

Final report RS 2017:01e

NORDIC STANI – Man-over-board in the
Sea of Åland 09 April 2016

File no. S-56/16

16 March 2017

SHK investigates accidents and incidents from a safety perspective. Its investigations are aimed at preventing a similar event from occurring in the future, or limiting the effects of such an event. The investigations do not deal with issues of guilt, blame or liability for damages.

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Content

General observations.....	4
The investigation.....	4
SUMMARY	7
1. FACTUAL INFORMATION	8
1.1 Sequence of events.....	8
1.2 Consequences.....	9
1.3 Place of occurrence	10
1.4 Relevant ship particulars and circumstances	11
1.4.1 Deck area concerned.....	11
1.4.2 Relevant vessel data.....	13
1.4.3 Relevant instructions	14
1.4.4 Crew	14
1.5 Meteorological information	15
1.6 Relevant regulations.....	16
1.7 Contingency for survival.....	16
1.8 Emergency response	16
2. ACTIONS TAKEN.....	18
3. ANALYSIS.....	20
3.1 The disappearance.....	20
3.2 The regulations	20
3.3 The Search and Rescue operation	21
3.4 The police's handling of the notification of a missing person	21
4. CONCLUSIONS	22
4.1 Findings	22
4.2 Causes and Contributing factors	23
5. SAFETY RECOMMENDATIONS	23

General observations

The Swedish Accident Investigation Authority (Statens haverikommission – SHK) is a state authority with the task of investigating accidents and incidents with the aim of improving safety. SHK accident investigations are intended to clarify, as far as possible, the sequence of events and their causes, as well as damages and other consequences. The results of an investigation shall provide the basis for decisions aiming at preventing a similar event from occurring in the future, or limiting the effects of such an event. The investigation shall also provide a basis for assessment of the performance of rescue services and, when appropriate, for improvements to these rescue services.

SHK accident investigations thus aim at answering three questions: *What happened? Why did it happen? How can a similar event be avoided in the future?*

SHK does not have any supervisory role and its investigations do not deal with issues of guilt, blame or liability for damages. Therefore, accidents and incidents are neither investigated nor described in the report from any such perspective. These issues are, when appropriate, dealt with by judicial authorities or e.g. by insurance companies.

The task of SHK also does not include investigating how persons affected by an accident or incident have been cared for by hospital services, once an emergency operation has been concluded. Measures in support of such individuals by the social services, for example in the form of post crisis management, also are not the subject of the investigation.

The investigation

SHK was informed on 12 April, 2016, that a very serious casualty involving the container vessel NORDIC STANI (IMO no. 9483671) had occurred in the Sea of Åland, on 9 April, 2016, at around 12:00 hrs.

The accident has been investigated by Sweden and SHK has been represented by Mrs Helene Arango Magnusson, Chairperson, Capt. Jörgen Zachau, Investigator in Charge, and Capt. Dennis Dahlberg, Operations Investigator. The flag state Cyprus has taken part in the investigation as substantially interested state.

The investigation was followed by Capt. Patrik Jönsson of the Swedish Transport Agency, Mr. Ulf Holmgren, Swedish Maritime Administration and Inspector David Holgersson from the Swedish Police.

Investigation material

Interviews have been conducted with members of the crew, the SAR Mission Coordinator at the RCC and representatives from the police. The vessel and especially the assumed place of accident on board have been examined. A fact finding presentation meeting was held 8 February 2016. At the meeting SHK presented the facts discovered so far.

Final report RS 2017:01e

Ship particulars

Flag/register	Cyprus
Identification	NORDIC STANI
IMO identification/call sign	9483671/5BMB3
Vessel data	
Type of ship	Container vessel
Built year	2010
Gross tonnage	10,318
Length, over all	151.74 m
Beam	23.4 m
Draft, actual	8.28 m
Deadweight at max draft	13.200 mt
Main engine, output	9. 000 kW
Propulsion arrangement	Single, variable pitch propeller
Lateral thruster	Forward
Rudder arrangement	Spade rudder
Service speed	19 knots
Ownership and operation	Mancay Consultants Limited and Nordic Hamburg Shipmanagement (HK) Ltd respectively
Classification society	Bureau Veritas
Minimum safe manning	11



Figure 1. NORDIC STANI when arriving at Fredriksstad, Norway.

Voyage particulars

Ports of call	Rauma, Finland – Bremerhaven, Germany
Type of voyage	International
Cargo information	Loaded
Manning	14
Time	Ship's time UTC +2

Marine casualty information

Type of marine casualty	Man-over-board
Date and time	9 April 2016 ~12:00 hrs
Position and location	N59° 59.9' E019° 18.9' Sea of Åland
Weather conditions	Calm, good visibility, daylight
Consequences	
Personal injuries	1 person missing
Environment	N.a.
Vessels	N.a.



Figure 2. Vessels at the SAR-operation. The picture is taken from NORDIC STANI. Image: Nordic Hamburg Shipmanagement (HK) Ltd.

SUMMARY

Shortly before noon, a crew member on NORDIC STANI discovered that the Chief Engineer, who had gone out on deck for duties, was missing. The vessel was searched and shortly thereafter turned to the opposite heading. A SAR-operation was performed, but the Chief Engineer was not found.

The cause of the Chief Engineer's disappearance has not been possible to establish with certainty. A possible cause, however, is that he has fallen overboard as he attempted to move between a cross-bay and the deck and then died. A fall from a ladder that he must have used could have been made possible by the fact that an arrangement to prevent fall did not exist. A contributing factor may have been that the vessel at the same time turned to port, causing it to heel somewhat to starboard.

SHK concludes that there are no specific requirements for arrangements to prevent fall overboard from ladders placed, like in this case, close to the vessel's side. However, there are requirements saying that defined risks shall be taken care of to prevent injuries and accidents. Such a program for risk assessment is existing on the vessel, but the ladder in question is not addressed. The shipping company has after the occurrence revalidated the risks and mounted protection from fall at ladders from where there is a risk to fall overboard.

The vessel's master contacted first the company DPA and then the Swedish JRCC, following the company instructions. SHK finds no strong reasons for the master to contact the company before contacting an RCC. The company has subsequently decided to change the procedures and the order of priorities.

After termination of the SAR-operation, JRCC contacted the Police Dispatch to hand over the case as a case of a missing person. However, the Police Dispatch wouldn't accept the case but referred JRCC to another unit. This meant that during a period of time, there was no case registered at the Police regarding the missing Chief Engineer. Had the Chief Engineer been found during this time, the identification had been hampered.

The investigation finds that at the time of the occurrence, there were no established routines for which cases that should be taken care of directly by the Dispatch. The Police has, however, since autumn 2016 established new written routines and informed officers in command about current procedures.

Safety recommendations

As the Police as well as the shipping company have taken actions in accordance to what has been revealed in this report, SHK refrains from issuing any safety recommendations.

1. FACTUAL INFORMATION

1.1 Sequence of events

At 04:24 hrs in the early morning 9 April 2016, NORDIC STANI left Raumo, Finland, for Bremerhaven, Germany, after completing cargo handling. Due to the hours of deck and departure operations, off watch deck crew ratings turned in with the consent to rest until noon. The Second Engineer, SEN, and the Chief Engineer, CEN, who both attended the engine manoeuvring at departure, made a similar understanding and agreed to return to work between half past nine and ten o'clock. However, the SEN, who was on-duty, received some engine alarms and instead decided to commence work with weekly safety routine tasks and a job that was to be done on one of the auxiliary engines. For the latter job, he asked the ship's Electrical Cadet, E/C, who was down in engine room for work at 8 o'clock, for assistance.

At around 10, the CEN came to the engine room and told the SEN and E/C to have coffee break. The SEN made coffee and continued to work with the auxiliary engine while the coffee was cooling. After having his coffee break, the E/C joined him at the work again.

As time was approaching 11:00, CEN came and informed them that he was going to turn on steam to the aft fuel oil bunker tank in order to heat the bunker oil up. This was done in a compartment between cargo holds no 2 and 3, meaning he had to go out on deck (see paragraph 1.4.1).

11:55 hrs, the E/C pointed out to the SEN, who still was working with the auxiliary engine, what time it was. Hence, the SEN sent the E/C for lunch and went back to the engine control room for his coffee. As he didn't find the CEN there, he went to the mess room looking for him without any success. He asked the E/C for him, but was told that the E/C hadn't seen the CEN either. The SEN therefore went out on deck to reach the compartment where the valves for the steam were. He found the hatch open and the valve manoeuvred, but no traces of the CEN. Search around the area was unsuccessful.

As the SEN returned to the engine control room, he called the bridge and asked the officer of the watch, the second officer, to make an announcement via the PA-system for the CEN to call engine control room immediately. After a few minutes, the SEN sent the E/C to the CEN's cabin, but it was empty. Thus, the SEN called the bridge again and reported the CEN missing and asked the second officer to start search operations within the vessel.

After searching on deck and in the accommodation, the SEN called bridge once again, telling the second officer that it was necessary to turn the vessel around and initiate search actions. At this stage, at 12:33, the Master was on

the bridge. The vessel was turned to opposite course, DPA¹ at the company was called by telephone and Sweden Rescue was activated via VHF-radio and a PAN PAN call (the log at Sweden Rescue says that the call was received at 13:13). At the same time, the third officer had a conversation with a vessel which then was at the same position as NORDIC STANI had had when the course was changed earlier at 11:10.

According to JRCC log² the SAR-operation (see 1.8) was terminated at 18:50 without finding the missing CEN. At that stage the vessel had been thoroughly searched by the crew. Also the CEN's working shoes and coat was found missing.



Figure 3. NORDIC STANI's search pattern from the vessel's electronic chart. Image: Nordic Hamburg Shipmanagement (HK) Ltd.

14 April, when NORDIC STANI was in Fredriksstad, Norway, a search with dogs was conducted through the whole vessel without any relevant findings. Before that, the vessel had also been searched by the police in Bremerhaven, Germany.

1.2 Consequences

One member of crew missing, expected to be deceased.

¹ DPA – Designated Person Ashore: person who has the designated responsibility for shore based safety.

² Ship's log says 18:48.

1.3 Place of occurrence

The area in question, South Kvarken and Sea of Åland, is the passing through fairway in the waters between the Swedish mainland and the Finnish island of Åland. From north, the fairway leads straight south (course 180°) through a 2.6 M³ long TSS⁴, followed by a 17 M passage (including the 1.2 M narrow strait between Oldbergsgrund and the lighthouse Märketskallen). At yet another TSS, 1.3 M long, between the lighthouses Svartklubben and Solovjeva, the fairway turns to port with a new set course 140°. After another 30 M, heading this course, the TSS at the lighthouse Flötjan is reached.

The finding that the Chief Engineer was missing was made in the passage between the TSS's at Solovjeva and Flötjan.

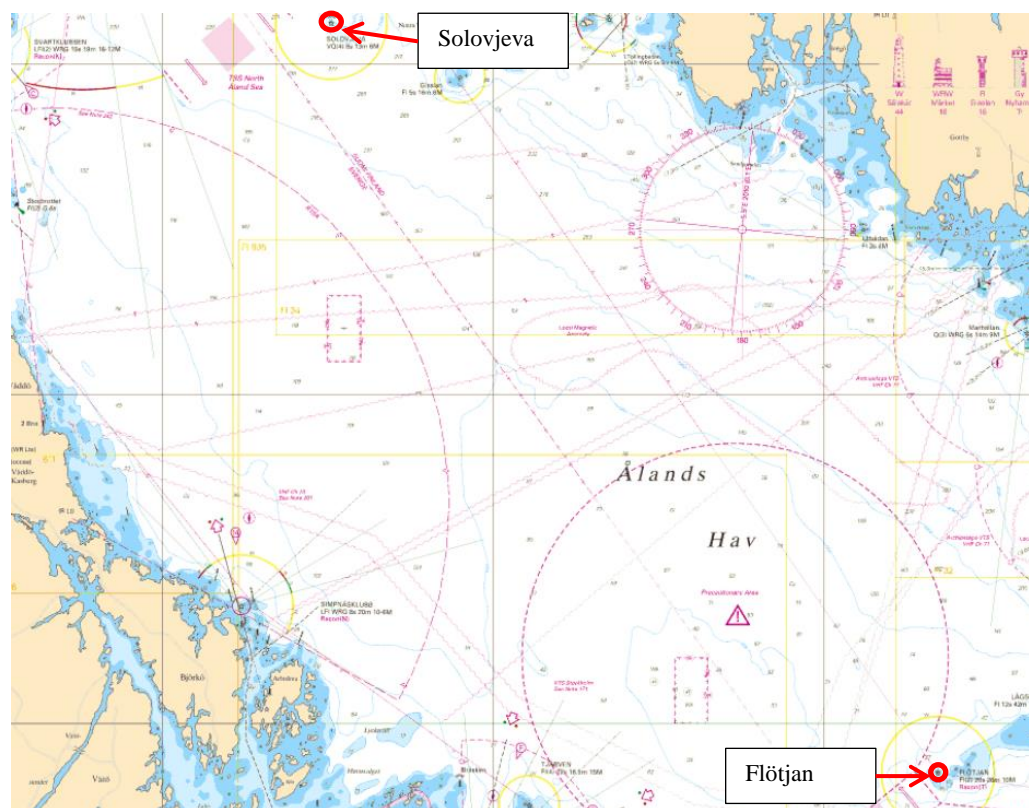


Figure 4. Chart for the area concerned. To the left at the top Solovjeva is seen, and Flötjan is at the right bottom of the image. Image: Swedish Maritime Administration nr: 10-01518.

³ M – nautical mile, appr. 1.852 metres.

⁴ TSS – Traffic Separation Scheme.

1.4 Relevant ship particulars and circumstances

1.4.1 Deck area concerned

The vessel has the accommodation and engine spaces in the aft part, and subsequently the cargo spaces in front of those. There are three cargo holds with some 2.5 m wide cross-bays in between.

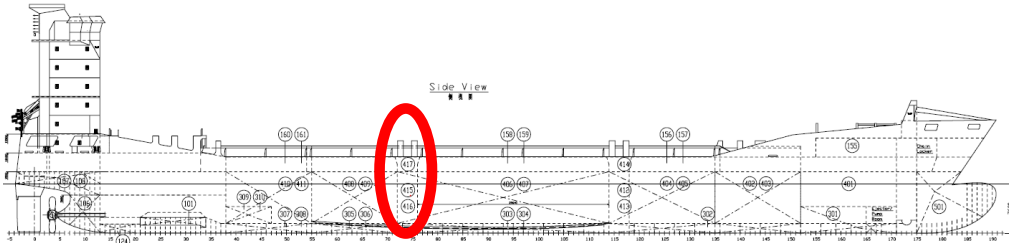


Figure 5. Marked area shows the deck area concerned.

The cargo openings are all surrounded by hatch coamings on which the hatches rest when closed. The hatch coamings, strengthened to stand also the load of the deck-cargo containers, are about 1.7 m high and continue longitudinally from the stern part to the forward part of deck, i.e. also crossing the cross-bays between the holds. Some half meter above the coamings there are gratings from side to side, making it possible to reach and walk in the cross-bays. At the far end of this grating, reaching the vessel's side there are tip-up railing poles and ropes, acting as protection from falling overboard (see figure 6). This protection was mounted at the time of the occurrence.

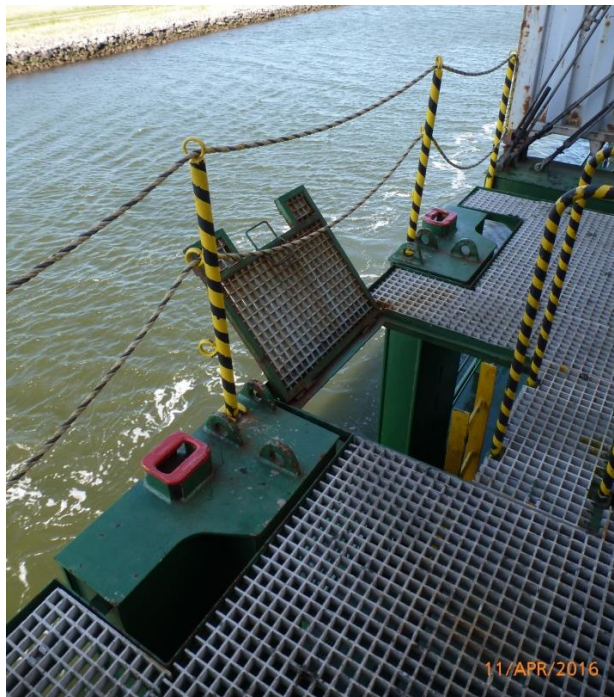


Figure 6. The far end of the grating on top of the hatch coaming in the cross-bay area. The picture is, according to the master, taken after the occurrence without the railing poles and ropes, acting as protection from falling overboard, being changed. Image: Nordic Hamburg Shipmanagement (HK) Ltd.

To reach the gratings from deck there is a ladder on the outside of the coaming, passing through a hatch in the grating (see figures 7 and 8). The distance between the ladder and the outside railing is about 72 cm (see fig. 12).



Figure 7. The ladder on the outside of the coaming, leading from deck to the grating, seen from up to down. On top and in the middle of the picture, the quay outside of the vessel is seen.

Yet another ladder on the inside of the coaming leads down to deck level in the cross-bay, i.e. under the grating (see figure 9). It is also possible to reach the cross-bay area by crossing the coaming beneath the grating. The normal way is however to use the ladders. At the time of the occurrence the ladders lacked protection from falling from these.



Figure 8. The ladder from deck to the grating, seen from the quay, i.e. from outside of the vessel.

On deck level, between holds no. 2 and 3, there is a deck hatch to reach the space down below. In this space, valves to control the heating of bunker oil are located, though the temperature reading is situated in the engine control room.

The area concerned is not seen from the bridge, neither is there any CCTV or other means for observation of the area.



Figure 9. The cross-bay and the ladder inside of the coaming. To the right and below the ladder, i.e. on deck, the hatch to the space from where the steam is controlled. The hatch is not shown in the picture.

1.4.2 Relevant vessel data

For a vessel to be sea worthy, some calculations to assure that there is stability enough is necessary. Hence, the vessel's weight in water (displacement), metacentric height (GM) and difference in draught fore and aft (trim) is calculated. The stability data for the journey concerned was, according to the vessel's calculations, amongst others: displacement 17,888.47 metric tons, GM 1.48 m (according to requirements minimum 0.77 m) and the trim 0.53 m. The officers of the vessel state that with the loading conditions valid at the time, the vessel heeled 1-2° when altering course.

Speed at the occurrence was 16.5 knots, which is the vessel's full ahead when loaded. NORDIC STANI had changed course from 180° to 140° after passing between Svartklubben and Solovjeva at 11:10 hrs, which is confirmed by the vessel's AIS track.

1.4.3 *Relevant instructions*

The vessel's Contingency Procedure Person Over Board states, inter alia, the following:

*In case the **person over board case happened a certain time ago** (no sudden case), following steps shall be done:*

- *investigate the last time the person has been seen on board; conduct a search;*
- *estimate the most probable position where the person could be found in the water (consider wind, stream and time of drifting);*
- *get back to reverse course, inform ERT^[5]; inform RCC^[6] in vicinity, inform other ships in vicinity;*
- *prepare rescue boat and team on stand-by;*
- *consider as much eyes on deck as possible when arriving the search position, consider relieving watches to avoid fatigue during search;*
- *Proceed as per IAMSAR III^[7] and the co-ordination with a RCC to conduct searches in an organized and assisted manner.*

Furthermore, the procedure instructs the master to establish a detailed Statement of Fact and perform an investigation. A checklist is attached to the procedure. Such a check list was also filled in and completed for this occurrence. On this check list, the action to contact the company comes before the action to contact RCC and broadcast a PAN PAN message.

To enter spaces which may include risks, e.g. low concentration of oxygen, an Enclosed Space Entry Permit is needed. A general Enclosed Space Entry Permit was issued according to vessel's procedure, valid from 12:10 to 13:10. The permit allowed search for missing person in all void spaces on ship's decks and is signed as completed at 12:35.

The vessel's Safety Management System, SMS, handles Health, Safety and Risk Assessment, e.g. is entrance to enclosed spaces assessed, hazards identified and control measures described. However, climbing ladders close to ship's side is not included.

1.4.4 *Crew*

NORDIC STANI had at the occurrence a crew of fourteen, from the Philippines and Ukraine.

The Second Engineer, 42 years old, had been at sea for many years and worked as a vessel's engineer for 13 years. He had been on NORDIC STANI for several years (whereof the last period one month) and worked with the Chief Engineer for three years.

The Second Officer, 41 years old, had been an officer since 2007. He had been within the company since 2013 and this was his second working period on NORDIC STANI. He had the 12-04 watch which meant that his watches

⁵ ERT – Emergency Response Team.

⁶ RCC – Rescue Coordination Centre, in this case Sweden Rescue.

⁷ IAMSAR – International Aeronautical and Maritime Search and Rescue Manual volume 3. Issued by International Maritime Organization.

were between 00-04 and 12-16. He had thus been on watch only a short time when the search for the Chief Engineer started.

The Chief Engineer was 39 years old and had been working as vessel's engineer at least since 2006. He started in the company 2012, and had been C/E since 2009. He had been working in NORDIC STANI since January 2013.

The Electrical Cadet was 21 years old and had been at sea for about one year. He had been on NORDIC STANI since 4 months.

The deck crew ratings were, as earlier noted, off duty the time before noon due to the departure early the same morning.

According to vessel's shore leave log book, the E/C and CEN had been ashore a couple of hours around noon the day before departure.

There is no indication or sign of the Chief Engineer's physical or mental condition being reduced the day concerned. Nothing indicates that he had been involved in any personal conflict with other crew members. Rather the opposite: he seems to have been a highly appreciated and valued colleague. The CEN's rest hour record has also been examined with the result that nothing has emerged that is considered to have any influence in the investigation.

1.5 Meteorological information

According to the Swedish Meteorological and Hydrological Institute, the following weather situation was valid the 9 April 2016.

Sea of Åland 10.00 hrs to 12.00 hrs:

- Wind: 240° 2 m/s
- Air temp: +4°C
- Water temp: +2 °C
- Visibility: > 8 M
- Precipitation: occasional showers
- Sea state: 0.4 m
- Current: 210° veering to 190°, 0.10 knots increasing to 0.12

Sea of Åland 13.00 hrs to 14.00 hrs:

- Wind: 250° 3 m/s
- Air temp: +4°C increasing to +5°
- Water temp: +2 °C
- Visibility: > 8 M
- Precipitation: occasional showers
- Sea state: 0.4 m decreasing to 0.3 m
- Current: 190° 0.16 knots

1.6 Relevant regulations

Railings and ladders of the kind at the place where to reach between the deck and the cross-bays is a matter of technical requirements. The ladder is however not high enough to be covered by any regulations concerning e.g. fall protection, neither by the flag state nor the classification society, nor is the outside railings on deck.

The ISM-Code⁸ is however applying for the vessel, which in its paragraph 1.2.1 identifies that the purpose with the Code is, amongst others, to guarantee safety at sea, including to prevent injuries or loss of lives. This is further specified in 1.2.2, where it is established that the company shall provide a safe working environment and establish safety arrangements to all defined risks.

The owner has also an obligation to prevent illness and accidents by, amongst others, establishment of an organization and a management system to handle these matters. The obligation is regulated in the law through which the flag state Cyprus has ratified ILO Maritime Labour Convention from 2006.⁹ The practical application of the system shall be risk assessments and introduction of relevant preventive actions. The owner also has an obligation to offer the crew training and education. Finally, the owner's obligation is also including establishment of a system for documentation and reporting of accidents.

1.7 Contingency for survival

The time of the occurrence was in April and the water temperature was +2 Centigrades. Hypothermia will during such circumstances take place relatively quickly, as long as one is not protected by e.g. a survival suit. Without such a protection, most people risk to lose their consciousness already after 20 minutes. After about two hours, survival cannot be expected.

Without any personal floating device, the risk of drowning before hypothermia takes place increases significantly, especially if one is dressed in heavy clothing.

1.8 Emergency response

The Search and Rescue operation, SAR, was organized by the Joint Rescue Coordination Centre, JRCC. It embraced two helicopters, one airplane and in total ten seaborne units (amongst them units from the Swedish Sea Rescue Society, a pilot-boat and units from the Swedish Coast Guard). The Coast Guard unit KBV 315 was appointed as On Scene Coordinator and thus led the seaborne units at the site. Airborne units were still coordinated by JRCC. The occurrence happened close to the Finnish border, following an evaluation of the situation and the available resources, the assessment

⁸ ISM-koden (The International Safety Management Code, IMO Assembly Resolution A.741(18)).

⁹ Maritime Labour Convention 2006 (Ratification) and for Matters Concerned therewith Law of 2012 - Law 6 (III)/2012.

was made that the operation could be handled without any further resources from Finland.

At JRCC the SAR Mission Coordinator (SMC) has access to charts where the boundaries between different police regions are marked. The area concerned belonged to Stockholm Region. As an area is defined, the SMC reaches the dispatch concerned with a preregistered telephone number.

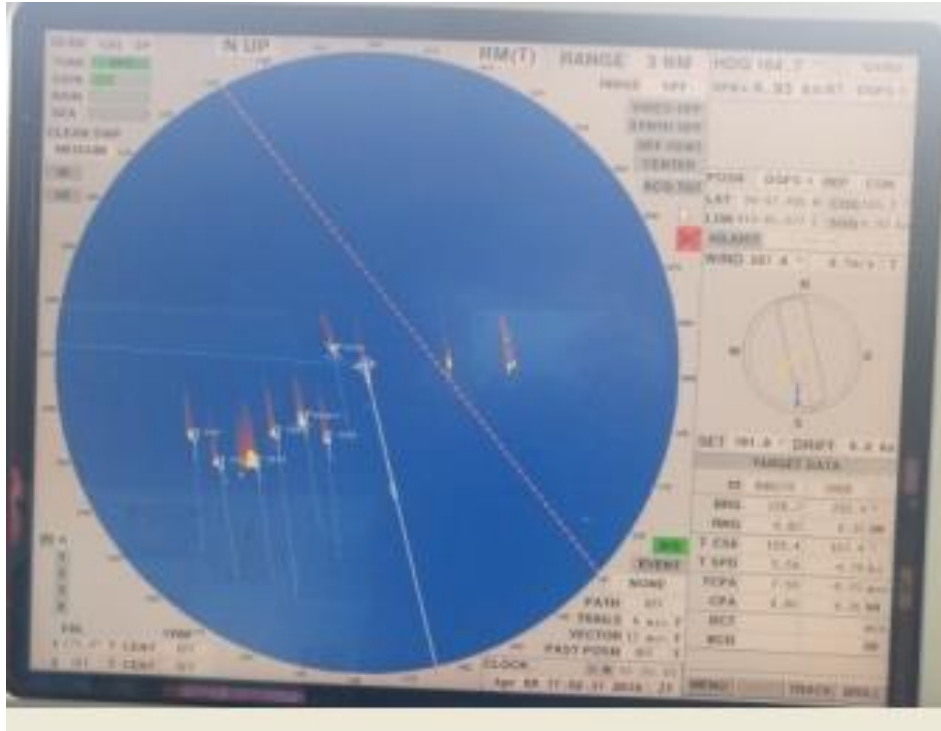


Figure 10. Search patterns on NORDIC STANI's radar screen. NORDIC STANI is in the centre of the circle. Image: Nordic Hamburg Shipmanagement (HK) Ltd.

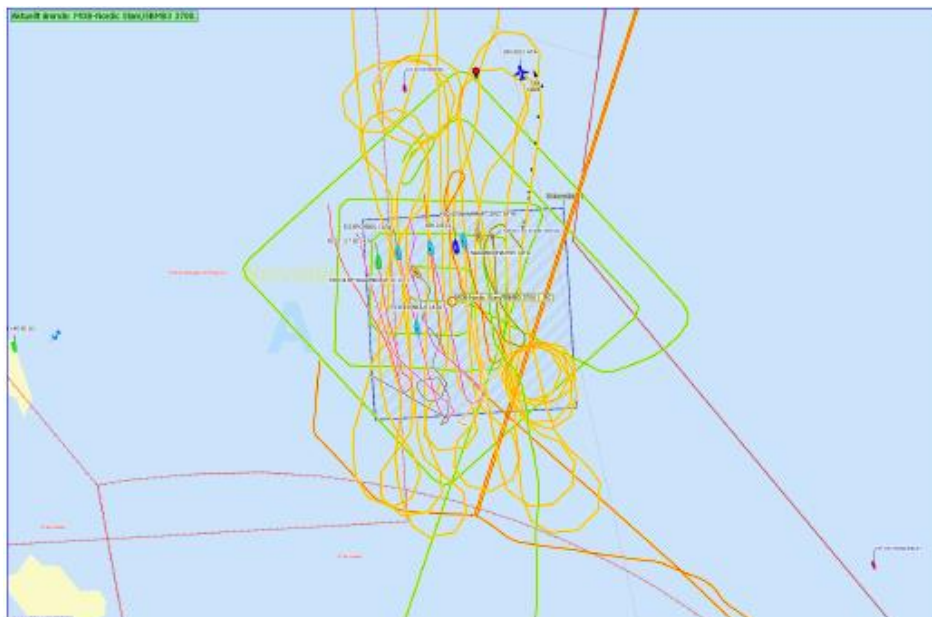


Figure 11. Search patterns consisting of AIS-tracks from different units in the SAR-operation. The operation is including amongst others the position where the vessel changed course. Image: Swedish Maritime Administration nr: 10-01518.

As the assessment was made that survival of the missing crew member could be ruled out, the SAR-operation was terminated at 18:50. The SMC called the police dispatch for the region concerned to notify that the SAR-operation was ended. The aim was that the police should take over the case as a case of a “missing person”. However, the operator at the dispatch was hesitant and didn’t accept the notification after consulting the officer in command. Instead, the police operator told the SMC to call the unit dealing with legal maritime matters within the Police (the maritime unit). Thus, the case was not registered as a case of a missing person at that time, which should have been the normal procedure.

As the police dispatch didn’t accept the notification, the SMC made a non-conformity report which was handed over to the head of the operation. The SMC thereafter regarded the matter finished for his part and took no further action.

The head of operation remitted the report to the police the 26 April 2016 and expected that the report should be dealt with as a notification of a missing person as well as a case of non-conformity. As no answer was received, the head of operations sent a reminder to the police the 31 August 2016, which was answered by 2 September. It has later been determined that the case came no further than to the receiving department, without being distributed to the dispatch concerned.

After the reminder, the case was pretty fast taken care of. Even though the administrator in the dispatch considered the matter in question purely as a matter of communication and not as a notification of a missing person, he still checked if there was a file opened. There was such a file, 20 April 2016, which had been opened by the maritime unit as a result of a request by SHK concerning this investigation. In the case, a number of actions had been taken, e.g. DNA-samples from the missing person have been collected for making it possible to make an identification if needed.

2. ACTIONS TAKEN

The shipping company has decided to alter their procedures, by changing the priority between contacting the company and a rescue coordination centre. Furthermore, the company already after a week instructed their vessels to reassess the risk of falling overboard and to mount protections to fall overboard at ladders where such a risk lies (see fig. 12). The vessels in question have thereafter reported to the company that the actions have been completed.



Figure 12. The picture shows the distance between the ladder and the railing (720 mm) and the measures above the railing (1460 x 1270 mm) before the protection was mounted. The black-and-yellow pipes on the right hand side of the picture is the new protection, mounted after the occurrence. Image: Nordic Hamburg Shipmanagement (HK) Ltd.

The Police has since autumn 2016 new written procedure in the form of a support manual which, in case of an search-and-rescue operation at sea, will create a pop-up window on the operator screens. Furthermore, the officers in command have been informed about routines in force when search-and-rescue at sea.

3. ANALYSIS

The occurrence gives reason to reflect mainly over three issues. The first one concerns what happened when the CEN disappeared the second deals with the regulations concerned, and the third with the SAR-operation and the adherent actions by the police.

3.1 The disappearance

It has not been possible to establish what really happened when the CEN disappeared. During the investigation, nothing has appeared to indicate any criminal action or that the CEN deliberately has gone over-board. Based on the testimonies and the technical information collected during the investigation, and due to the fact that the CEN was not found even after a thorough search on board, the most likely explanation is that he in one way or another has fallen overboard with a fatal result.

It has been established that the CEN had the intention to proceed to the cross-bay between holds no. 2 and 3 to manoeuvre the valve that regulates the temperature of the bunker oil in the adjacent tank. The opened hatch, as well as the valve that had been manoeuvred indicate that the CEN actually had been there. It can be anticipated that he, as he left the cross-bay to climb over the coaming, slipped or fell either from the grating and overboard, or from the ladder towards the deck between the coaming and the railings at the outside of the vessel and thereby fell over the railing (or possibly between the individual pipes of the railing) down into the water. Possibly this took place at the same time as the vessel changed course and subsequently heeled a couple of degrees to starboard, i.e. causing the ladder to lean outwards, which may have contributed to a fall overboard. At the railings, there was no protection from falling, while there was a protection from falling overboard from the grating. This does not totally exclude fall from the grating if one e.g. stumbles, but suggests that the likelihood for a fall overboard from the ladder would be somewhat higher.

3.2 The regulations

There are no specific requirements for railings or other barriers with the purpose of preventing fall overboard for ladders, placed close to the vessel's side like in this case. On the other hand, there are requirements according to the ISM Code to take action to prevent injuries or accidents when there is a risk defined. Requirements of a similar kind are also formulated in the regulations of the flag state to fulfil the MLC Code. They state that a program for risk assessment and appropriate preventive actions shall be in force. There was such a program on board, but the ladder in question was not referred to.

SHK realizes that it may be difficult to identify all potential risks, but still makes the judgement that the company should make a review of the circumstances in the company's vessels, especially based on the possibility to move safely on board. Such a review has also been performed with adequately actions as a result (see paragraph 2). Thus, from this perspective, SHK finds no reason to address this matter further in this report.

3.3 The Search and Rescue operation

The SAR-operation commenced fairly quickly. The SEN was on an early stage suspicious as the CEN wasn't found, and initiated primarily a search on board, followed by a search in the vessel's previous route.

To achieve assistance from others, the master of the vessel contacted Sweden Rescue, but first after being in contact with the company DPA. This was fully in line with the company procedures. SHK sees however no strong reason for the master to first call the company, before calling a rescue coordination centre. By such a prioritization, there is a risk to lose valuable time to start an effective SAR-operation to save lives.

Even though this prioritizing most likely didn't have any crucial importance on this occasion, SHK finds reason for the company to review its procedures on this matter. As shown earlier (see paragraph 2) the company has decided to change the order of priority in the internal procedures. SHK therefore refrains from issuing any safety recommendation regarding this matter.

The SAR-operation organized by JRCC embraced a large number of sea- and airborne units. In spite of the rescue actions being quickly in operation and good circumstances in form of day light, good visibility and calm weather, the CEN couldn't be found. Possible reasons for this are that he didn't wear any personal floating device (e.g. life vest) and that the water was cold (only +2°C). Each of these reasons is strongly aggravating, and in combination they will be reinforced. The fact that he most likely wore a coat and working shoes has made it even more difficult to stay afloat.

There are no indications showing any insufficiencies in the SAR operation. Hence, SHK finds no reason to more deeply investigate the performance of the operation.

3.4 The police's handling of the notification of a missing person

As mentioned, the SAR Mission Coordinator called the police dispatch for the region concerned to inform that the SAR-operation was terminated. The purpose of the call was to hand over the case to the police as a case of a missing person. The notification was however not accepted by dispatch, instead the SMC was told to call the maritime unit.

A file of a case of a missing person was first created 20 April 2016 after SHK contacted the police as in the course of this investigation. This meant, that during the period 9 – 20 April 2016 there was no case registered at the police concerning the lost CEN. If he had been found during this time, it would have been more difficult to establish a link to the current event, which in turn had hampered identification.¹⁰

According to the police, there are a large number of cases submitted to the police dispatches. As these are primarily for steering police resources in

¹⁰ It has during the investigation shown that the international cooperation is well developed, i.e. if the body should be found in e.g. Finnish waters, the Finnish police would probably contact the Swedish police for identification assistance.

emergencies, and not for receiving notification of new cases, attempts are made for remitting less serious cases to other units within the police. Important issues shall however be taken care of, either by being directly connected to the relevant unit, or by being forwarded to the correct unit by the dispatch. According to the police, a notification of a missing person, especially if it comes from JRCC, is such a case that should be taken care of directly by the dispatch. Subsequently, the SMC should not have been remitted to the maritime unit.

The investigation finds that there were no established routines for which cases should be taken care of immediately by the police dispatch; instead it was a case-to-case assessment. It is the opinion of SHK that any form of guidance for such assessments and prioritization, together with routines for how these cases shall be handled, could be of assistance for the dispatch operators and reduce the risk of mistakes. As the Police has drawn the same conclusions, and already put forward new routines (see paragraph 2), SHK finds no reason to issue any safety recommendations regarding this matter.

4. CONCLUSIONS

4.1 Findings

- a) The CEN had the intention to proceed to the cross-bay between holds no. 2 and 3 to regulate the temperature of the bunker oil.
- b) As the CEN went missing, actions were taken to search for him on the vessel.
- c) As the CEN was not found on board, the vessel turned back for search along the previous route.
- d) According to vessels procedure, the company DPA is to be called before the rescue coordination centre.
- e) A SAR-operation with a large number of units commenced.
- f) The weather was calm with good visibility and day light.
- g) The water temperature was +2°C.
- h) The CEN wore most likely no personal floating device.
- i) The CEN was not found during the SAR-operation.
- j) The course of events of the disappearance has not been possible to establish with certainty.
- k) A possible explanation to the disappearance is that the CEN fell overboard as he attempted to move from the cross-bay to deck.
- l) There was no fall protection by the ladder he probably used.
- m) The vessel made a course change to port with subsequent heeling to starboard at a time when the CEN may have been on the ladder.
- n) The risk of falling overboard from the ladder concerned had not been identified and validated in the risk assessment.
- o) As the SAR-operation was terminated and the case was to be handed over to the police, the police didn't accept to take care of the matter.

- p) A case of a missing person was not created until 20 April 2016 after SHK had contacted the police in the matter.
- q) The non-conformity report, which was initiated by JRCC, didn't reach the relevant police unit until reminded.

4.2 Causes and Contributing factors

A certain cause of the CEN's disappearance has not been possible to establish. However, a possible cause is that he fell overboard as he attempted to move from the cross-bay between holds no. 2 and 3 to deck. A contributing factor to this fall may have been that the vessel turned to port, which caused the vessel to heel to starboard while the CEN was in an area where there was a risk of falling overboard. In the case he was on the ladder in question, such a fall may have been made possible due to the lack of protective arrangement.

5. SAFETY RECOMMENDATIONS

As the Police as well as the shipping company Nordic Hamburg Shipmanagement (HK) Ltd have taken action in accordance to what has been revealed in this report, SHK refrains from issuing any safety recommendations.

On behalf of the Swedish Accident Investigation Authority,

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