

FINAL REPORT

COLLISION BETWEEN BULK CARRIER EIRINI P AND OIL TANKER VIKTOR BAKAEV IN SINGAPORE STRAIT ON 24 JANUARY 2017

MIB/MAI/CAS.011

**Transport Safety Investigation Bureau
Ministry of Transport
Singapore**

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The Transport Safety Investigation Bureau

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SYNOPSIS

On 24 January 2017 at about 0035H, two Liberian registered vessels were involved in a collision in the Singapore Strait Traffic Separation Scheme (TSS). As a result of the collision, the westbound tanker (Viktor Bakaev) reported a loss of 150 metric tonnes (MT) of heavy fuel oil from its bunker tank and the bulk carrier (Eirini P), which was crossing the TSS to pick up a Pilot suffered damage to its bow and lost its anchor.

The TSIB classified the occurrence as a very serious marine casualty and launched an investigation.

The investigation revealed that the Vessel Traffic Information System had advised the bulk carrier in ample time to wait for the westbound traffic to clear, which included the tanker. However, the bulk carrier misidentified another vessel to be the tanker while attempting to cross the TSS. The tanker on the other hand, was attempting an overtaking maneuver at about the same time.

This incident also reiterates the importance of effective bridge resource management, ensuring appropriate bridge team composition when navigating in areas of higher traffic density, maintaining a proper lookout and ensuring compliance with COLREGs¹ at all times.

¹ The Convention on the International regulations for Preventing Collisions at Sea, 1972
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VIEW OF VESSELS



Figure 1: MV Eirini P (left) and MT Viktor Bakaev (right)

Source: shipspotting.com

DETAILS OF VESSELS INVOLVED

Name	Eirini P (EP)	Viktor Bakaev (VB)
IMO Number	9284879	9610810
International Call Sign	D5GA7	D5BN6
Flag Registry	Monrovia (Liberia)	
Classification Society & ISM RO	Bureau Veritas	Lloyds Register
Ship type	Bulk Carrier	Oil Tanker
Year Built	2004	2013
Owners/ Operators	Eurobulk Ltd - Greece	Novorossiysk Shipping Company (Novoship) – Russia
Company ²	Eurobulk Ltd - Greece	SCF Management Services Ltd - Dubai
Gross tonnage	39974	66855
Length overall	225.00m	249.90m
Breadth	32.26m	46.00m
Draught ³	13.10m (Mean) ⁴	6.2m (Fwd) / 8.2m (Aft)

² In accordance with ISM Code – SOLAS Chapter IX, IMO Res.A.741(18) as amended thereof

³ Reported and/or recorded before the incident

⁴ Based on arrival draught recorded in log book

1 FACTUAL INFORMATION

All times used in this report are Singapore Local Time. (UTC +8.0H)

1.1 Sequence of events

- 1.1.1 At about 2030H on 23 January 2017, the crude oil tanker, MT Viktor Bakaev (VB), departed Eastern OPL⁵ anchorage and joined the westbound lane of the Singapore Strait Traffic Separation Scheme (TSS), for her ballast voyage to her next port of Fujairah, UAE.
- 1.1.2 VB's bridge team comprised of the Master who was conning the ship, a 2nd Officer as the Officer of the watch (OOW) assisting the Master, a duty Able-Seafarer Deck(ASD) on the helm and an Ordinary Seaman (OS) stationed on the starboard bridge-wing as a lookout. A bridge watch manning level (II) as per the safety management system was recorded in the logbook.
- 1.1.3 In the eastbound lane of the TSS, the bulk carrier, MV Eirini P (EP) in loaded condition was bound for Singapore anchorage to take bunkers. She was scheduled to pick up Pilot at Singapore Pilot Eastern Boarding Ground Bravo (PEBGB) at 0030H on 24 January 2017. EP's past track indicated that she had gradually started to reduce speed and moved closer to the traffic separation line, in preparation to cross the westbound lane towards PEBGB.
- 1.1.4 EP's bridge team comprised of the Master who was conning the ship and was assisted by a 2nd Officer as the OOW on lookout duties and plotting the ship's position and an ASD as the helmsman.
- 1.1.5 At about 0014H, for EP's benefit, VTIS⁶ provided traffic information that was coming from the east, and sought EP's intention for crossing the TSS considering EP's pilot boarding time and the presence of three westbound vessels, two of which were bulk carriers⁷. Amidst interrupted transmission, this conversation lasted for about five minutes, with EP's responses largely not related to the advice given.
- 1.1.6 After a series of counter-clarifications offered by VTIS in response, at about 0020H, EP proceeded further north-east while concurrently reporting its intention to commence crossing the westbound lane. VTIS responded that EP should cross after the two bulk carriers and the tanker VB had passed clear. EP responded in agreement to "*pass from her stern*" (*sic*). VTIS then

⁵ Outside Port Limit

⁶ Vessel Traffic Information System – Central, sector 8 as per STRAITREP.

⁷ MV Ultimax (LOA 210m, 31m Beam) / MV Cape Daisy (LOA 299m, 50m Beam).

advised EP to proceed further east before commencing her manoeuvre to cross the westbound traffic lane.

- 1.1.7 Meanwhile, in the westbound lane at about 0030H, VB which was proceeding at about 13kts⁸ altered its course towards port, with an intention to overtake the westbound bulk carrier Cape Daisy transiting at about 8kts. At about this time, EP was about 1.4nm ahead of VB, but in the opposite lane.
- 1.1.8 At about 0031H, VTIS queried EP to confirm whether EP would cross the TSS after VB had passed. EP responded in the affirmative and confirmed that she would cross after the “tanker” had passed.
- 1.1.9 About a minute later, recognising that EP and VB were on a collision course, VTIS queried EP again to caution her of an imminent collision with VB and advised EP to take actions to avoid a collision. EP responded that she had started turning to port and was attempting to cross the westbound lane. VTIS then advised VB at about 0033H of EP’s intention to cross the westbound lane.
- 1.1.10 VB responded and broadcast that she was now altering her course to starboard and urged EP to follow suit immediately, i.e. alter to starboard so that both vessels could pass each other port-to-port. Between 0034H to 0035H, both VB and EP communicated over VHF to inform their respective actions⁹.
- 1.1.11 At about 0036H, EP’s port bow collided with VB’s port quarter in position Lat: 01° 14.27’N Long: 103° 57.0’E in the westbound lane of the TSS, 1.1nm south of PEBGB in Singapore territorial waters.

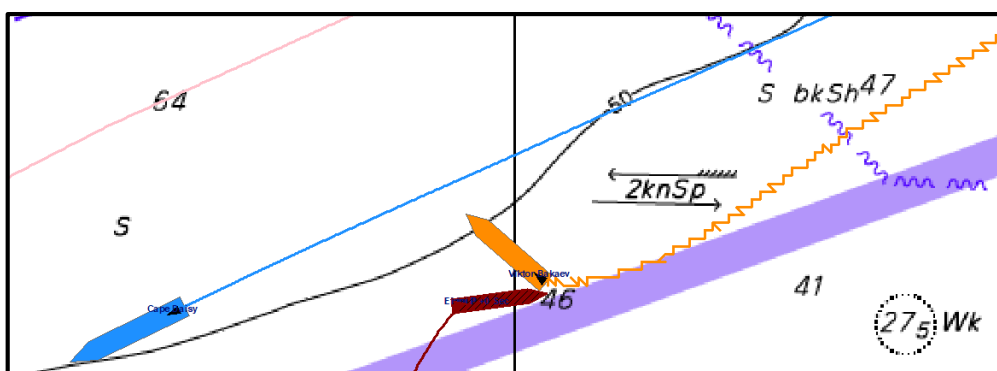


Figure 2: Data plotted using VDR data – at about 0036H – For illustration only

⁸ Knots (kt) – is a unit of speed equal to one nautical mile (1.852km) per hour.

⁹ VB: Called EP saying “Please change your course, passing port to port, what are you doing? Running into danger”. EP responded “Changing course to starboard, you also change to starboard”

1.2 Consequence

1.2.1 There was no injury reported from either of the vessels.

1.2.2 VB later reported to have a loss about 150 metric tonnes of heavy fuel oil into the sea¹⁰ as a result of ruptured heavy fuel oil tank. VB also reported that some of this fuel oil had leaked into the engine room.

- A horizontal tear of approximately 15-20m in length, on the port quarter shell-plating adjacent to the No.2 fuel oil tank and adjacent to the engine room.
- A hole of approximately 3m in diameter on the shell-plating below the tear, into the No.2 fuel oil tank.

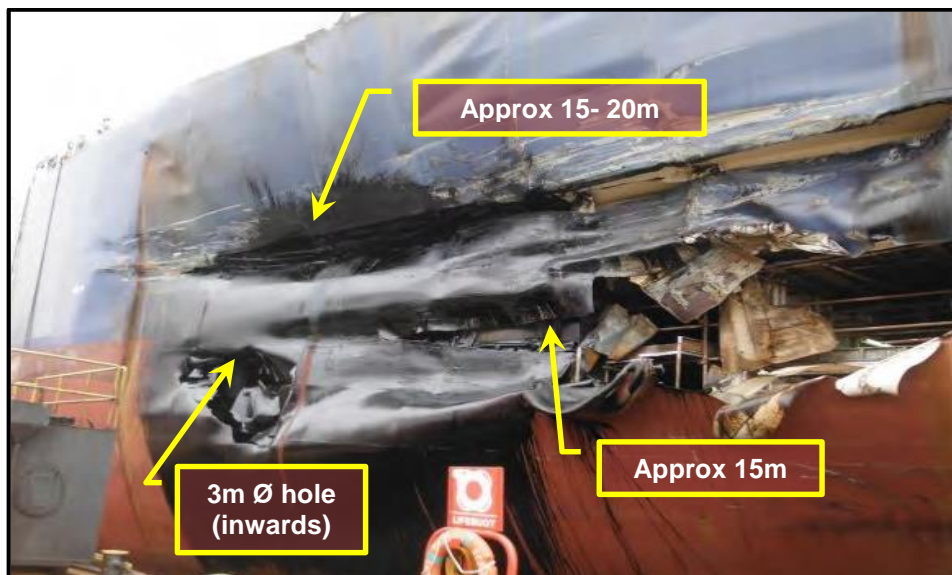


Figure 3: Damages on MT Viktor Bakaev's port quarter.
Source: Liberian International Shipping & Corporate Registry (LISCR)

1.2.3 EP suffered damages as follows -

- Deformed bulwark at the port bow with damaged air vent
- Loss of port anchor

¹⁰ Pollution containment response launched by MPA continued for about 24 hours after the occurrence. Small oil patches were discovered in daylight hours on 24 January 2017, off Raffles lighthouse and Helen Mar reef, at about 14nm southwest of the location of the collision.



Figure 4: Damages on MV Eirini P's port bow.
Source: LISCR

1.3 Narrative according to EP

- 1.3.1 EP was proceeding in the eastbound lane at a speed of about 6.2kts and a heading of about 035° (T). The Master stated that he was waiting for VTIS' instruction to cross the TSS, as EP approached the traffic separation line towards the PEBGB. The bridge team noted the presence of three vessels in the westbound lane.
- 1.3.2 After the first westbound vessel (name not known to EP) passed clear on EP's port side, EP communicated with VTIS requesting permission to cross the TSS, but was advised to wait for the traffic and to cross after a tanker, the VB. A vessel was at this instance, noted by EP to be about 3nm on EP's starboard side and visually seen as displaying its port side-light (see **Figure 5**). This vessel was later identified to be the VB.
- 1.3.3 EP responded in the affirmative that they would wait for the tanker to pass before altering course to port towards PEBGB.

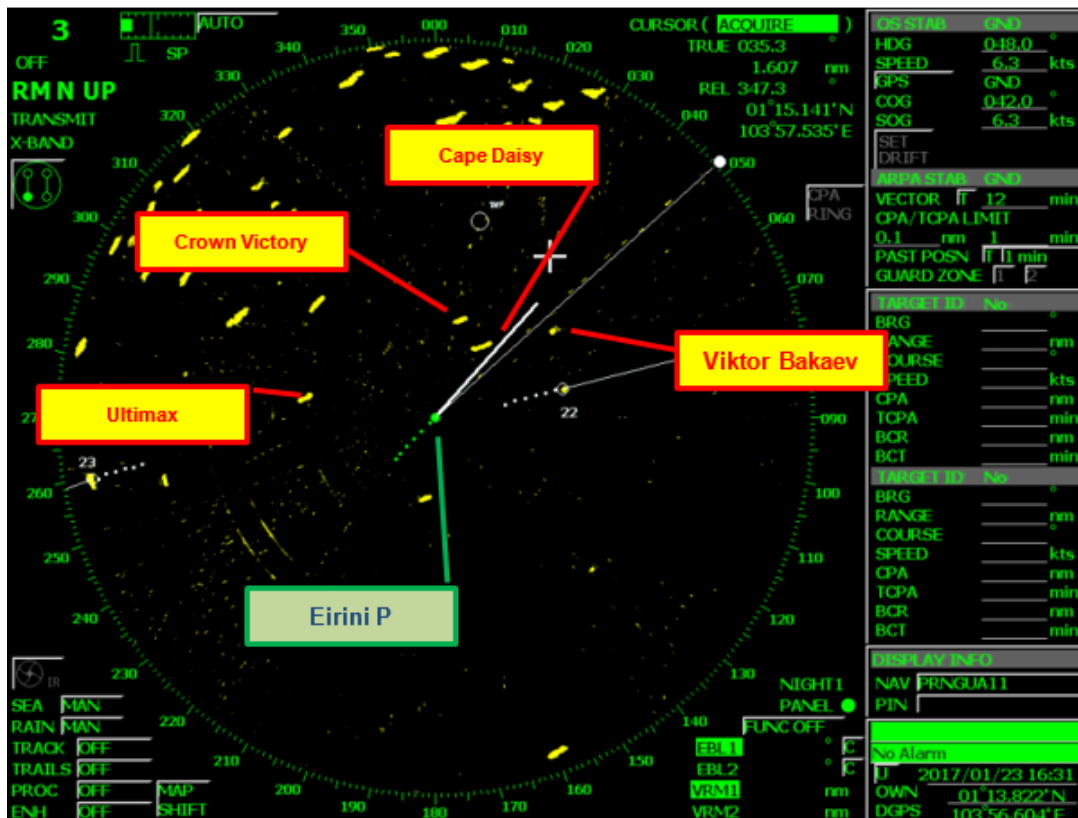


Figure 5: EP's X-band radar (targets not acquired) at about 0031H (annotated by TSIB)

- 1.3.4 At about 0032H, EP turned more to port intending to cross the westbound lane aiming for the stern of one of the westbound vessels (later identified to be the Cape Daisy). The Master stated that, at this instance, VB which was still on EP's starboard side and at a distance of about 1nm suddenly turned to port and manoeuvred in a "zig-zag manner".
- 1.3.5 EP tried calling VB but the replies were unintelligible. The Master of EP ordered for hard-to-starboard on the helm and increased the engine from dead slow ahead to full ahead with the intention to pass port-to-port with VB. EP recorded the time of collision with VB's port quarter as 0035H.
- 1.3.6 After the collision, EP tried to raise communications with VB, but did not receive a reply. EP sought permission from VTIS to continue proceeding to PEBGB. The Watch Manager (WM) advised EP to maintain its position in the eastbound lane until further advice¹¹. EP then proceeded to Eastern OPL for a damage assessment by its Classification Society and was later

¹¹ Port Marine Circular, No. 23 of 1997 – Requirement for damaged vessels entering port – Requires a damage assessment to be done before a vessel is allowed entry into port.

instructed by the charterer¹² to proceed directly to the discharging port in Shenzhen, China.

- 1.3.7 Prior to the attempted crossing, the audio recording on the VDR indicated that the Master sought clarification twice from OOW, on the planned course towards the PEBGB and also about some vessels in the vicinity.
- 1.3.8 The Master and OOW also opined that the similar sounding call-signs of both vessels EP (D5GA7) and VB (D5BN6) caused confusion for them when VTIS called VB, and EP mistakenly answered the call. The Master stated that all targets were acquired on the S-band radar¹³.
- 1.3.9 The deck logbook contained the following entry –

“At 0027, observed that westbound tanker Viktor Bakaev came out from its traffic zone, heading towards EP. Despite VTIS central repeated warning that she is on a collision course, no reply or actions was observed. In view of the state of emergency, warned the said vessel to keep clear and tried to avoid collision, since Viktor Bakaev entered the eastbound lane. However due to the short distance the contact incident was unavoidable”.

1.4 Narrative according to VB

- 1.4.1 On 24 January 2018, at about 0020H, VB had overtaken two westbound vessels while transiting the westbound lane of the TSS. The Master briefly reduced VB’s engines to dead slow ahead at about 0021H, considering the traffic expected in the TSS which included amongst others, the Cape Daisy, ahead of VB proceeding at a slower speed than VB. On Cape Daisy’s starboard side, was the Crown Victory, also westbound.
- 1.4.2 The bridge team noted EP’s port side-light on VB’s port bow and overheard communications between VTIS and EP, with the former advising EP to cross the TSS towards the PEBGB after VB had passed clear.
- 1.4.3 Between 0022H to 0024H, at a speed of about 12.8kts, the Master then decided to overtake from Cape Daisy’s port side and put the engine telegraph gradually to half ahead from dead slow ahead. Small course alterations to port were given to facilitate this overtaking manoeuvre while

¹² LISCR had issued a Flag State Control detention order to the Owners of EP on 24 January 2017 prohibiting EP to depart Singapore until, a damage assessment by Classification Society and there was sufficient information available for the investigation into the collision. The Owners claimed the detention order was received after the vessel had departed.

¹³ The S-band radar was not connected to EP’s voyage data recorder (VDR).

staying within the westbound lane. By about 0031H, EP (in the opposite lane) was showing both sidelights (see **Figure 6**)

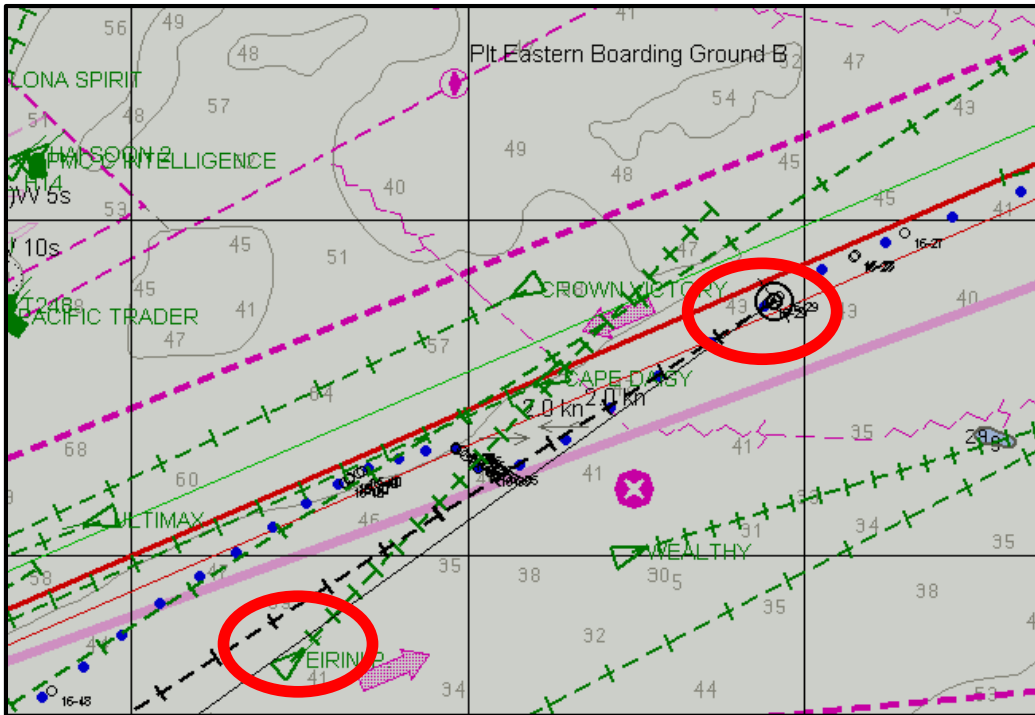


Figure 6: VB's ECDIS displaying EP in a nearly head-on situation, with both vessels in their respective traffic lanes (circles annotated by TSIB)
Source: LISCR

- 1.4.4 As VB progressed and was still on Cape Daisy's port quarter, at about 0033H, the bridge team of VB noted EP's aspect change and she showed only the starboard side-light and a bow crossing range with VB.
- 1.4.5 The Master ordered hard-to-starboard on the helm and put the engine to full ahead with a view to increase the distance apart between the two vessels. The 2nd Officer concurrently raised communication with EP on VHF Ch 14 and used the ship's whistle. At about 0036H VB's port quarter was hit by EP's bow in way of the engine room.
- 1.4.6 In consultation with the Company and communication with VTIS, VB subsequently anchored outside Singapore waters for a damage assessment.
- 1.4.7 The deck logbook contained the following entry –

“VTIS called Eirini P and give order to pass clear of Viktor Bakaev. At 0028 called Eirini P to check their course. Altered course to starboard (port to port passing)”

1.4.8 The Master stated that after the collision, VB called EP a few times but EP did not respond to the call.

1.5 Narrative according to VTIS

1.5.1 At about 0014H, noting EP's intended arrival towards the PEBGB and transit traffic in the westbound lane, the VTIS WM provided traffic information to EP, concerning three westbound vessels, i.e. Chu Lan 3, a faster bulk carrier Ultimax, and the relatively slower bulk carrier Cape Daisy about 3nm away. In providing this information the WM advised EP to cross ahead of Cape Daisy instead of crossing ahead of Ultimax. This conversation lasted about 90sec.

1.5.2 In response to this information, EP stated "*Ok you want me to switch on three green lights – correct?*". After receiving this response from EP, WM repeated the advice again for EP's benefit and EP responded with "*Ok we will pass her¹⁴ stern*".

1.5.3 At about 0021H, the VTIS operator received a call from EP indicating that she was altering course with the intention to cross the TSS ahead of Cape Daisy. The WM intervened that since traffic was still heavy (considering that by now the Crown Victory was on Cape Daisy's starboard quarter and there was another vessel further east of Cape Daisy, the tanker VB about 4nm and bearing 060° from EP), WM advised EP to cross the TSS after the tanker (VB) had passed clear.

1.5.4 At about 0022H, VTIS received confirmation¹⁵ from EP that they would wait for the "tanker" to pass clear.

1.5.5 At about 0031H, VTIS operator queried EP's intention as EP was about 1.4nm from VB. EP responded that, as soon as they would clear from the "tanker", they would alter their course to port towards PEBGB.

¹⁴ Although it is not clear from EP's perspective which vessel did EP refer to when responding to VTIS, it was the WM understanding that the "her" referred to Ultimax, which was in line with WM's initial intention for EP.

¹⁵ EP's X-Band radar connected to the VDR showed that none of the targets of interest i.e. Cape Daisy, Ultimax and VB had been acquired by the bridge team.

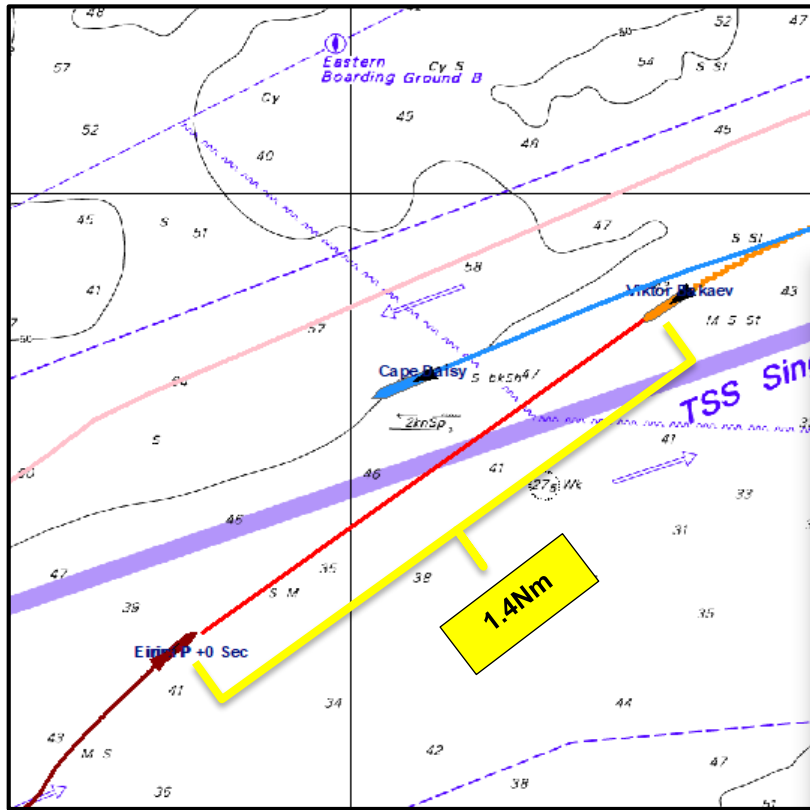


Figure 7: Positions of MV Cape Daisy (blue), MT Viktor Bakaev (amber) and MV Eirini P (maroon) at 0031H based on data from VTIS and voyage data recorder

1.5.6 At about 0032H, the WM alerted EP that she was on a collision course with VB and that she should pass astern of VB as there was sufficient room on EP's starboard side. EP was heard to show some confusion (see table below) in identifying which vessel WM was referring to, for EP to pass astern of.

0032:40	WM	<i>Captain just now we advised you passing stern of the tanker do you understand over</i>
0032:51	EP	<i>Of this tanker We pass astern and the other one I will leave on my starboard bow.</i>

1.5.7 WM noted that EP was altering to port, and possibly aiming for the stern of Cape Daisy instead of VB. Over the next two minutes WM provided additional information to both EP and VB to aid in avoiding the collision. The WM heard that VB transmitted over the VHF that she was altering course to starboard and that EP should change too, so as to pass port-to-port with each other.

1.5.8 All stations were asked to cease communication (standby) at 0035H. At about 0038H EP confirmed that her bow had come in contact with VB.

1.5.9 After the collision, EP was advised to maintain its position in the eastbound lane instead of approaching PEBGB.

1.6 Bridge team, rest hours, bridge layout, and passage plan

1.6.1 Eirini P

1.6.1.1 The Master, age 66, a Greek national, held a Certificate of Competency (COC) Class 1 issued by the Ministry of Transport of the Republic of Cyprus. He had an in-rank experience of about 34 years and a sea-going experience of about 48 years. He recalled that over the past 11 years, he transited Singapore Straits about four times.

1.6.1.2 The 2nd Officer, age 23, a Ukrainian national, held a COC Class 3 issued by the Government of Ukraine. He had an in-rank experience of about 3.5 years and was performing the role of OOW assisting the Master, who had the con.

1.6.1.3 The Helmsman, age 30, a Philippines national, held an approved ASD qualification issued by the Philippines Maritime Industry Authority and was steering the ship since taking over the watch at about 2000H.

1.6.1.4 The Company's SMS required the bridge team comprising of the Master, an OOW, a Lookout and a Helmsman, when entering and leaving port. The SMS also required completion of a pre-arrival checklist (HSEP-S04) which stated "*a Lookout is posted and consider doubling by calling a second qualified officer*".

1.6.1.5 The investigation team was not provided with copies of the bridge team's records of the pre-arrival checklist, the rest hours or drug and alcohol tests. However, it was noted from the logbook records that the Master had been on the bridge for about five hours before the incident.

1.6.1.6 EP's primary means of navigation was paper charts¹⁶ with the chart table at aft part of the wheelhouse behind the navigation console and radars with automatic radar plotting capabilities. The Automatic Identification System (AIS) display screen was located in the chart room separated by a curtain which was closed for night navigation (see **Figures 8 and 9**).

¹⁶ SOLAS Chapter V/19.2.10.8, as amended to be fitted with an Electronic Chart Display Information System (ECDIS) not later than first survey on or after 01 July 2017. The ECDIS was fitted in August 2017.



Figure 8: Chart table (separated by curtain in hours of darkness) on EP's bridge with AIS (circled red by TSIB) display equipment
Source: LISCR

1.6.1.7 Both the X-band and S-band radar consoles were on the port side of the bridge, while the VHF radio(s) were in front, with the steering console in the middle. The Master stated that he was navigating from the bridge front and moving around to check the radars, having acquired targets of interest on the S-band radar. The OOW also stated that he was moving around the bridge, checking the radars and navigation charts on the chart table.

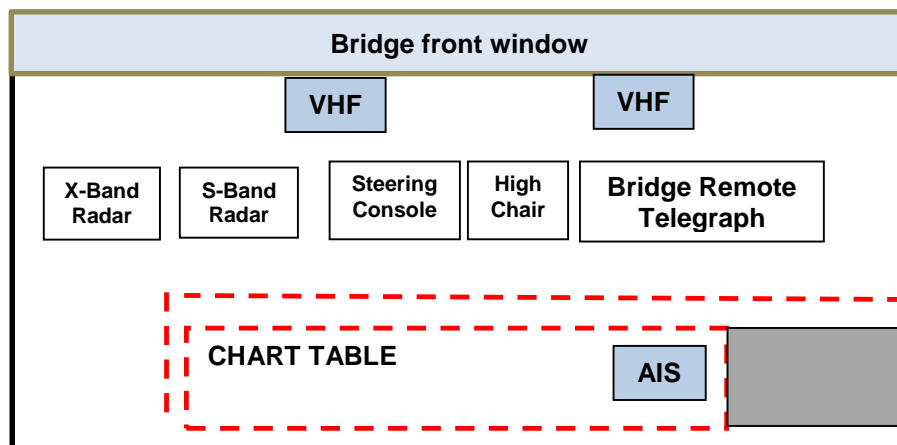


Figure 9: Illustration of MV Eirini P's bridge layout. Red dashed line indicate approximate chart space separated by curtains.

1.6.1.8 EP's passage plan indicated that the intended course marked in the nautical chart (no. 4041) towards PEBGB was 032° (T) starting from the middle of the eastbound lane (see **Figure 10**).



Figure 10: EP's Planned passage on chart no. 4041 (red dotted line annotated by TSIB) showing the planned course from the eastbound TSS lane to PEBGB
Source: LISCR

1.6.2 **Viktor Bakaev**

- 1.6.2.1 The Master, age 61, a Russian national, held a COC of Master issued by the Russian Federation. He had an in-rank experience of about 25 years and a sea-going experience of about 38 years. He transited Singapore Straits for about 12 times, in total.
- 1.6.2.2 The 2nd Officer, age 41, a Russian national, held a COC of Chief Mate issued by the Russian Federation. He had an in-rank experience of about 13 years and was performing the role of OOW assisting the Master on the radar and radio-communications.
- 1.6.2.3 The Helmsman, age 29, a Russian national, certified as an ASD and was steering the ship before the incident.
- 1.6.2.4 The Lookout, age 34, a Russian national, was an OS and was reportedly standing at the starboard bridge wing at the time of the incident.
- 1.6.2.5 The investigation team was not provided with copies of VB's records of rest hours or drug and alcohol tests. The Master was understood to have been on the bridge since VB departed Eastern OPL anchorage at about 2030H.

1.6.2.6 VB's primary means of navigation was Electronic Chart Display Information System (ECDIS). The steering console separated two sets of radars¹⁷ and ECDIS (see Figure 11).

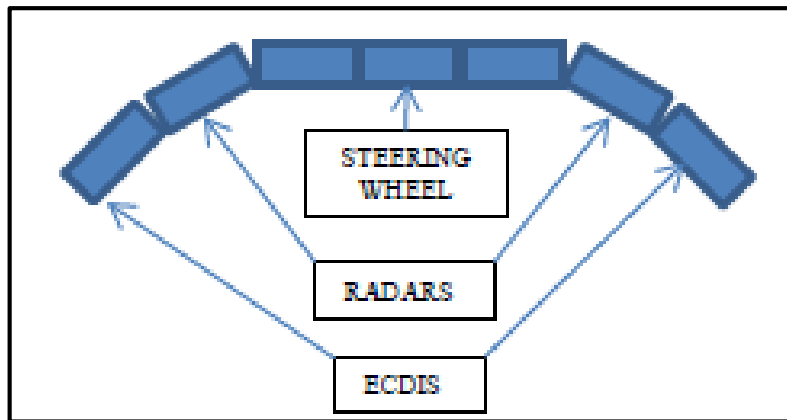


Figure 11: Illustration of Viktor Bakaev's bridge layout.
Source: LISCR

1.7 Incident location and environmental information

1.7.1 The collision took place in the southern limits of the westbound lane, with both the eastbound (0.9nm) and westbound (0.6nm) lanes measuring about 1.5nm of available water in width, with respect to the draught of both vessels. The northern limits include PEBGB which is about 1.4nm from the incident location; as well as the Pilot disembarkation ground (commonly known as DG3). The general directions of the lanes are 068° and 248° for eastbound and westbound traffic respectively.

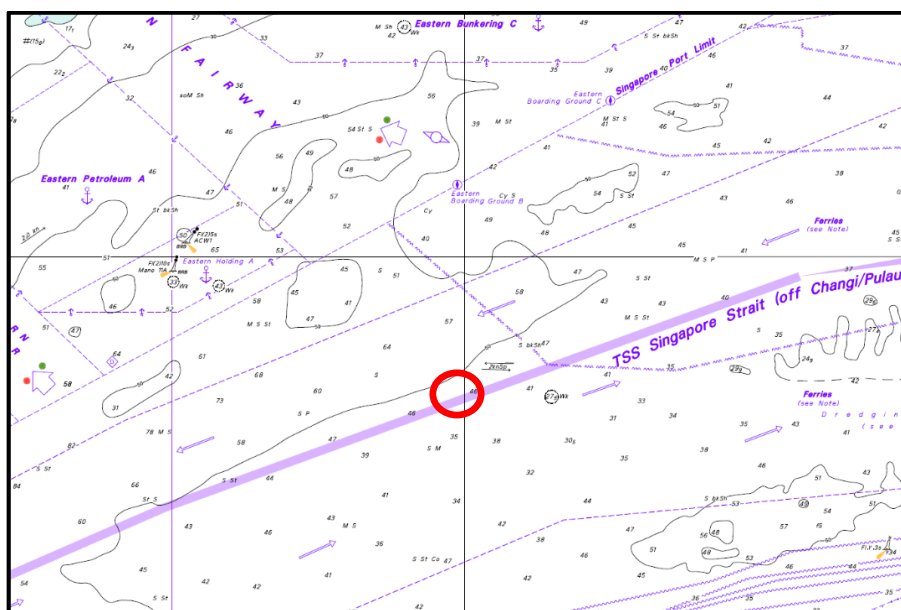


Figure 12: Red-coloured circle denotes location of incident

¹⁷ VB's X-band radar was connected to the VDR. Targets were acquired and plotted on this radar.

- 1.7.2 While EP's logbook indicated visibility as "good", VB's logbook indicated the visibility in the hour of darkness was about 7nm. VB's OOW and the ASD stated there was light drizzle but the visibility was not compromised as a result. The predicted westerly tidal stream in the area for that time was less than 1kt.

2 ANALYSIS

2.1 EP's identification of vessels in its vicinity

- 2.1.1 EP's Master stated to have been monitoring the traffic from the front of the bridge and using the S-band radar. However, since only the X-Band radar was connected to the VDR it would be difficult to establish whether the targets were indeed acquired by the bridge team, as claimed by the Master. If the targets of interest had been acquired on the S-band radar, then the Bridge team had not correlated to VTIS' advice (see Para 1.5.6) to wait until VB had passed, before attempting to cross the TSS to PEBGB (see **Figures 5, 6 and 7**).
- 2.1.2 Though VTIS initially advised EP to cross ahead of Cape Daisy which was slower than Ultimax, this advice was amended for EP to cross after VB had passed. It is likely that EP had not positively identified¹⁸ (by name or call sign) the respective vessels which the VTIS was referring to, and had not assessed¹⁹ that VTIS was now referring to VB which was about 4nm further east.
- 2.1.3 The AIS display was located in the chart room and not integrated with the radars thus making it difficult for the bridge team to positively identify the vessels by name or call sign which was one of the means used by VTIS to provide information to EP.

2.2 EP's bridge resource management

- 2.2.1 The bridge team was not manned in accordance with the Company's SMS for entering and leaving port as there was no dedicated person performing the role of a lookout. The 2nd Officer was largely deemed to be performing a supporting role as the OOW, by plotting positions on the chart and checking the radars. The Master was heard communicating with VTIS most of the time.
- 2.2.2 There were limited conversation between the Master and the OOW, the two clarifications from the Master to the 2nd Officer were largely on the planned course towards the PEBGB (see paragraph 1.3.7). With limited conversation (as recorded on the bridge audio mic) between the Master and

¹⁸ Cape Daisy was a bulk carrier. At night, by navigation lights alone, it is not possible to visually differentiate between a bulk carrier and a tanker.

¹⁹ COLREGs – Rule 5 – Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

the 2nd Officer prior to the collision, it is likely that the Master was himself corroborating the information provided by VTIS and communicating with the VTIS.

2.2.3 COLREGs requires every vessel to maintain proper lookout by sight, hearing and all available means appropriate in the prevailing circumstances. Without a dedicated lookout, the Master could be deprived of a better information feed. Similarly, although the Master did not consider the need for an additional (navigating) officer as a part of the pre-arrival checklist, the presence of this additional officer to assist the bridge team would have been desirable.

2.2.4 While it is not mandatory for AIS to be integrated with the radar(s), providing the AIS display next to the radar would have likely enhanced the bridge team's situational awareness.

2.3 EP's passage plan

2.3.1 Though not contributing to the collision, EP's course for crossing the TSS as per the passage plan towards PEBGB was 032° (T) starting from a waypoint in the middle of the eastbound lane which was not as expected in COLREGs²⁰, especially when planning the passage.

2.3.2 Leaving a traffic lane and subsequently crossing the TSS requires coordination, taking into account the provisions of COLREGs, the prevailing tidal and traffic conditions in the vicinity. A right angle crossing also allows for vessels to cross the lane in the shortest distance.

2.4 Viktor Bakaev's manoeuvres

2.4.1 VB was transiting the TSS at about 13kts with her main engines on manoeuvring mode. The ECDIS and the X-band radar on VB had target data from its AIS displayed which allowed the bridge team to positively identify the vessels in the vicinity.

2.4.2 During the transit, VB intended to overtake the Cape Daisy from the latter's port side, considering the presence of the Crown Victory on Cape Daisy's starboard side. To facilitate the overtaking, VB made a series of small alterations to port and came closer to the traffic separation line. VB's overtaking manoeuvre by altering the course to port and then to starboard,

²⁰ COLREGs - Rule 10(c) – A vessel shall, so far as practicable, avoid crossing traffic lanes but if obliged to do so shall cross on a heading as nearly practicable at right angles to the general direction of traffic flow

was likely to have contributed to EP's assessment that VB was navigating in a zig-zag manner.

2.4.3 The ECDIS playback also revealed that, at the time when VB altered her course to a south-westerly heading while overtaking Cape Daisy, VB was on a nearly a head-on situation²¹ with EP for about two minutes from 0031H, where the distance apart was only about 1nm. VB's decision to overtake Cape Daisy was based on the information given by VTIS to EP for her to pass astern of VB. Nevertheless, in a busy waterway like a TSS, it would have been prudent on the part of VB to not commence an overtaking manoeuvre which resulted in VB having a reduced CPA with EP and Cape Daisy.

2.4.4 VB's actions to alter its course to starboard for collision avoidance, and call for EP to alter its course to starboard was consistent with expected actions under COLREGs Rule 14²². However, prior to the collision, the sound of the whistle recorded in the VDR of VB, was two prolonged blasts, at about 4-5 seconds apart, which was not in accordance with COLREGs Rule 34(a)²³. This however, did not contribute to the collision.

2.5 VTIS advice and VHF communications

2.5.1 The VTIS operator anticipated EP's crossing of the westbound lane to PEBGB since about 0014H. The operator and the WM proactively provided EP with at least three separate reports on the traffic situation in the TSS regarding the vessels of interest.

2.5.2 There was no evidence to suggest that the call sign caused confusion as opined by EP. Although EP (call sign D5GA7) had responded when the WM called VB (call sign D5BN6) at about 0033H, the WM informed EP that the call was for VB. Although the initials of the call signs of VB and EP both started with "D5" as the two vessels are Liberian-flagged, the pronunciation of the *BN6* (*Bravo November Six*) was clear and different from *GA7* (*Golf Alpha Seven*) which the EP had responded to.

2.5.3 Nevertheless, the investigation team views that the WM's communication can be improved. The WM could have broken down the broadcast of the

²¹ The ARPA radar on VB also displayed the identification and collision warning with regards to EP at about 0031H.

²² COLREGs – Rule 14(a) – When two power driven vessels are meeting on a reciprocal or nearly reciprocal courses so as to involve risk of collision, each shall alter her course to starboard so that each shall pass on the port side of each other.

²³ Requires one short blast to be sounded which means "altering course to starboard"

traffic information to EP into smaller portions with appropriate message markers²⁴. In addition, the WM could have confirmed with EP that its intention was to wait for VB to pass, and requested for read-back to the traffic information and advice he was providing to EP. It is also important for all parties involved to adhere to standard radiotelephony, in particular Standard Marine Communication Phrases (SMCP)²⁵, to minimise misunderstanding and misinterpretation.

²⁴ Used to increase the probability of the purpose of the message being properly understood – IALA VTS Manual Ed. 2016

²⁵ SMCP, an IMO publication is a simplified version of maritime English in order to reduce grammatical, lexical and idiomatic varieties to a tolerable minimum for the greater safety of navigation and of the conduct of the ship, to standardise the language used in communication when dealing with ports and on vessels with multilingual crew.

3 CONCLUSION

From the information gathered, the following findings, should not be read as apportioning blame or determining liability to any particular organisation or individual.

- 3.1 At the time of collision, EP's bridge team composition was not in accordance with the Company's SMS requirement for entering port. When approaching the pilot boarding ground from the TSS, EP likely misidentified Cape Daisy as VB in the hours of darkness and attempted to cross the TSS despite VTIS' advice to wait for VB to pass clear.
- 3.2 EP's layout of navigational equipment on the bridge with the AIS display placed near the chart table at a distance away from the radars as well as lack of maintaining a proper lookout, resulted in the situational awareness on the bridge to be reduced, as they were unable to corroborate important navigational information.
- 3.3 In an area of higher density traffic, the bridge team of VB attempted an overtaking manoeuvre despite noting the presence of EP in the opposite lane. This resulted in a close-quarter situation.
- 3.4 VTIS had provided the necessary and timely advice to EP by highlighting the vessels in close proximity and advised that the crossing should take place only after VB had passed clear of EP. The communication could be improved with the use of standard radiotelephony phraseology such as the appropriate use of message markers and read back request when applicable, to ensure the messages are understood.

4 SAFETY ACTIONS

During the course of the investigation and through discussions with the investigation team, the following preventive / corrective action(s) were taken by parties involved.

4.1 Taken by Vessel Traffic Management (VTIS)

- 4.1.1 Enhanced training to ensure standard radiotelephony phraseology, and where relevant read-back by recipients, is used by watch operators and managers.
- 4.1.2 Conducted routine and random audits of watch operators at workstations in the VTIS center to ensure continuity of good practice.

4.2 Taken by the Company of Eirini P

- 4.2.1 Amended the SMS and provided decision-making tools for the Master to assess the necessary bridge manning composition, under varying conditions.

5 SAFETY RECOMMENDATION

A safety recommendation is for the purpose of preventive action and shall in no case create a presumption of blame or liability.

5.1 For the Company of Eirini P

- 5.1.1 To review its procedure in ensuring that the bridge team make use of all resources available, including AIS overlay on the radar and ECDIS, to systematically plot and track all the targets within vicinity. **[TSIB-RM-2019-006]**

5.2 For the Company of Viktor Bakaev

- 5.2.1 To review its navigation procedures on overtaking manoeuvres during transits in TSS and in areas of higher traffic density. **[TSIB-RM-2019-007]**

- End of Report -