

M1820

Posted on 05.06.2023 by Adam Parnell

Category: [Ports and Harbours](#)

Report Title Collision with bridge and barge after moorings parted in high winds

Initial Report

A heavy-lift vessel was berthed alongside with 3 stern lines and 2 springs aft, 3 headlines and 2 springs forward. The three stern lines were all on the same bollard. During the afternoon the port authority issued a strong wind warning and the crew checked that the mooring lines were of the vessel, adding another 3 lines to the same bollard used to hold the heavy lift vessel's three stern ropes.

At approximately 22:00 the heavy lift ship shook considerably when 50 knot winds gusted through the port. The master saw the ship's 3 stern lines detach from the dock, followed by the 2 after springs, allowing the stern to swing quickly into the centre of the dock basin, causing one of the forward springs and one headline to part. The master contacted the engine room and ordered the main engine to be made ready as soon as possible. They then called the port control and requested tug assistance, as did the vessel astern.

The vessel was now attached to the dock with just 2 headlines and one fore spring, and as it continued to swing it hit a berthed bunker barge and a railway bridge, sustaining damage to the starboard side amidships as well as on the starboard quarter. A piece of cargo was also discovered to be hanging over the starboard side. The Master called port control via VHF to advise that the vessel had contacted the railway bridge and requested them to inform the rail authorities. He also informed the local agent and the vessel's technical superintendent of what had happened.

While not an exact science, it is possible to estimate the likely forces generated by high winds on a high-sided vessel so long as the windage area is known

Tugs were deployed and the vessel was re-secured to the dock at 0300 hrs. A memorandum of class was subsequently issued due to impact damages to the vessel and cargo. There was some minor damage to the bunker barge and the rail bridge. An investigation revealed that the mooring bollard to which the stern lines of both vessels were attached had been pulled completely out of its foundations due to the wind loading on the side of the vessels. It also concluded that the crew could not have prevented the incident.

Comment

Placing all the stern ropes onto one bollard created a single point of failure which was aggravated when the second vessel secured to the same bollard. Either vessel could have identified this latent risk, as could the supervisor of the line-handling party. It is possible that neither the port authority nor the master understood the risk which had been created. There is no evidence of a discussion regarding the possibility of the vessel moving to an alternative berth, either before or after the strong wind warning was issued, and no additional lines were put ashore after the warning had been received. Similarly, the vessel could have brought its engine(s) to immediate notice as a prudent contingency measure.

It is good practice for port authorities who operate tugs to consider having them at immediate notice during periods of forecast bad weather. In this case, they could have been deployed to 'push on' or to at least minimise the swing of the vessel as it broke away. The port authority might also have considered temporarily relocating the vessel(s) to a more sheltered part of the harbour or even directing them to proceed to sea to safely ride out the poor weather.

While not an exact science, it is possible to estimate the likely forces generated by high winds on a high-sided vessel so long as the windage area is known. Many vessels keep a 'ready reckoner' on the bridge for quick reference, and some port authorities that regularly berth high-sided vessels have similarly developed a guide to assist them in calculating the likely 'pull' forces that the bollards must accommodate. The use of auto-tensioners can cause dynamic loading of lines that potentially exceed bollard holding limits so this should be considered as well. Bollard holding strength depends on bollard rating, the surface to which it is attached and the vertical angle of pull from the mooring lines. It is possible to determine the safe holding capacity of quayside bollards using nondestructive testing.

When requesting a berth, large and high-sided vessels are strongly encouraged to include their bollard holding requirements in the pre-arrival ship/shore information exchange if they are not already doing so. They should ask if the port has published any environmental limitations (including maximum wind speeds) for vessel movement, berthing/unberthing or cargo handling.

Key Issues

Local Practices: Vessels and port authorities are encouraged to develop and use a windage 'ready reckoner' to assist in the allocation of berths and the bollards to be used. Does the port authority periodically test quayside bollards to assess their holding capacity?

Communication: Do your ship/shore information exchanges include mention of bollard requirements for the current and forecast weather conditions? Do they include any requirements to sail from the port if environmental limits are exceeded? How are changes to the weather forecast communicated to the deck officers and line-handlers when alongside? Would you communicate with the car carrier which berthed astern of your vessel and discuss reducing the number of lines secured to the bollard?

Culture: Is it an accepted local practice in your port or vessel to put all lines onto one bollard? If so, why? Is this a training issue?

Alerting: Do you feel empowered to question why so many or vessel view such questions as good teamwork or as a criticism? Do you alert all the ship's crew to the expected strong winds especially the engineers? Alerting is part of good teamwork behaviour.

Teamwork: Do you feel that your ship operates with a good teamwork spirit (good teamwork encourages everyone to think and contribute; a "group think" approach means everyone can help in thinking about the situation)?

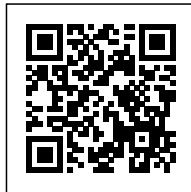
Situational awareness: Does your port or vessel monitor changes to the situation such as another vessel coming alongside and using the same bollards?

loss_of_awarenessAwareness

poor_communicationCommunication

teamworkTeamwork

lack_of_assertivenessAssertiveness



Comments

Capt. Graeme Wedge – 2023-08-11 08:03:39

The port should consider mandating tugs to 'push on', whenever winds are forecast to go over 40kts.