

Subject *Follow-up to recommendations Fatal outcome following mooring line break - Lessons learned from the accident on board the RN Privodino*

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1. About this report

On 28 June 2018, while mooring in the Noordersluis lock in IJmuiden, a fatal accident occurred on board the chemical tanker RN Privodino. Shortly after the port forward spring had been paid out, it unexpectedly came under severe tension. The mooring team on the foredeck was no longer able to respond adequately in good time, as a result of which the mooring line parted. The section of mooring line that was connected to the on-board winch recoiled, and struck a crew member, killing him instantly.

As part of the analysis of the accident, four missing or failing barriers were identified. Based on these the Dutch Safety Board made eight recommendations in the report. Although the investigation related to a specific occurrence, the recommendations can be applied more broadly. The recommendations were addressed to the ship manager SCF Management Services Dubai, the Central Nautical Management North Sea Canal Area (CNB), the pilotage service Loodswezen, Netherlands Maritime Technology (NMT) and the Royal Association of Netherlands Shipowners (KVNR). Among others, the recommendations suggested the drawing up of targets for preventing the breaking of mooring lines and the redesign of procedures.

This memorandum contains a general conclusion about the follow-up to the recommendations, followed by a brief summary of the responses received for each recommendation and a conclusion on the follow-up of that recommendation.

2. General conclusion about follow-up

The Safety Board concludes that the recommendations have been acted up on. Together with the Loodswezen and the CvV, the CNB has formulated an ambitious target, namely to significantly reduce the number of broken mooring lines. In this context, a new mooring and unmooring procedure has been drawn up for the Noordersluis lock. This came into effect on 1 April 2022 for both the Noordersluis lock and the new Zeesluis lock in IJmuiden. The new procedure includes stricter rules on the mutual communication moments between all parties involved. In addition, the bollards in the lock have all been numbered. The introduction of bollard numbers in the Noordersluis lock further clarifies the exact mooring location, for all parties, as the location is explicitly visible. SCF also adapted its procedures in accordance with the recommendations. Finally, the NMT and the KVNR have taken several actions to raise awareness of the report and the findings of the investigation in their network, including a campaign aimed on improved safety awareness in the maritime sector. The Dutch Safety Board encourages the parties' improvement ambitions.

3. Follow-up per recommendation

Recommendation 1

To the Central Nautical Management North Sea Canal Area (CNB)

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Tighten up the authorization and competence requirements for nautical crews on river cruise ships within the Scheldt area, making use of the option of including additional provisions in the Western Scheldt Shipping Regulations to ensure safe passage by river cruise ships. Possible provisions relate to familiarity with the navigation zone and/or the obligation to take a pilot on board, if this knowledge is not present. Also investigate whether these measures can be secured internationally.

Response from Central Nautical Management North Sea Canal Area (CNB) dated 9 August 2021

In a joint letter with the pilotage service Regionale Loodsencorporatie Amsterdam-IJmond (RLc) and the Corps van Vletterlieden v.o.f. (CvV), the CNB North Sea Canal Area responded to recommendations 1, 2, 3 and 4.

In the letter, the parties informed that following the report, they have improved the registration of mooring lines incidents in the Noordersluis lock. This registration has provided them with further insight into the number of broken mooring lines. In addition, the data showed that the causes of mooring lines breaking and the position of the breaking mooring lines differ. The latter makes it difficult to set a quantitative 'ambitious improvement target', they said. Nonetheless, they agree that the number of broken mooring lines must be drastically reduced. They want to achieve this objective by investing in a mooring and unmooring procedure for the Noordersluis lock and improved communication between the parties concerned (see also response to recommendation 3).

Conclusion on follow-up

The joint response from CNB North Sea Canal Area, the RLc and the CvV demonstrates that these parties are striving to achieve a significant reduction in the number of broken mooring lines. As such, the recommendation has been followed up on.

Recommendation 2

To Central Nautical Management North Sea Canal Area

Take control in the redesign of the procedures relating to the accurate determination and reaching of the final mooring position in the lock.

Response from Central Nautical Management North Sea Canal Area (CNB) dated 9 August 2021

At the end of 2020, CNB North Sea Canal Area, the RLc and CvV started by mapping out the mooring process in the Noordersluis lock. This resulted in a new procedure. For a further explanation of this procedure, see the response to recommendation 3.

Conclusion on follow-up

The CNB North Sea Canal Area has followed up on the recommendation.

Recommendation 3

To SCF Management Services Dubai and the Loodswezen pilotage service

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Ensure that it is clear to all persons involved how the lock passage will be undertaken. Make an precise agreed and verified determination of the final position in the lock.

Response from SCF Management Services Dubai, dated 4 February 2022

SCF responded to the recommendations from the Dutch Safety Board, by email. SCF wrote that it is now clear to all crew members how the lock passage should be undertaken, including an agreed and verified determination of the final position in the lock. The procedures have been included in the Safety Management System, Master-Pilot exchange procedure and a detailed risk analysis. With regard to mooring lines, it has been determined that these may only be run out after the vessel has stopped at its mooring position.

Conclusion on follow-up

The recommendation has been followed up on.

Response from Loodswezen pilotage service

The Regionale Loodsencorporatie Amsterdam-IJmond (RLc) responded to the recommendation on behalf of the pilotage service, in a joint letter with the CNB North Sea Canal Area and the CvV. This letter includes a brief description of the new mooring procedure. The new procedure includes stricter rules on the mutual communication moments between all parties involved. Bollards in the lock will also be numbered (a task now completed). The parties write that the introduction of bollard numbers in the Noordersluis lock will further clarify the precise mooring location for all parties, by providing an explicitly visible marker for the location. With the commissioning of the new Zeesluis lock in IJmuiden, the mooring and unmooring procedure at the Noordersluis lock has also been translated to the conditions in the new Zeesluis lock in IJmuiden.

By determining a mooring configuration in advance, which is then communicated with all parties, everyone is aware of how the lock passage will be conducted. There are also fixed agreements on how to deal with unexpected situations. The allocation of roles on the ship's bridge, as well as communication and cooperation with the others, including the 'mobile man' and the mooring team are laid down in the standard plan. In a situation in which the standard plan must be deviated from due to unforeseen circumstances, all changes will be explicitly communicated to all parties involved, by VHF marine radio so that all parties involved are kept informed of the current mooring plan.

Further enquiries revealed that the new mooring and unmooring procedure came into effect on 1 April 2022. The mooring and unmooring procedure applies both to the Noordersluis lock and the new Zeesluis lock in IJmuiden, which has been operational since early 2022.

Conclusion on follow-up

The Loodswezen pilotage service has adequately followed up on the recommendation.

Recommendation 4

To SCF Management Services Dubai and the Loodswezen pilotage service

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Ensure that whenever agreements are reached on board about the distribution of tasks during sailing and manoeuvres, these agreements are respected and that they do not conflict with the formal role and responsibility of the various persons involved according to their own discipline.

Response from SCF Management Services Dubai, dated 4 February 2022

SCF wrote that all required agreements have been reached on board about the distribution of tasks during sailing and manoeuvres. According to SCF, such agreements never contradict the formal role and responsibility of the persons involved on board, in accordance with their own tasks. SCF further stated that an appropriate allocation and supervision of the tasks, work planning meetings, a new layout for the safety briefing prior to mooring and a detailed risk assessment aimed at excluding possible human errors that could result in a near accident or even an incident, have been implemented.

Conclusion on follow-up

The recommendation has been followed up on by SCF.

Response from Loodswezen pilotage service, dated 9 August 2021

See the response to recommendation 3. Furthermore, in response to questioning the Loodswezen pilotage service made it known that the mooring and unmooring procedure is based on the existing responsibilities and roles of the parties involved and that the procedure in no way detracts from the mutual responsibilities. The parties involved are personally responsible for ensuring that their part of the process is implemented correctly and effectively, according to the Loodswezen (in consultation with CvV).

Conclusion on follow-up

The recommendation has been adequately addressed. The Loodswezen (with the CNB North Sea Canal Area and CvV) states that within the new mooring procedure, work will be carried out according to a standard plan in which the distribution of tasks between the persons involved is coordinated. Within this procedure, those involved are personally responsible for the correct fulfilment of their task. In the connection, the Dutch Safety Board still wonders how compliance with the procedure is organised.

Recommendation 5

To SCF Management Services Dubai

Ensure that during mooring line handling, crew members only undertake tasks after they have been issued with the appropriate instructions by a superior. Ensure that a start is only made on placing mooring lines under tension following the issuing of an express instruction by the ship's officer in command on the bridge.

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Response from SCF Management Services Dubai, dated 4 February 2022

In response to the recommendation, SCF informs that crew members perform tasks during mooring line handling only after receiving appropriate instructions from a supervising officer. The relevant Safety Management System has been amended with clear instructions about placing mooring lines under tension at the orders of the ship's officer in command on the bridge. Furthermore, the running out of mooring lines is only permitted once the vessel has fully stopped at the mooring position, according to SCF.

Conclusion on follow-up

SCF has adapted its procedure in line with the recommendation. The recommendation has been followed up on.

Recommendation 6

To SCF Management Services Dubai

Ensure that officers who are expected to physically supervise the safety of crew members are always able to give priority to this task.

Response from SCF Management Services Dubai, dated 4 February 2022

SCF writes that the officers who are expected to supervise the safety of crew members always give priority to that task. This is made possible by the procedures in the Safety Management System, work planning meetings, new mooring operations prior to the safety briefing and detailed risk assessments.

Conclusion on follow-up

The recommendation has been followed up on.

Recommendation 7

To SCF Management Services Dubai

In areas with snap-back zones, identify or create safe workstations where those aboard cannot be hit by mooring lines and ropes if they snap back; mark these safe workstations in a recognizable manner and organize the work processes involving mooring lines and ropes in such a way that operations are always undertaken from these safe workstations.

Response from SCF Management Services Dubai, dated 4 February 2022

SCF stated that in accordance with the best practices in the sector, it has recorded in its Safety Management System that the entire mooring area is an area with a high risk of snap-back. Appropriate training, familiarization with the situation, awareness and control measures serve as safety barriers.

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Conclusion on follow-up

It can be concluded from the response of SCF that they believe it is impossible to create safe workstations - where those on board cannot be hit by recoiling mooring lines and ropes. For that reason, they have implemented safety barriers to ensure that the crew members can safely in a high-risk area. Although the recommendation from the Dutch Safety Board has not been followed up on to the letter, with the barriers they have implemented, SCF is clearly striving to achieve the same goal; creating the safest possible work environment.

Recommendation 8

To the Netherlands Maritime Technology and the Royal Association of Netherlands Shipowners

Broadcast this turnaround in thinking as widely as possible in your national and international network, and investigate how, in practical terms, the maritime sector can contribute to achieving the objective of only working from safe workstations while handling mooring lines.

Wherever the term 'this turnaround in thinking' is used, this refers to the introductory text to recommendations 7 and 8:

'With regard to safe working with mooring lines, a turnaround in thinking is also needed. Whereas at present the intention is to ensure that measures for working safely in unsafe areas are carried out as well as possible, working with mooring lines and ropes must be organized in such a way that at high risk moments, it is possible to work from a safe location and unsafe areas no longer need to be entered.'

Response from Netherlands Maritime Technology (NMT) dated 4 November 2021

The NMT writes that the maritime manufacturing industry is very aware of the risks during the mooring process and the role that vessel design and the positioning of vessel components in respect of each other, such as winches, fairleads and guide rollers can play. Because the mooring process demands a high degree of flexibility and because every vessel is unique in terms of its design, the NMT believes it is impossible to create a workstation that is safe at all times, as specified in the recommendation.

Following the recommendation, the NMT took several actions to raise awareness to of report by the Dutch Safety Board and the safety situation during the mooring process in general. The NMT has for example prepared a new release on the report and it was covered in the NMT newsletter. The news item was also published in the 'Journaal Zeevaart'. In addition to these general notifications, the subject was also discussed in several NMT committees.

The NMT has also been closely involved in developing two new and revised guidelines from the International Maritime Organization (IMO). These guidelines relate to the design and inspection and maintenance of mooring gear, and will come into effect on 1 January 2024.¹

¹ MSC. 1/1620 Guidelines on the design and mooring arrangements and the selection of appropriate mooring equipment and MSC 1/Circ. 1621 fittings for safe mooring and the draft Guidelines for inspection and maintenance of mooring equipment including lines.

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Finally, the NMT notes that various innovative developments are taking place, according to which it is no longer necessary to make use of mooring lines and springs during mooring and whilst moored. Many of these systems operate using equipment on the dockside that use various techniques (including vacuum and magnetism) to adhere to the ship's skin.

Conclusion on follow-up

The recommendation has been followed up on. The NMT has taken several actions to raise awareness of the report by the Dutch Safety Board and the safety situation during the mooring process in general.

Response from the Royal Association of Netherlands Shipowners, dated 3 November 2021

The KVNR informs that, in response to the recommendation, it has started consultations with the NMT about the correct follow-up on the recommendation, both for the existing fleet and for the future fleet. For the future, it is important to consider the design of new vessels. For that reason, the NMT will address the designers of new vessels. The KVNR will address the ship managers and the current fleet. The KVNR has also shared the report by the Dutch Safety Board with its members.

Furthermore, the KVNR refers to a number of recent (international) developments such as the new IMO guidelines (described above) and technical developments such as mooring lines that generate less recoil and the possibility of magnetic or vacuum mooring.

The KVNR also informs its ambition for the current fleet of limited manual operations during mooring and unmooring. The KVNR noted that for the time being, working with mooring lines requires manual operations on the fore part or stern part of the vessel. This automatically engenders the risk of incidents. In line with enhanced international understanding, the KVNR is of the opinion that the entire fore part and stern part of the vessel should be identified as 'snap-back zones'. It is not possible to designate a zone or area that is entirely safe. For that reason, designating separate 'snap-back zones' should be avoided, because this could create a false sense of safety. Even the development of protection structures such as cage or sheet structures will not be able to offer sufficient protection given current ship design. Given the above, the design of vessels and the nature of the work, in the opinion of the KVNR, on the current fleet, it is not possible to always work from a safe place on the fore part or stern part of the ship, during a mooring operation. This can only be achieved with newly designed vessels. For that reason, it is important that the preparations for mooring and unmooring be carefully discussed in the safety meeting, and laid down in the mooring plan. Every individual's personal responsibility and the lines of communication must be clear. All necessary equipment must also be available. In this way, all those on board the vessel are able to correctly fulfil their role and task, so that as far as possible work on deck can be carried out from a location with the least possible risk and as little as possible in zones subject to a high risk, according to the KVNR.

Finally, the KVNR announced that together with the Sectorraad Visserij (Fisheries Sector Council), they will be launching an awareness campaign for safe working on board.² The aim of this campaign is to create broad awareness of the personal role and responsibility of each individual in a safe work process, among both shore organizations and on board.²

² The campaign 'Work Safely at Sea' was launched in January 2022; a campaign aimed at improved safety awareness in the maritime sector. See: <https://www.veiligwerkenopzee.nl>.

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Conclusion on follow-up

The KVNR has undertaken various actions in response to the recommendations, aimed in particular at informing their own network. The Dutch Safety Board thereby considers the recommendation to have been followed up on.