



Australian Government

Australian Transport Safety Bureau

Breakaway and grounding involving *CSC Friendship*.

Port of Brisbane, Queensland, on 27 February 2022

ATSB Transport Safety Report

Marine Occurrence Investigation

MO-2022-003

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Addendum

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Preliminary report

This preliminary report details factual information established in the investigation's early evidence collection phase, and has been prepared to provide timely information to the industry and public. Preliminary reports contain no analysis or findings, which will be detailed in the investigation's final report. The information contained in this preliminary report is released in accordance with section 25 of the *Transport Safety Investigation Act 2003*.

The occurrence

Earlier events

On the evening of 27 February 2022, the Hong Kong flagged product tanker *CSC Friendship* (Figure 1) was secure head-down¹ alongside the Ampol Products Wharf in Brisbane (Figure 2). It had completed loading of 25,000 tonnes of diesel oil and 7,000 tonnes of gasoline, which was bound for Adelaide.

At that time, a low-pressure system and associated rain and wind was impacting the greater Brisbane area, resulting in a significant amount of flooding and water ingress into the Brisbane River. The Bureau of Meteorology (BoM) had issued several severe weather and flood warnings from 24 February.

Figure 1: *CSC Friendship* arriving in Port Botany, New South Wales after the occurrence



Source: ATSB.

Breakaway and grounding

About 2250² on 27 February, during consistent flooding and increased ebb flow on the Brisbane River, the crew of *CSC Friendship* felt a sudden surge through the ship. A short time later, the centre aft stern line, secured on bits,³ parted suddenly. This increased the load on the 13 remaining mooring lines. The crew quickly mustered, powered up the ship's mooring winches, and prepared to bring the ship's main engine online. The engine had previously been placed on stand-by due to the prevailing conditions, at the request of Brisbane Vessel Traffic Services (VTS).

¹ Berthing 'head-down' denotes the direction the vessel is facing (that is down river towards the river mouth and bay).

² Unless otherwise stated, all times are local time, Coordinated Universal Time (UTC) + 10 hours.

³ Bits: paired vertical metal posts mounted either aboard a ship or on a wharf, pier or quay. The posts are used to secure mooring lines, ropes, hawsers, or cables.

The ship's mooring winch drums slipped on the brake⁴ under the increased load, the ship picked up momentum and surged downstream along the berth. One forward spring line, 2 aft spring lines and an aft breast line parted a short time later. The ship continued to break away downstream, causing the gangway to strike berth loading booms before falling away from the ship's side onto the wharf.

Figure 2: CSC Friendship's position at berth in relation to Lytton Rocks Reach



Source: Australian Hydrographic Office, annotated by the ATSB using electronically recorded data

The ship finally came to rest about 90 m further down the berth with the aft one third of the vessel resting on the wharf pads and secured only by the 9 remaining mooring lines.

At 2254, the master contacted VTS, requested and received permission to drop the port anchor, and subsequently released the anchor to 4 shackles on deck. At 2258, the master called VTS and

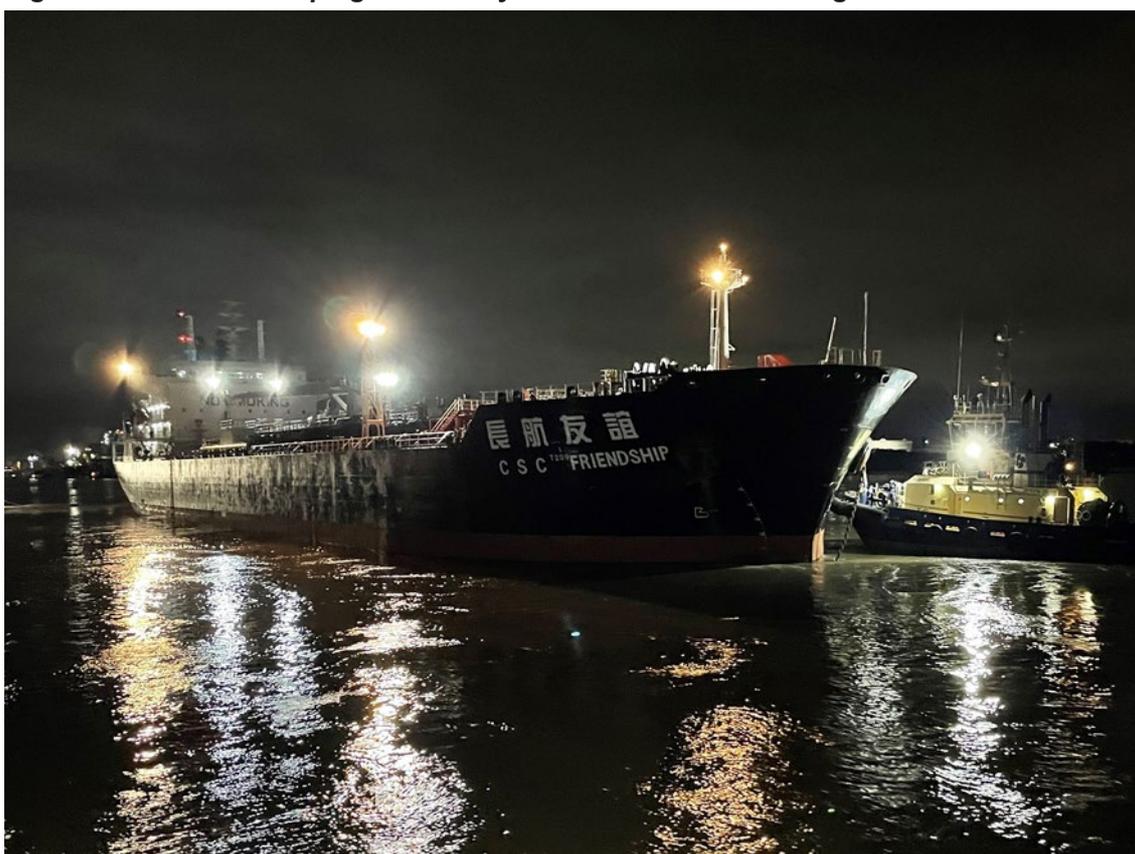
⁴ Mooring winch drum brakes are designed to slip and allow mooring lines to pay out prior to reaching the minimum breaking load (MBL) of the mooring line.

urgently requested tug assistance and by 2311 had engaged astern propulsion in an attempt to arrest the ship's movement.

Meanwhile, at about 2300, Brisbane VTS requested the attendance of 2 tugs, *SL Murrumbidgee* and *Clontarf*, which arrived about 12 minutes later and immediately made fast lines: *Clontarf* centre lead forward and *SL Murrumbidgee* aft on the port quarter. The tugs had minimal effect moving the ship and the master called VTS and requested an additional tug to assist, which they were informed would take 30 minutes to get underway. Concurrently, VTS arranged for a pilot to urgently attend the vessel at the wharf to assist bringing it back alongside.

About 0028 on 28 February, with the 2 tugs unable to hold the ship alongside and the river current not abating, *CSC Friendship* broke free of the berth. The ship was swept downstream, across the channel and grounded east of and abeam Clara Rock beacon at Lytton Rocks Reach (Figure 3). A short time later, the additional tug, *Svitzer Newstead*, arrived.

Figure 3: *CSC Friendship* aground at Lytton Rocks Reach with tug in attendance



Source: Svitzer

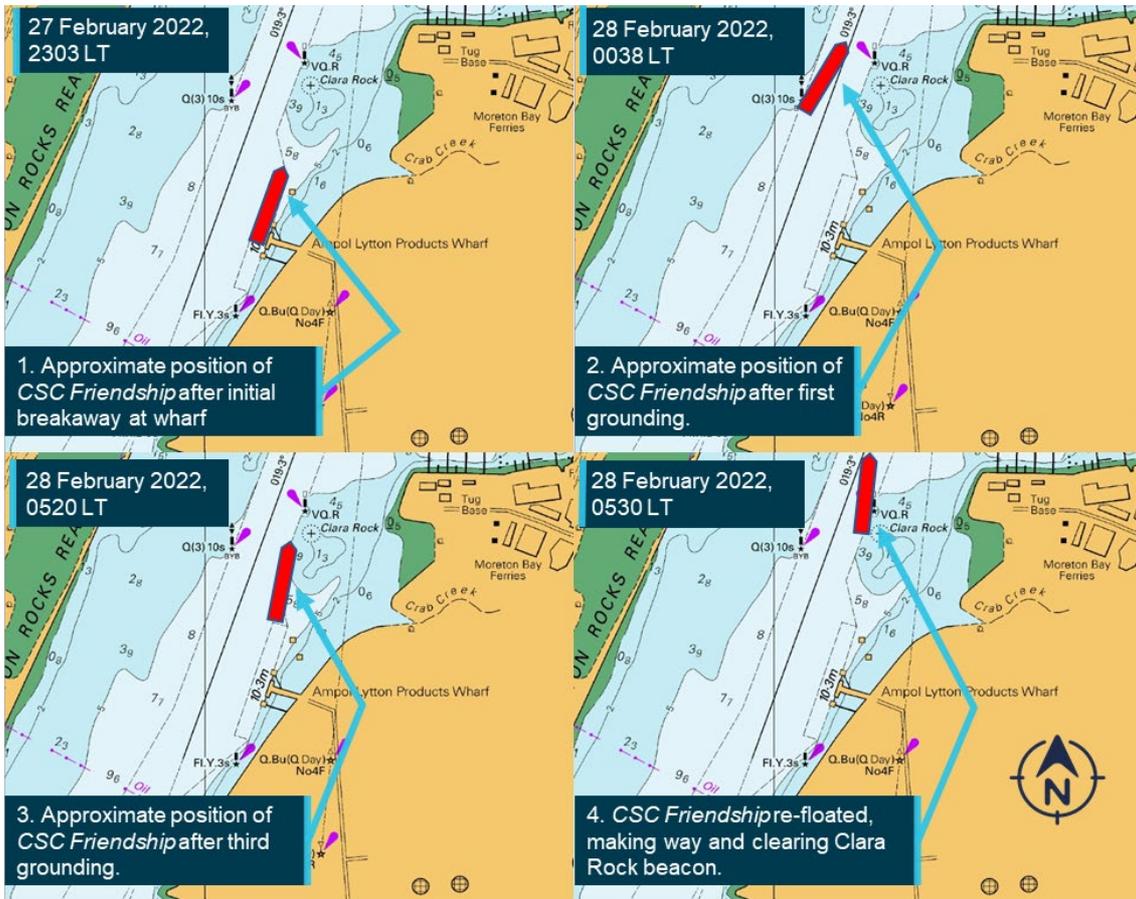
Recovery activities and further groundings

About 0105, the pilot arrived by launch and boarded the grounded vessel via the ship's pilot ladder. The pilot quickly established the vessel was aground with the port quarter on the bank, bow slightly in the channel and head down river. The pilot estimated the river current was running at 5 or 6 knots from the ship's starboard quarter, effectively pushing the ship continuously onto the bank. Further, the port anchor had 6 shackles payed out. The chain had fouled over the ship's bulb, around the stem, then into the water on the starboard side and back towards the wharf.

The pilot conducted a briefing with the ship and tug masters. Then, at about 0150, the pilot attempted to free the vessel using a combination of 2 tugs pulling the ship's stern to starboard, heaving in on the anchor, and engaging astern propulsion from the ship's engine. By 0210 it became obvious the vessel had not moved and remained grounded at Lytton Rocks Reach

(Figure 4, top right). The pilot stopped engines and stood down the tugs, requesting one remain on station while the others managed their crew’s fatigue ready for another attempt at high tide.

Figure 4: Overview of *CSC Friendship*’s positions during the occurrence



Source: Australian Hydrographic Office, annotated by the ATSB using electronically recorded data

At 0500, the pilot estimated the ebb current flow to have dropped to about 3 or 4 knots and requested the tugs to make fast to the ship to attempt another move. The port anchor remained a concern for the pilot. After discussion with the master, the pilot agreed to attempt to retrieve the anchor if possible, without compromising the re-floating attempt. Ten minutes later, the pilot instructed both tugs aft to lift off using full power and move out to starboard to bring the ship’s stern towards the channel.

The stern of the ship immediately started to move into the channel and the pilot instructed the master to commence heaving in the anchor. The attempt to weigh anchor caused the bow of the ship to swing sharply to starboard and the stern to swing back to port, which resulted in the ship running aground again by the port quarter.

The pilot instructed the master to cease weighing anchor and commence paying it out. The ship quickly started to clear its stern away from bank and across the channel current. As a result, the current was pushing on the port quarter and the pilot instructed the master to heave in on the anchor. Again, this caused the ship’s bow to shear to starboard towards Clara Rock. The pilot instructed the ship’s engine be put full astern to try and back up into the current and clear Clara Rock and assist in the retrieval of the anchor.

The bow’s movement continued, and the pilot then ordered the ship’s crew to stop weighing anchor and ordered the tug forward to pull with full power to arrest the bow swinging to starboard. The bow was successfully checked. However, because the current was now full on the ship’s port

quarter, the stern sheered rapidly starboard towards the Ampol berth and ran aground on the starboard quarter (Figure 4, bottom left).

Recovery

The pilot decided to cease any further attempts to retrieve the anchor and instructed the crew to release the bitter end and let the anchor go.⁵ They then ordered hard starboard, and full ahead while the 2 aft tugs pulled full to port. The ship came free of the bank on the starboard side of the channel and quickly moved off towards Lytton Rocks Reach, clearing Clara Rock (Figure 4, bottom right). Once underway the pilot was able to gain control of the ship with rudder alone and a short time later instructed the forward tug to lay flat⁶ and both aft tugs to stream dead astern. The anchor cleared away from the bitter end and exited the hawse pipe soon thereafter, with a bang.

The ship transited downstream without further incident. Once it was clear of Pelican Banks Reach and into the Fisherman Island swing basin, the pilot released 2 tugs, retaining only the centre lead aft tug until clearing the entrance beacon. *CSC Friendship* anchored at the Ship-to-Ship transfer anchorage (STS1) at about 0645.

Crew inspections, internal tank soundings and an underwater hull survey conducted on 3 March confirmed some shell plate damage, including buckling and medium to heavy abrasion of the hull. No hull penetration or cracking of plate or welds was found. Although the steering gear was in working order, a rudder angle of only 25° to port could be achieved instead of the full 35°. No injuries or pollution resulted from the grounding.

On receipt of a conditional safety construction certificate from China Classification Society (CCS), *CSC Friendship* was permitted to sail to Botany Bay, to discharge cargo, then directly to China for dry dock and repair.

Context

CSC Friendship

CSC Friendship was a Hong Kong-registered, medium range (MR) oil products tanker⁷ built at the Jinling Shipyard in Nanjing, China, in 2008. The ship's length overall (LOA) was 185 m, the beam 32 m, the summer draught 10.2 m, and the gross tonnage 29,593.

At the time of the grounding, the ship was owned by Fu Ning Marine Pte Ltd, managed by Nanjing Tanker Corporation and classed with China Classification Society (CCS). *CSC Friendship* had a Chinese crew of 25 personnel, including the master, and the working language on board was Chinese.

CSC Friendship was chartered by Ampol Limited to backload 25,000 tonnes of diesel oil and 7,000 tonnes of gasoline at the Ampol Products Wharf, Brisbane and deliver the product to Adelaide, South Australia. The ship was fully loaded by 2020 on 26 February.

Location

The Ampol Products Wharf was wholly owned by Ampol Limited and is located on the Brisbane River adjacent to the Lytton Refinery within the Port of Brisbane.

⁵ To 'let the anchor go at the bitter end' refers to releasing the shackle securing the chain to the anchor locker and allowing the chain to run out and over the side.

⁶ 'Lay flat' is a command requesting a tug lay flat alongside the ship, beam-on, allowing the ship to drive against the tug, thereby increasing the ship's steerage without resulting in excessive ship's speed.

⁷ MR (medium range) is a vessel class capacity of 25-45,000 deadweight tonnes (DWT). The global crude oil and refined product tanker fleet uses a classification system to standardise contract terms, establish shipping costs, and determine the ability of ships to travel into ports or through certain straits and channels. This system, known as the average freight rate assessment (AFRA) system, was established by Royal Dutch Shell 6 decades ago. It is overseen by the London Tanker Brokers' Panel (LTBP), an independent group of shipping brokers.

Maritime Safety Queensland (MSQ) through the Regional Harbour Master, had jurisdiction over all shipping within the Port of Brisbane pilotage area, including arrivals and departures at the Ampol products wharf.

Further investigation

To date, the ATSB has attended *CSC Friendship* in Port Botany to collect relevant physical, documentary and electronic recorded evidence and interview the master and relevant crew. Additionally, the ATSB attended the Port of Brisbane to collect relevant physical evidence and interview directly involved individuals.

The investigation is continuing and will include the following subject areas:

- weather and flood conditions prior to and during the breakaway and grounding
- dissemination and interpretation of weather information
- mooring arrangements
- effectiveness of the ship's emergency response, including readiness and drills
- shipboard communication systems (internal and external)
- verification, interpretation, and analysis of recorded data
- effectiveness of the port procedures, operational guidance and inter-agency communications during a flood event
- analysis of relevant human factors.

Should a critical safety issue be identified during the course of the investigation, the ATSB will immediately notify relevant parties so appropriate and timely safety action can be taken.

A final report will be released at the conclusion of the investigation.

General details

Occurrence details

Date and time:	27 February 2022 – 2250 AEST	
Occurrence class:	Serious incident	
Occurrence categories:	Grounding	
Location:	Port of Brisbane, Lytton, Queensland, 4178	
	Latitude: 27° 24.393' S	Longitude: 153° 9.085' E
Persons on board:	Crew – 25	Passengers – 0
Injuries:	Crew – 0	Passengers – 0
Damage:	Minor	

Ship details

Name:	<i>CSC Friendship</i>	
IMO number:	9344150	
Call sign:	VRDL2	
Flag:	Hong Kong	
Classification society:	China Classification Society (CCS)	
Departure:	Brisbane	
Destination:	Adelaide	
Ship type:	Oil Products Tanker, Double Hull	
Builder:	CSC Jinling Shipyard	
Year built:	2008	
Owner(s):	Fu Ning Marine Pte Ltd	
Manager:	Nanjing Tanker Corporation	
Gross tonnage:	29,593	
Deadweight (summer):	45,800	
Summer draught:	10.2 m	
Length overall:	184.95 m	
Moulded breadth:	32.2 m	
Moulded depth:	18.2 m	
Main engine(s):	MAN B&W 6S60MC-C Mk VII	
Total power:	8,520 KW	
Speed:	13 knots (loaded) 13.9 knots (ballast)	
Injuries:	Crew – 25	Passengers – 0
Damage:	Minor shell plate damage, including buckling and medium to heavy abrasion of the hull. Damage to the rudder bottom bilge plate restricted helm to 25° of port helm.	