspension beam was fitted with limit switches to stop the crane's travel machinery before overreach and end stops to prevent travel beyond operational limits.

Safety management system

The vessel's safety management system included a safety manual, checklists and company-generated generic "Detailed Risk Assessments." The safety manual followed guidance included in International Labour Organization's Code of Practice "Accident prevention on board ship at sea and in port." It included the following on Cargo Operations:

Cargo gear should be properly stowed to prevent it from breaking loose and posing a hazard when the vessel is at sea.

Cargo should be stowed and secured assuming the worst weather conditions, which may be expected.

The safety manual also included guidance on precautions in heavy weather:

20.9. Heavy weather

Lifelines should be rigged in appropriate locations on deck if heavy weather is expected.

Attention should be given to the dangers of allowing any person out on deck during heavy weather.

No seafarers should be on deck during heavy weather unless it is absolutely necessary for the safety of the ship or crew.

The lashings of all deck cargo should be inspected and tightened as necessary when heavy weather is expected. Work on deck during heavy weather should be authorized by the master and the bridge watch should be informed.

Any person required to go on deck during heavy weather should wear a life jacket and be equipped with a portable transceiver. If possible, the person should remain in communication with a backup person and be visible at all times.

Seafarers on deck should wear reflective clothing.

Seafarers should work in pairs or in teams. All seafarers should be under the command of an experienced senior officer.

There was also an associated checklist “Navigating in heavy weather or tropical storm” (see appendix 1) and a navigation in heavy weather risk assessment that included the following hazards and control (full document at appendix 2).

Hazard No	Description of Identified Hazard	Existing Control Measures to protect personnel from harm
2	Fall and movement of loose objects	Order all movable objects to be secured onboard: above and below decks, engine room, galley and storerooms
5	Man overboard	Warn crew to avoid open deck areas

All three of the supernumerary crew completed a crew familiarisation checklist on joining the vessel.

The vessel’s safety management system also included a schedule for conducting emergency drills - man overboard drills were scheduled to be completed monthly. The last man overboard drill was completed on 13 October 2021, it covered initial actions, posting lookouts, distress communications and preparation for launching the rescue boat – it did not include launching the rescue boat.

Legislation and guidance

The Bahamas Merchant Shipping (Hatches and Lifting Plant) Regulations give effect to the requirements of ILO Convention 152 for ship’s lifting gear. Bahamas National Requirements grants full authority for Bahamas Recognised Organisations to apply the requirements of these regulation to Bahamian ships.

ClassNK Rules for Cargo Handling Appliances specifies requirements for the arrangement, construction, materials and welding of cargo handling appliances as well as requirements for inspection and testing of lifting equipment (including provision handling cranes) onboard vessels classed with Nippon Kaiji Kyokai (ClassNK).

3. Analysis

The purpose of the analysis is to determine the contributory causes and circumstances of the casualty as a basis for making recommendations to prevent similar casualties occurring in the future.

Shipboard Organisation

As a newly purchased vessel, the crew had limited experience of operating to the requirements of the Company’s safety management system. The superintendent, fitter and technician were long-term Company employees that were onboard to bring the vessel up to the standard required by the Company.

The victim had completed over 100 trips on Company vessels with the overarching objective of fixing a pressing problem or bringing newly purchased vessels up to an acceptable level of operation. He operated under the supervision of the vessel’s superintendent and created his own jobs list – completing tasks as he saw fit with the resources available. He did not report directly to the vessel’s Chief Officer or Chief Engineer and was not involved in either Department’s work planning meetings.

This may have influenced his decision to address the provisions crane’s lashing without seeking assistance from the crew.

Provision crane design

The provision crane had been secured for sea on departure from Rio Grande but the crane’s securing arrangements were not effective – the securing pin had no locking mechanism to prevent unintentional removal and the hoisting machinery were not designed to be used as securing devices.

These limitations had been identified on a sistership and additional securing arrangements had been retrofitted. It is unclear whether there was a similar plan to add the same securing arrangement to Star Peace.



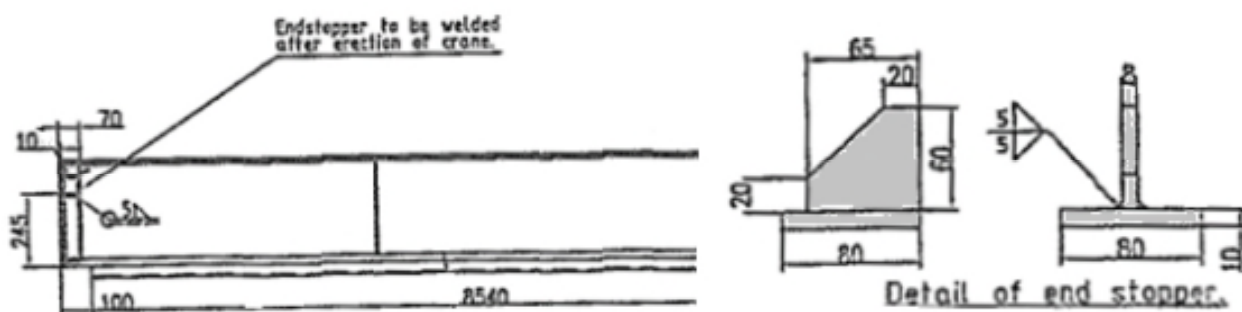
Sistership arrangement: securing pin (original design) and retrofitted securing arrangements (ringed)

On 01 July 2021 ClassNK added the following requirement to their rules: *Control systems for the track-mounted cranes (including their trolleys) are to be provided with braking devices to control travelling except for the human-powered travelling cranes (Chapter 7, 7.4.2-8).* There was no effective braking system in place.

End stops are intended to serve as a failsafe to prevent monorail cranes travelling past their maximum reach by physically stopping any further advance. End stops may incorporate a buffer made of rubber, polyurethane or of another energy absorbing design to reduce the shock loads of impact. Bahamas Merchant Shipping (Hatches and Lifting Plant) Regulations / ILO Convention 152 do not specify any requirements for end stop capability or design.

ClassNK Rules for Cargo Handling Appliances stipulates that track-mounted cranes are to be provided with buffers in accordance with (1) and (2) below, except when automatic system for prevention of collision is provided. (1) At both ends of tracks or any other equivalent positions. These buffers may be replaced by stops of a height not less than 1/2 of the diameter of wheels. (2) Where more than two track-mounted cranes are provided on one track, between these track-mounted cranes.

The end stops on Star Peace were constructed as 80mm x 80mm steel squares of 10mm thick steel, welded on the forward and aft faces, 70mm from the extreme end of the I-beam. The end stops did not incorporate any form of buffer to absorb energy of impact.



End stop design (text reads: “Endstopper to be welded after of erection of crane”)

ClassNK rules on load tests for track-mounted cranes include the following requirements:

- a) The crane is to run on the track within the travelling limits with the test load based on the safe working load suspended on it. In this case, the hull structure supporting the travelling track is also to be confirmed that it is free from defects.
- b) Where traveling trolley is employed, it is to run the whole travelling range through with the test load based on the safe working load suspended on it.

As part of the ClassNK Annual Thorough Surveys for track-mounted cranes, rails, buffers and the connection between those members and hull structure are to be visually examined and ascertained to be in good order.

Neither the load test or annual thorough survey identified an issue with the end stops or the limits of the design at the crane’s rated speed.

Whilst the design of the stoppers do not appear to conform with rules requirements and (empirically) they were insufficiently strong to arrest the movement of the crane with significant momentum, the end stop on the aft face of the suspension beam was not as designed and had suffered a deflection (origin not confirmed). The end stop on forward face was found to be undamaged - indicating it did not engage with the crane when it passed its travel limit.



End stops - aft and forward sides, post-casualty

Safety Management System

The heavy weather checklist included the requirement to conduct the following checks.

The following checks should be carried out...

- 1 Have the Master, Engine Room and crew been informed of the conditions?
- 2 Has the ship's accommodation been secured and all ports and deadlights closed?
- 3 Have all movable objects been secured above and below decks, particularly in the Engine Room, Galley and in storerooms?
- 4 Have been course and speed adjusted as necessary?

Have instructions been issued on the following matters?

- 1 Monitoring weather reports
- 2 Transmitting weather reports to the appropriate authorities or, in the case of tropical storms, danger messages in accordance with SOLAS

This check-list remains in Bridge Check list file, in order to be read each time an Deck Officer encounters a similar situation.

There was no guidance on informing supernumeraries of oncoming heavy weather or what was required from them during periods of heavy weather but the surviving supernumeraries confirmed they had been informed of the oncoming weather by the master.

For securing of the ship, there was no list of items to be secured but checking the provision crane was standard practice. On the day before the casualty, the bosun checked the provision crane's lashings – this included inspecting the condition of the lashings attached to the crane's hooks and confirmation that the pin was in place. The chief officer confirmed this and recorded the check in the planned maintenance log as well as on the heavy weather checklist.

No adjustment was made to the vessel's course and speed during the period of heavy weather preceding the casualty. The vessel had been experiencing heavy rolling for some time before the casualty but the roll experienced at 16:30 was reported to be significantly larger than that experienced earlier.

Whilst the checklist was completed on both 21 and 22 October, no physical checks were made on the day of the casualty – it was assumed everything was still secured following the previous day’s checks.

The checklist was completed alongside the “Detailed Risk Assessment” N-05 on both 21 and 22 October. The risk assessment’s sole control measure for avoiding man overboard consisted of warning crew to avoid open deck areas. Interviews with crew identified that the restriction of access to open deck areas meant they should not access the main deck and that the relatively sheltered cross deck alleyway on A deck was considered safe.



4. Conclusions

- The victim was lost when a provision crane he was attempting to secure broke free in heavy weather and was lost overboard.
 - The crane had been secured for sea on departure from its last port but the crane’s securing arrangements were not effective – the single securing pin had no locking mechanism and the winches were not designed to be used as securing devices.
 - The monorail end stops did not restrict the movement of the crane. Notwithstanding the limitations of their design, they did not effectively engage with the crane when it passed its travel limit.
 - The victim’s role as an autonomous problem solver, independent to the crew, may have influenced his decision to remedy the securing of the provision crane without seeking assistance.
 - At the time of the casualty, heavy weather precautions, including limiting access to the deck, were in force but control measures were limited to restricting access to the main deck and the completion of the checklist did not require physical checks of any high-risk items.
 - After being alerted to the man overboard, the bridge team’s immediate actions and initial search were timely and in line with requirements. The vessel continued the search, following advice from MRCC Cape Town, for 18 hours in challenging conditions.
-

5. Actions taken

Charterwell Maritime SA has:

- Issued a fleet memorandum on maintenance and securing of lifting appliances and lifting gear.
- Commissioned an independent investigation in to the casualty.
- Updated its safety management system in line with recommendations of the independent investigation.

Nippon Kaiji Kyokai has:

- Adapted its classification rules, to clarify the requirement for weight-testing track-mounted cranes throughout their working range (i.e., to the end stops).
-

6. Recommendations

In light of actions taken, there are no recommendations.

7. Glossary and Definitions

Athwartships	Across the vessel sideways, i.e. in a direction at right angles to the fore-and-aft line of the vessel
BMA	Bahamas Maritime Authority
ClassNK	Nippon Kaiji Kyokai – the vessel’s Classification Society
Company	Owner of the ship or any other organization or person such as the Manager, or the Bareboat Charterer, who has assumed the responsibility for operation of the ship from the Shipowner and who on assuming such responsibility has agreed to take over all the duties and responsibility imposed by the Code (ISM Code, section 1.1.2)
Heel	transverse angle that the vessel adopts due to an external force
I-beam	a girder which has the shape of the letter “I” when viewed in section
List	transverse angle that the vessel adopts due to internal distribution of weights (i.e. not an external force)
MRCC	marine rescue and co-ordination centre
m	metre. Unit of measurement: 1 metre = 1000mm
Supernumerary	a person employed in addition to the regular complement of crew, but having no shipboard responsibilities
Trim	longitudinal angle the vessel adopts due to internal distribution of weights

Appendices

Appendix 1

CHARTERWELL MARITIME S.A. CHA/OPE/28
01/01.05.2013

MV STAR PEACE DATE: 22 - OCT - 2021

NAVIGATION IN HEAVY WEATHER OR TROPICAL STORM

RIO GRANDE, BRAZIL PORT ELIZABETH, SOUTH AFRICA.
From port : To port :


The following checks should be carried out...


- 1 Have the Master, Engine Room and crew been informed of the conditions?
- 2 Has the ship's accommodation been secured and all ports and deadlights closed?
- 3 Have all movable objects been secured above and below decks, particularly in the Engine Room, Galley and in storerooms?
- 4 Have been course and speed adjusted as necessary?


Have instructions been issued on the following matters?

- 1 Monitoring weather reports
- 2 Transmitting weather reports to the appropriate authorities or, in the case of tropical storms, danger messages in accordance with SOLAS

This check-list remains in Bridge Check list file, in order to be read each time an Deck Officer encounters a similar situation.


MASTER'S SIGNATURE

3/0 
OOW SIGNATURE

9/0 
2/0

Appendix 2

CHARTERWELL MARITIME S.A.

DETAILED RISK ASSESSMENT

RISK-02
June 2001

Ship's Name: STAR PEACE		Work Activity Being Assessed: Navigation in heavy weather		Record Number: N-05		
Hazard No		Description of Identified Hazard		Last Assessment date: 22 - OCT - 2021		
Hazard No		Existing Control Measures to protect personnel from harm		Assessment of Risk Factor		
Hazard No		Description of Identified Hazard		Severity of harm		
Hazard No		Description of Identified Hazard		Likelihood of harm		
Hazard No		Description of Identified Hazard		Risk Factor		
1	Lack of engine and ship readiness	Inform Master, EOW and crew	Very Low Risk	VU	MH	VLR
2	Fall and movement of loose objects	Order all moveable objects to be secured onboard: above and below decks, engine room, galley and store-rooms	Very Low Risk	VU	MH	VLR
3	Lack of ship water-tightness	Order accommodation watertight and weather-light doors to be secured and all port-lights and ports to be closed	High Risk	VU	MH	VLR
4	Hull fatigue	Adjust course and speed	Very High Risk	VU	MH	VLR
5	Man overboard	Warn crew to avoid open deck areas	Very High Risk	VU	MH	VLR
6	Lack of safe access to forecastle	Rig safety lines / hand ropes where appropriate	Very High Risk	VU	MH	VLR
7	Lack knowledge on weather changes	Monitor weather reports	Very High Risk	VU	MH	VLR
8	Lack of information sharing	Transmit weather reports to the appropriate authorities as / if applicable	Very High Risk	VU	MH	VLR
9	Lack of manpower	OoW, back up officer as radar observer, helmsman, look out	Very High Risk	VU	MH	VLR
10			Very High Risk	VU	MH	VLR
<p>To assess the Risk Factor arising from hazard</p> <ol style="list-style-type: none"> Select the likelihood which most applies to the hazard Select the severity of harm which most applies to the hazard Cross refer to above risk estimator table to determine the level of Risk If the risk factor is medium or above (yellow, orange or red) additional control measures should be implemented and recorded below 						
<p>Additional Control Measures to reduce the Risk of Harm</p>						
Hazard No	Further Risk Control Measures	Remedial Action Date	Review Date			
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Additional Comments:						
Assessment Review Date:						
Name & Signature of Safety Officer:						
Name & Signature of Master:						
Name & Signature of Responsible Officer:						