



Isle of Man Ship Registry

Casualty Investigation Report No. CA102

Collision between the Tanker British Cygnet and
Container ship Vera

2nd December 2006

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Statement of Intent

Extract from The Isle of Man Merchant Shipping (Accident Reporting and Investigation) Regulations 2001 – Regulation 4:

“The fundamental purpose of investigating a casualty, an accident, or an incident under these Regulations is to determine its circumstances and the causes with the aim of improving the safety of life at sea and the avoidance of accidents in the future. It is not the purpose to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame”

After consultation with the Danish Maritime Authority and German Federal Bureau of Maritime Casualty Investigation it was agreed that the Isle of Man Ship Registry should assume the role of lead investigator.

Abbreviations used in this report

AB	Able Bodied Seaman
AIS	Automatic Identification System
ARPA	Automatic Radar Plotting Aid
ColRegs	International Regulations for Preventing Collisions at Sea
ECDIS	Electronic Chart display system
gt	Gross tonnage
IMO	International Maritime Organisation.
kW	kilowatt
MSC	Maritime Safety Committee
nm	Nautical mile 1852 metres
OOW	Officer of the Watch
STCW95	International Convention on Standards of Training, Certification and Watch keeping for seafarers, 1978 as amended in 1995.
UTC	Coordinated Universal Time
VDR	Voyage Data Recorder
VHF	Very High Frequency
VTS	Vessel Traffic System

Acknowledgments

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British Cygnet Officers and Crew
Federal Bureau of Maritime Casualty Investigation
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Marine Accident Investigation Branch, Southampton.
Danish Maritime Authority, Copenhagen
The Royal Danish Administration of Navigation and Hydrography
Consilium Navigation AB, Sweden
BP Shipping, Sunbury on Thames
Clyde & Co, London



British Cygnet (BP Shipping)

Ships Particulars

Name of vessel	British Cygnet
IMO Number	9297345
Type of Vessel	Oil Tanker
Flag State	Isle of Man
Port of Registry	Douglas
Call sign	MGSG6
Owner	Sonata Ltd
Operator	BP Shipping Ltd
Keel Laid	24/12/2004
Building Yard	Samsung /1530
Classification Society	Lloyds Register
Registered Length	241.08 m
Beam	43.80 m
Gross Tonnage	63462 Gt
Deadweight	113782 t
Engine Rating	15795 kW

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Ships Particulars

Name of vessel	Vera
IMO Number	9129471
Type of Vessel	Containership.
Flag State	Federal Republic of Germany
Port of Registry	Hamburg
Call sign	DGSV
Owner	Rambow Bereederungsges mbH, Drochtersen.
Operator	Unifeeder, Arhus, Denmark
Keel Laid	1995
Building Yard	J.J Sietas KG Schiffswerft GmbH & Co /1123
Classification Society	Germanischer Lloyd
Registered Length	96.127 m
Beam	18.45 m
Gross Tonnage	3999gt
Deadweight	5207t
Engine Rating	3825 kW

Summary

The British Cygnet is an Isle of Man registered double hulled oil tanker. On the morning of the 2nd of December she was proceeding in ballast on passage from Rotterdam to Fredericia in Denmark to load crude oil. The Vera is a German registered container ship. On the morning of the 2nd of December she was on passage from Arhus to Bremerhaven engaged on a container feeder service. At 1130 UTC both vessels entered the buoyed channel north of Fynshoved. The British Cygnet was southbound and the Vera northbound. At 1138 UTC both vessels collided in the channel. There were no injuries and no pollution as a result of this incident.

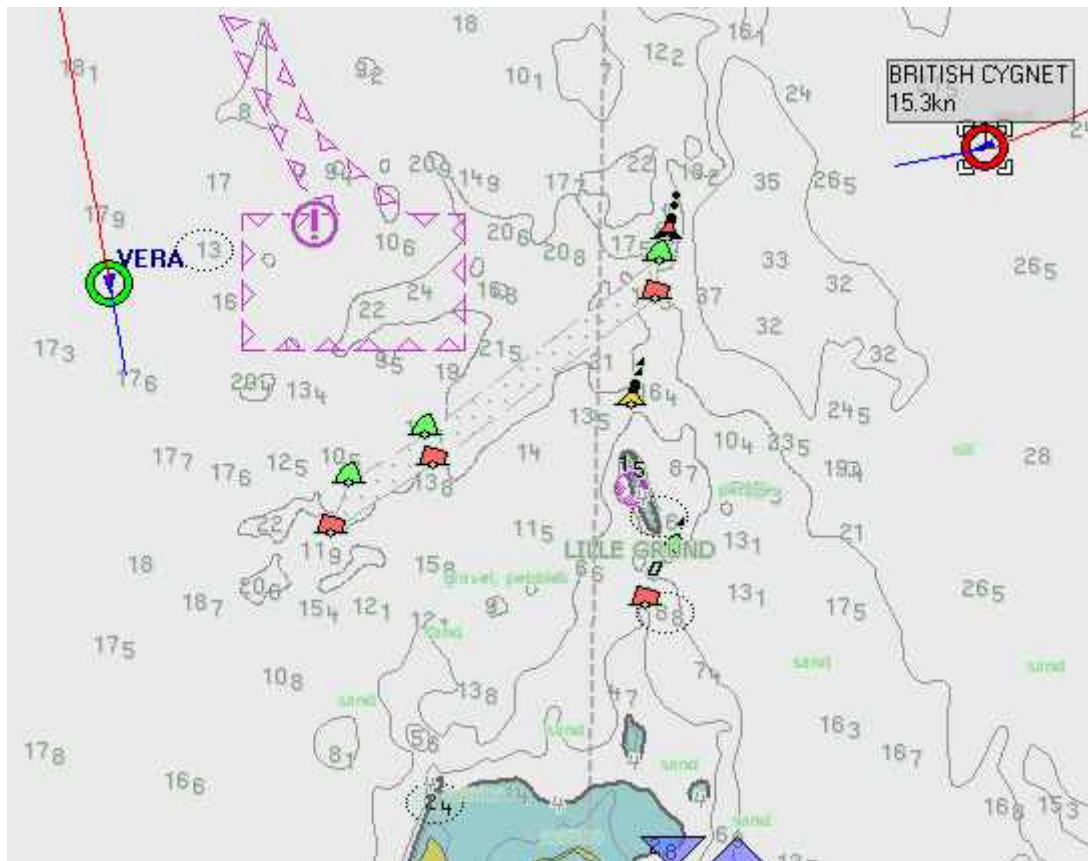


Image from AIS record. (The Royal Danish Administration of Navigation and Hydrography)

The channel north of Fynshoved runs in a SW/NE direction, it is approximately 2.3 nm in length and is marked on British Admiralty Chart 2591 as “channel 15.7m (for use by deep draught vessels)”.

1. Narrative of Events

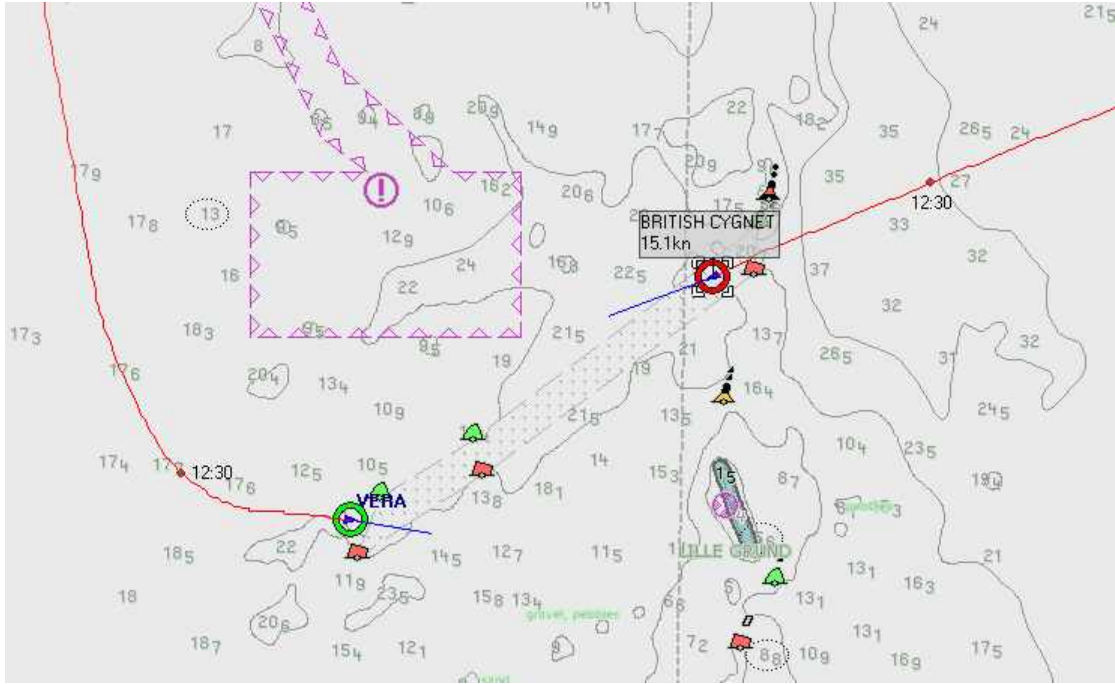
Times in UTC The British Cygnet is an Isle of Man registered double hulled oil tanker. On the morning of the 2nd of December 2006 she was proceeding in ballast on passage from Rotterdam to Fredericia to load crude oil. She had a draught of 9 metres. Two pilots had boarded the vessel off Skagen earlier that day to provide continuous pilotage from Skagen to Fredericia.

The Vera is a German registered container ship. On the morning of the 2nd of December the she was on passage from Aarhus to Bremerhaven engaged on a container feeder service. She had a draught of 4.8 m.

The weather was overcast; the visibility was greater than 5 miles. The wind was south westerly Force 5-6 and the sea state was approximately 1 metre with a tidal current of 1 – 1.5 knots setting to the north.

- 1100 On board the British Cygnet the Second Officer took over the watch at 1200 ship's time. The pilot and an AB were also on the bridge at this time.
- 1100 On board the Vera the Second Officer took over the watch. He noticed the presence of a ship on his port side just forward of the beam at a distance of more than 5 miles, this was the British Cygnet. The Vera was steering a course of 174 degrees to follow a track to the southern end of the buoyed channel north of Fynshoved. Both ARPA radars were running on a 6 mile range, the ship was in automatic steering and all the bridge equipment was operating normally. The Second Officer was alone on the bridge.
- 1110 On board the British Cygnet the Vera was observed by radar and ECDIS / AIS following a south easterly course. The Vera was observed visually at a range of 6nm.
- 1115 The Second Officer on the Vera noticed the British Cygnet alter course to a south westerly heading and assumed that she was heading towards the northern end of the buoyed deepwater channel north of Fynshoved.
- 1127 On board the British Cygnet the Master arrived on the bridge in response to a call from the Officer of the Watch. This was in accordance with the Masters instructions for transiting the Fynshoved channel. The Pilot, Master, Second Officer and one AB seaman were present on the bridge. The Ship was in manual steering with the AB seaman on the wheel and engines ready for immediate manoeuvring.

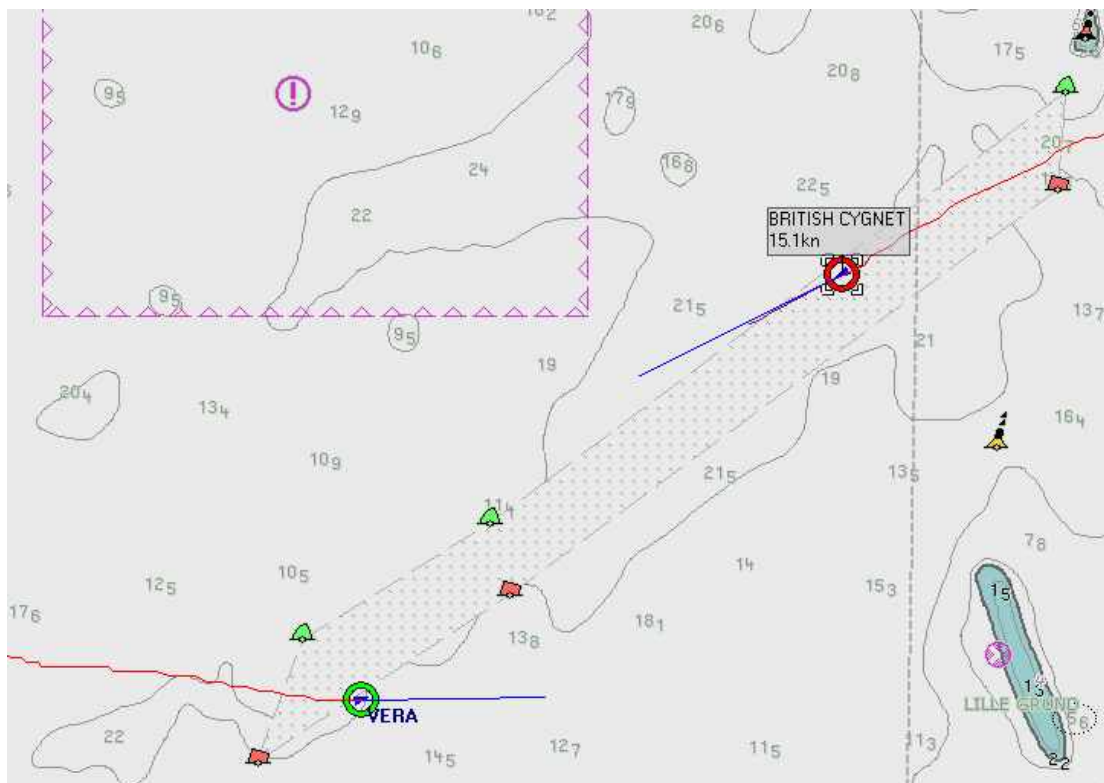
CA 102 British Cygnet and Vera collision



11.34 UTC Image from AIS record. (The Royal Danish Administration of Navigation and Hydrography)

- 11.30 Onboard the Vera the Second Officer reduced the speed to half ahead giving a ship speed over the ground of approximately 9 knots before commencing a course alteration to 097 degrees to enter the channel. The second officer engaged manual steering and kept the ship's speed at half ahead. He chose not to call for a helmsman as based on his previous experience of carrying out large course alterations he was confident he could handle the situation on his own.
- 11.33.26 The British Cygnet entered the northeast end of the deep water channel north of Fynshoved on a course over the ground of 250.8 degrees and a speed over the ground of 15.1 knots.
- 11.34.45 The Vera entered the south western end of the deepwater channel north of Fynshoved on a course over the ground of 101 degrees and a speed over the ground of 11.5 knots. The Second Officer was alone on the bridge. The ship was in manual steering. The Second Officer intended to enter the channel and remain on the starboard side. However the rate of turn was not sufficient to keep the Vera within the channel and she entered the channel between the two buoys at the south western end, then passed out of the channel across its southern boundary.

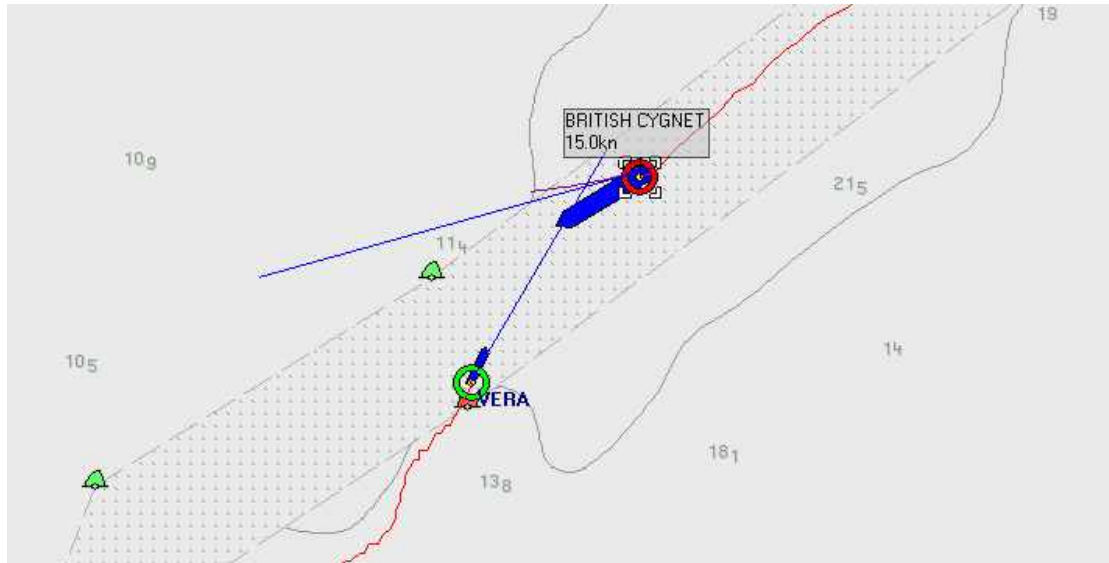
CA 102 British Cygnet and Vera collision



11.35 UTC Image from AIS record. (The Royal Danish Administration of Navigation and Hydrography)

- 11.35.35 The Vera passed out of the deep water channel over the southern boundary. Her course was easterly at 083 degrees and her speed was 12.3 knots.
- 11.36.14 Onboard the British Cygnet there was a brief conversation between the Master and Pilot about the vessel approaching the south western end of the deep water channel. This concluded with the assumption the vessel would remain outside of the deepwater channel. The Vera's easterly course was clearly indicated visually, by radar plots and on ECDIS and AIS.

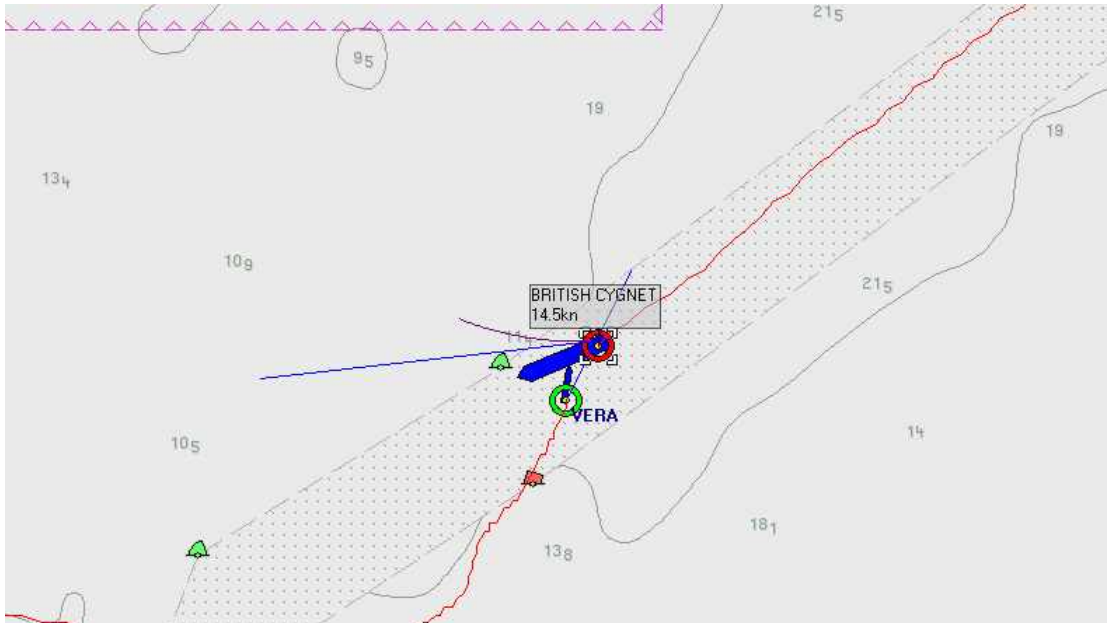
CA 102 British Cygnet and Vera collision



11.38 UTC Image from AIS record. (The Royal Danish Administration of Navigation and Hydrography)

- 11.37.48 The pilot on the British Cygnet makes a call on the VHF “you have to come to port, come to port please” This is not heard by the Second Officer on the Vera.
- 11.37.54 The pilot on the British Cygnet gives 5 helm orders in quick succession finishing with Hard a Port.
- 11.38.19 On board the British Cygnet the Master orders Hard a Starboard. The Pilot also orders Hard a Starboard and then requests a signal and orders Stop Engines.
- 11.38.39 On board the British Cygnet the Master orders the General Alarm to be sounded.
- 11.38.49 The Point of Collision between the British Cygnet and Vera. The Vera’s bow struck the British Cygnet amidships on her port side at an angle of approximately 60 degrees leading aft. The collision stopped Vera instantly and she passed along the British Cygnet’s port side as the tanker continued to make way.

CA 102 British Cygnet and Vera collision



11.38 UTC Image from AIS record. (The Royal Danish Administration of Navigation and Hydrography)

11.38.54 Onboard the British Cygnet a public address system announcement was made stating Emergency - Collision and the crew were called to Muster Stations.

11.40 The Pilot on the British Cygnet called Lyngby radio and the Danish Authorities to report the collision on the Masters authority.

On board the Vera the Master came to the bridge and ordered safety and damage checks. He contacted the Danish authorities to report the collision and communicated with the British Cygnet by VHF radio.

11.45 The Master of the British Cygnet ordered a damage assessment and called the Vera enquiring if there were any casualties and asking if assistance was required. The British Cygnet then proceeded to a safe anchorage.

The Master of the Vera communicated with the British Cygnet to confirm that there were no injuries to crew and damage assessment was underway. The Vera proceeded with minimum speed to anchor.

12.06 The British Cygnet anchored in position 55 37.9' N 010 32.08'E

12.50 The Vera anchored in position 55 39.7 N 010 39.7 E

2. Comments and Analysis

2.1 **What action did each vessel take as the close-quarters situation developed.**

Aboard the Vera the second officer noted the presence of the British Cygnet on a southerly heading and at 11.15 he noticed her course alteration towards the northern entrance of the buoyed channel.

The Second Officer decided to enter the deepwater channel in accordance with his passage plan and keep to the starboard side. He was confident of his own ability to handle the developing close-quarters situation.

At this point it would have been prudent for the Vera's Second Officer to inform the Master of the close-quarters situation developing with the British Cygnet.

The Vera's approach to the buoyed channel was monitored on board the British Cygnet. The Master and pilot were confident in their assumption that she was going to remain outside of the deepwater channel. This was a reasonable assumption given the comparative size of the two vessels and the fact that the channel was marked on the chart for use by deep draught vessels.

2.2 **Actions of the Vessels upon entering the Deep Water Channel**

The British Cygnet followed her passage plan, maintaining her planned course and speed.

The Vera altered course to enter the south western end of the buoyed channel, she then took an unplanned deviation and left the deepwater channel across its southern boundary. The second officer continued his turn to port in order to re enter the buoyed channel and pass close to the north of the second port hand buoy in the channel.

2.3 **Why did Vera re-enter the channel?**

The second officer was concerned about the proximity of the shallow water at Lille Grund to the south of the channel and that the northerly tidal stream would set Vera onto the port hand channel buoy. He altered course to pass north of the port hand buoy. Vera passed north of the buoy at a distance of approximately 20 metres.

There is over 12 metres of water at chart datum to the south of the channel. The northern extent of the Lillegrund bank is clearly marked by a north cardinal buoy. There is over 600 metres between the north cardinal and the southern edge of the deepwater channel.

Vera could have safely navigated outside of the deepwater channel with her draught of 4.8 metres.

2.4 **Vera's actions to avoid collision.**

After passing north of the port hand channel buoy the Second Officer intended to alter course back to starboard with the intention of passing the British Cygnet port to port.

As Vera passed north of the port hand channel buoy the second officer realised that he was heading across the channel with the British Cygnet less than half a mile away fine on his starboard bow. He put the rudder hard a starboard and reduced the pitch setting to approximately 40%. These actions were not effective and the Vera proceeded ahead. Realising that collision was imminent The second officer then put the pitch control to 65-70% astern.

2.5 **British Cygnet's Action to avoid collision**

Vera commenced an alteration to port at 11.37 to re enter the deepwater channel. This was immediately apparent to the pilot onboard the British Cygnet, he made a VHF call asking what her intentions were although this was not addressed to or identified as from any station and there was no reply. The sound signal of five short and rapid blasts was made in accordance with Rule 34 d) of the ColRegs and the pilot commented on Vera's course alteration saying that he did not understand her intentions and that she may have lost steering. The pilot made a further VHF call asking for Vera to make a further alteration to port.

AIS records show that Vera re-entered the deepwater channel across the southern boundary at 11.37.24. At exactly this time the pilot made the first of 7 helm orders, finishing with hard a port at 11.38.14. The Master immediately ordered hard a starboard at 11.38.19 and the pilot concurred by repeating this same order. In a later statement the pilot stated that he had ordered hard a port as it was his intention to meet the Vera starboard to starboard to avoid collision or at least hit head to head to minimize damage by collision with the ships bow, however this was not discussed at the time and the Master decided that alteration to starboard was the best course of action to avoid collision.

The order to stop engines was given at 11.38.25. The collision occurred at 11.38.49 less than 2 minutes from Vera's alteration of course back into the channel.

2.6 **Why did Vera not respond to the rudder movement hard a starboard?**

It is most likely that the second officer's manoeuvre of putting the rudder hard a starboard and simultaneously reducing the pitch reduced the water flow across the rudder to the extent that the vessel lost steerage. The effect of the south westerly wind and northerly tidal current on the ship would also have impeded the vessel's turn to starboard.

2.7 **The possibility of mechanical failure contributing to the loss of steerage on board Vera.**

The vessel was attended by a surveyor from Germanischer Lloyd during her transfer from the anchorage at Fyns Hoved to the harbour of Fredericia the day after the collision on 3rd December 2006. The Main Engine, Steering Gear, Thrust bearing and propulsion system were checked with satisfactory results and with no defects found.

The loss of steerage experienced by the Second Officer of the Vera was

not a result of mechanical failure in her steering and propulsion systems.

2.8 **Application of International Regulations for Preventing Collisions at Sea**

Rule 15 Crossing Situation

“When two power driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel”

As soon as Vera altered course to re-enter the deepwater channel she became a crossing vessel with the British Cygnet on her own starboard side and an obligation as give-way vessel to keep out of the way of the British Cygnet.

Rule 16 Action by give-way vessel

“Every vessel which is directed to keep out of the way of another vessel shall so far as possible, take early and substantial action to keep well clear.”

The Vera failed to take action in good time as required of the give-way vessel.

Rule 8 Action to avoid collision.

“Any action taken to avoid collision shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.”

At close quarters the Vera attempted to take avoiding action however this was ineffective and too late to avoid collision.

Rule 9 Narrow Channels

“(a) A vessel proceeding along the course of a narrow channel or fairway shall keep as near to the outer limit of the channel or fairway which lies on her starboard side as is safe and practicable.”

The Vera intended to keep to the starboard side of the channel but deviated from this plan and actually crossed the channel.

“(d) A vessel shall not cross a narrow channel or fairway if such crossing impedes the passage of a vessel which can safely navigate only within such a channel or fairway. The latter vessel may use the sound signal prescribed in Rule 34(d)”

The second officer on the Vera did not consider the situation of the British Cygnet in relation to her use of the deep water channel.

The British Cygnet could have displayed the shapes to indicate that she was constrained by draught although her visual appearance as a large tanker should have indicated to the second officer on the Vera that this

was the case.

The British Cygnet did make the prescribed sound signal of 5 short and rapid blasts on the ship's whistle. The Vera's second officer recalled hearing a sound signal but could not recall how many blasts this was or its significance.

Rule 17 Compulsory action of the stand on vessel.

“When the stand-on vessel finds her self so close that collision cannot be avoided by the give-way vessel alone she is required to take action.”

There was an interval of 1 minute and 25 seconds between Vera re entering the channel and the time of collision. British Cygnet's possibilities for avoiding action were limited due to her draught, the proximity of shallow water and the starboard hand buoy ahead. She commenced a series of alterations to starboard seconds after it became apparent that Vera was re-entering the deepwater channel.

The pilot requested a series of helm orders finishing with Hard a port. This was countermanded by the Master ordering Hard a Starboard. The pilot immediately concurred with this order.

Vera's unexpected course alteration at such close proximity meant that any avoiding action by the give-way vessel by alteration of course or speed reduction was not effective in time to avoid collision.

2.9 **The Manning Level on each vessel.**

Both vessels were manned in compliance with their minimum safe manning Certificates. The British Cygnet had a crew of 24 plus two pilots onboard, all ship's crew on the bridge at the time of the incident held valid Certificates of Competency. The Vera had a crew of 11 on the day of the accident. The Master and Second Officer held valid Certificates of Competency. The second officer had sailed as a watch keeping officer since 1983 and been employed on the Vera since 5/11/2006.

2.10 **Bridge watch composition**

British Cygnet

The Pilot, Master, OOW and Helmsman were on the bridge. This was in accordance with the Master's standing orders regarding watch composition for transiting narrow passages.

Vera

The Second Officer was on watch alone. He held an unlimited certificate of competency as Officer in charge of a navigational watch. He had 26 years experience. He had worked almost exclusively for Rederi Rambow since 1996. He joined the Vera on 5th November.

2.11 **Why was the Vera's Second Officer alone on the bridge?**

The Second Officer chose to take the helm rather than call the helmsman to assist. He also chose not to call the Master as a close-quarters situation

was developing with the British Cygnet. As a result other tasks were neglected such as navigation, monitoring communications and assessing the developing close-quarters situation.

2.12 **Passage Planning**

The British Cygnet followed a comprehensive passage plan noting that the deep water channel was a critical passage transit with depths to be monitored at all times.

On board the Vera Passage Plan Voyage No 330 was in use. According to a declaration made to the Flag State, guidelines for voyage planning according to SOLAS Chapter V Regulation 34 were being maintained and documented. However no evidence to support this was found in the investigation.

2.13 **Possibility of fatigue as a contributory factor.**

British Cygnet; The Hours of Rest Records for the Master, Second Officer and Seaman on the bridge show that all personnel had sufficient rest according to Flag State and STCW95 requirements over the preceding seven days. Two pilots boarded the vessel off Skagen at 00.30 UTC on the 2nd of December working in two shifts of approximately 6 hours for each pilot.

On board the Vera the Hours of Rest records for the Second Officer show that he had received sufficient rest according to STCW95 requirements over the preceding 7 days.

The Hours of Rest records evidence that all crew on watch at the time of the incident were adequately rested, fatigue was not a factor contributing towards the collision.

2.14 **VTS and Reporting Systems**

The collision occurred just outside of the area covered by the Great Belt VTS and Beltrep mandatory ship reporting system.

2.15 **Pilotage Requirements in the Area.**

IMO Resolution MSC 138(76) recommends the use of a pilot on ships with a draught of 11m or more, when following the established routing system through the entrances to the Baltic Sea.

Neither vessel was obliged to carry a pilot although the British Cygnet had pilots onboard in accordance with the recommendations of IMO Resolution MSC 138(76).

2.16 **Speed of vessels in deep water channel**

The British Cygnet's passage plan specified a speed of 15 knots upon entering the channel reducing to 14 knots within the channel. AIS showed a speed over the ground of 15.1 knots as she entered the channel reducing to 14.9 in the channel. The British Cygnet's speed of 15 knots was not considered excessive given that her draught was 9 m in a channel of 15m

depth.

2.17 **Possible Influence of Alcohol consumption.**

British Cygnet

The British Cygnet's Pilot, Master, Second Officer and seaman on watch were tested by alcolmeter on board at 1615 UTC on the 2nd of December. All test results were negative. The crew of the Vera were not tested for alcohol consumption.

2.18 **Action of the Crew following the collision**

VDR audio recordings evidence the precise and controlled actions of the bridge team onboard the British Cygnet. The ship's crew remained calm and disciplined as they carried out their emergency duties subsequent to the collision.

Meanwhile onboard the Vera the Master was summoned to the bridge by the substantial impact of the collision.

2.19 **Damage to British Cygnet**

Two water ballast tanks on the port side were breached and open to the sea. The cargo tanks were empty and inerted and were not breached.

2.20 **Damage to Vera**

The stem, bulbous bow and upper part of the side shell were damaged.

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Damage to MV British Cygnet (Isle of Man Ship Registry)



Damage to MV Vera

3. Conclusions

3.1 Actions of Vera

The action of the Vera to re-enter the channel was the primary reason for the collision.

3.2 Interpretation of Collision Avoidance Rules

By re-entering the channel, failing to keep to the starboard side and failing to take effective avoiding action in good time Vera contravened Rules 8, 9, 15 and 16.

3.3 Interpretation of charted information onboard the Vera

The charted information showed adequate sea room and depth of water for the Vera to have safely passed south of the deepwater channel. Unfortunately the Master was not on the bridge to supervise the decisions of the OOW.

3.4 Bridge Team Management

The Second officer on the Vera failed to utilise the resources available. The helmsman was not called to take the helm and the Master was not called as a close-quarters situation was developing.

The bridge team onboard the British Cygnet was well prepared to cope with this situation. The Master in particular must be praised for closely monitoring the pilot's advice.

3.5 Comprehension of Sound signals

The second officer on the Vera did not understand the significance of the sound signal of 5 short and rapid blasts on the ship's whistle given by the British Cygnet in accordance with Rule 34(d) of the COLREGS.

3.6 The Loss of Steerage on board Vera

The Second Officers action's caused loss of steerage on board the Vera, this indicates a lack of training and familiarisation with handling the ship.

3.7 VHF communication.

The pilot onboard the British Cygnet did attempt VHF communication with the Vera to clarify the situation however the calls were not addressed or identified and communication was not established.

3.8 Effects of Alcohol Consumption.

There were several opportunities for the crew of the Vera to be tested for alcohol consumption. As the crew of the Vera were not tested it is not known whether alcohol consumption was a contributory factor to the collision.

4. Recommendations made as a result of this investigation.

4.1 Recommendations to the operators of the Vera

The operating company of the Vera should review the safety management system to highlight the importance of good bridge team management including the proper use of resources to effectively maintain a safe navigational watch.

The operating company of the Vera should ensure that their passage planning procedures follow the IMO resolution A.893(21) Guidance for Voyage Planning.

It is recommended that the Second Officer should be censured for his failure to properly assess and apply the Rules in the observance of good seamanship.

Personnel involved in marine casualties should be tested for alcohol consumption at the earliest opportunity. This could be performed on board according to company guidelines.

4.2 Recommendations to the Danish Pilotage Service

Pilots should be reminded to follow correct VHF radio protocol in order to minimise the chance of communication breakdown.

4.3 Recommendations to the Coastal Authorities of Denmark.

The coastal authorities may wish to consider the introduction of procedures for alcohol testing of ships' crews following incidents in their territorial waters.

4.4 Recommendation to the Federal Maritime and Hydrographic Agency of Germany.

In the light of the findings of this investigation the Federal Maritime and Hydrographic Agency of Germany may wish to review their Endorsement of the Certificate of Competency held by the Second Officer of the Vera.

In no case shall safety recommendations create a presumption of blame or liability.