Report on the investigation of

the collision between

Reno and *Ocean Rose*

off Whitby, North Sea

6 March 2004

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Extract from

The Merchant Shipping

(Accident Reporting and Investigation)

Regulations 1999 - Regulation 4:

The fundamental purpose of investigating an accident under the Merchant Shipping (Accident Reporting and Investigation) Regulations 1999 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.

NOTE

This report is not written with liability in mind and is not intended to be used in court for the purpose of litigation. It endeavours to identify and analyse the relevant safety issues pertaining to the specific accident, and to make recommendations aimed at preventing similar accidents in the future.

CONTENTS

GLOSSARY OF ABBREVIATIONS AND ACRONYMS

AB	-	Able Seaman
ARPA	-	Automatic Radar Plotting Aid
CoG	-	Course over the ground
CPA	-	Closest Point of Approach
DPA	-	Designated Person Ashore
ECS	-	Electronic Chart System
GPS	-	Global Positioning System
ICS	-	International Chamber of Shipping
ISM	-	International Safety Management Code
ISO	-	International Organisation for Standardisation
ISPS	-	International Ship and Port Security Code
MARPOL	-	International Convention for Marine Pollution
OICNW	-	Officer in Charge of a Navigational Watch
SoG	-	Speed over the Ground
SOLAS	-	International Convention for the Safety of Life at Sea
STCW	-	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
UN	-	United Nations
UTC	-	Universal Co-ordinated Time

SYNOPSIS

At 0052 on 6 March 2004, the chemical tanker *Reno,* and the fishing vessel *Ocean Rose,* collided. *Reno* was carrying a cargo of acrylonitrile and was on passage from Teesport to Immingham; *Ocean Rose* was engaged in fishing. A further collision between the two vessels occurred several minutes later when *Reno* was manoeuvring at slow speed to provide assistance. *Ocean Rose* sustained major damage during the first collision, but with the assistance of the coastguard and the Staithes and Whitby lifeboats, was able to reach Whitby under her own power. The damage to *Reno* was superficial.

As a power-driven vessel, *Reno* was required to keep clear of *Ocean Rose,* but did not do so because her OOW had left the bridge and gone to his cabin. The AB lookout saw *Ocean Rose* and, realising that she was potentially a problem, tried to contact the OOW. He was unsuccessful. When the two vessels were very close, the AB lookout took avoiding action by altering course to starboard, and the skipper of *Ocean Rose* altered course to port. This put the vessels on a collision course.

After the collision, the AB lookout alerted both the OOW and the master. *Reno* was manoeuvred towards *Ocean Rose* with the master controlling the ship's speed, and the OOW on the helm. Some of the crew felt the impact and started to check the main engine, cargo, fuel, void and ballast spaces for damage; others, including the chief officer, played no part in subsequent events. As a result, some checks were not as comprehensive or timely as might otherwise have been the case, and tasks such as preparing the lifeboat were never confirmed as being completed.

It is considered that several factors on board *Reno* contributed to this accident, and subsequent events:

- The OOW was not on the bridge.
- Rather than inform the master of the OOW's absence or the proximity of *Ocean Rose*, the AB lookout preferred to take avoiding action himself.
- The master was possibly overloaded or distracted after the first collision.
- The general alarm was not sounded.

Recommendations have been made to the International Chamber of Shipping, and the International Shipping Federation aimed at: reinforcing the requirement for OOWs to remain on the bridge at all times when on duty, via direction, education and training; achieving acceptable levels of response from crews in emergency situations through the provision of realistic drills; and promoting an understanding of the potential effect of nationality and cultural mix on ships' operations and procedures.

Reno

Ocean Rose

SECTION 1 - FACTUAL INFORMATION

1.1 PARTICULARS OF *RENO/OCEAN ROSE* AND ACCIDENT

Vessel details - *Reno*

Registered owner	:	Navegar – Companhia de Navegacao Internacional S.A.
Manager	:	Transocean Shipmanagement
Port of registry	:	Madeira
Flag	:	Portugal/Madeira
Type	:	Chemical tanker type 2
Built	:	July 1986, J J Sietas Werft, Germany
Classification society	:	Germanischer Lloyd
Construction	:	Steel
Length overall	:	81m
Gross tonnage	:	2238t
Engine power and type	:	Wartsila – Vasa 6R 32D – 2005 kW
Service speed	:	13 knots
Persons on board	:	11
Other relevant info	:	Bow thruster fitted. Bulbous bow

Vessel details – *Ocean Rose*

Registered owner	:	Arrivain Fishing Co Ltd
Port of registry	:	Whitby
Flag	:	UK
Type	:	Fishing vessel
Built	:	1980
Construction	:	Wood
Length overall	:	17.5m
Gross tonnage	:	40.45
Engine power and type	:	282kw
Service speed	:	8 knots
Persons on board	:	4
Other relevant info	:	Fixed propeller with Kort nozzle.

Accident details

Time and date	:	0052: 38 on 6 March 2004
Location of incident	:	54° 36.28N, 000°42.73W
Injuries/fatalities	:	Nil
Damage	:	*Reno* – superficial damage to starboard bow
		Ocean Rose – impact damage to bow, side planking, bulwarks, power block and stern fittings. Shock damage to frames and the port fuel tank, and water damage to the engine room machinery.

1.2 BACKGROUND

Reno

Reno, a 2238grt chemical tanker, was on passage from Teesport to Immingham, carrying a cargo of 2,438.584 tonnes of acrylonitrile (UN number 1093), which poses a pollution and safety hazard. The ship mainly operated in the North Sea and was a regular visitor to Teesport.

Ocean Rose

Ocean Rose, a 17.5m stern trawler from Whitby landed her catch in Whitby during the evening of 4 March and sailed on completion. During 5 March, three tows were conducted without incident, with each tow lasting about 4 hours. The vessel intended to return to port for the weekend on completion the fourth tow.

1.3 NARRATIVE

All times are UTC, all courses are true

1.3.1 *Ocean Rose*

At about 0030, on 6 March 2004, the skipper of *Ocean Rose* went to the wheelhouse to take over the watch in readiness for hauling. The autopilot was engaged with a north-westerly course selected. The vessel was towing her fishing gear into the tidal stream at a speed over the ground of about 2 knots. The skipper switched on the vessel's deck lights. The sidelights, stern light, and green over white trawling lights at her masthead were already illuminated.

A radar contact was seen closing from ahead at a range of about 3 miles. The vessel was also visible, but the skipper could not determine her aspect because of the brightness of her deck lights. By about 0045, the skipper was concerned by the proximity of this contact, and changed to manual steering. When the approaching vessel was about one mile away, the skipper used a hand-held signal lamp to alert her by twice flashing one long followed by two short illuminations (letter D in Morse code) towards her. The vessel continued to close. When within about 2.5 cables, the skipper put the helm hard over to port, he also hurried the deckhands below to prepare to haul. The skipper altered to port because he considered the approaching vessel would just pass clear to starboard and he intended to increase her CPA. As he was towing his fishing gear, he also wanted to optimise the effects of the tidal stream to assist the turn.

When the two deckhands arrived in the wheelhouse, the skipper immediately passed the signal lamp and told them to go forward and get the vessel's name. He also told them to confirm that the fishing and navigation lights were on, which they did.

By the time the two deckhands reached the foredeck, the approaching vessel was within one cable ahead of *Ocean Rose.* With the aid of the signal lamp, the deckhands were able to read the vessel's name, *Reno,* on her starboard bow. While they were doing this, the skipper called the approaching vessel on VHF channel 16 at 0052 and 18 seconds and stated:

> *I've come hard over for you, steam boat. I don't know what your name is. I'm going to get your name and report you to the coastguard. You are going to hit us here, you are going to hit us*

The oncoming vessel suddenly appeared to turn towards *Ocean Rose* and, with collision imminent, the skipper shouted for his crew to hold on. He also disengaged the engine and repeated on VHF radio channel 16 at 0052 and 36 seconds:

> *You are going to hit us, you are going to hit us*

The collision occurred at 0052 and 38 seconds, and was almost head on. *Ocean Rose* was hit on her stem and starboard bow, which caused her to roll heavily to port. The skipper was thrown to the port side of the wheelhouse, and the deckhands fell forward on to the deck. The skipper immediately assessed that *Ocean Rose* had suffered substantial damage, and sent a "Mayday" via VHF radio, and by pressing the distress button on his Inmarsat radio. The damage to the forward part of *Ocean Rose* is shown at **Figure 1**.

Figure 1

Damage to *Ocean Rose* - forward

1.3.2 *Reno*

Reno sailed from Teesport at about 2300 on 5 March. At about 2315, the second officer left his mooring station aft and joined the master and pilot on the bridge to take his watch. The pilot disembarked at 2328, and at about 2345 the master handed over the watch to the second officer. The master completed several administrative tasks on the bridge, and then retired to his cabin. This left the second officer and an AB lookout on the bridge. Course was 110° in autopilot, and speed was between 11.5 and 12 knots. There were major discrepancies between the accounts of the second officer and the AB lookout regarding subsequent events.

The second officer's account

At about 0010, a radar target was detected at about 8 miles on the starboard bow. The radar was operating on the 6-mile range scale in relative motion, and off-centred to the west-north-west. The target's relative track was almost parallel to the ship's heading; the second officer assessed that it was almost stationary and would pass about 1 mile to starboard. This was supported by ARPA, which indicated the target was on a course of 290° at a speed of between 2 to 3 knots, with a CPA of between 0.5nm and 1nm. It was not considered to be a problem. Soon after, the second officer saw the vessel visually, and through binoculars observed her bright deck lights and a green light. The second officer associated the lights he saw with a fishing vessel, but he was not sure if she was engaged in fishing.

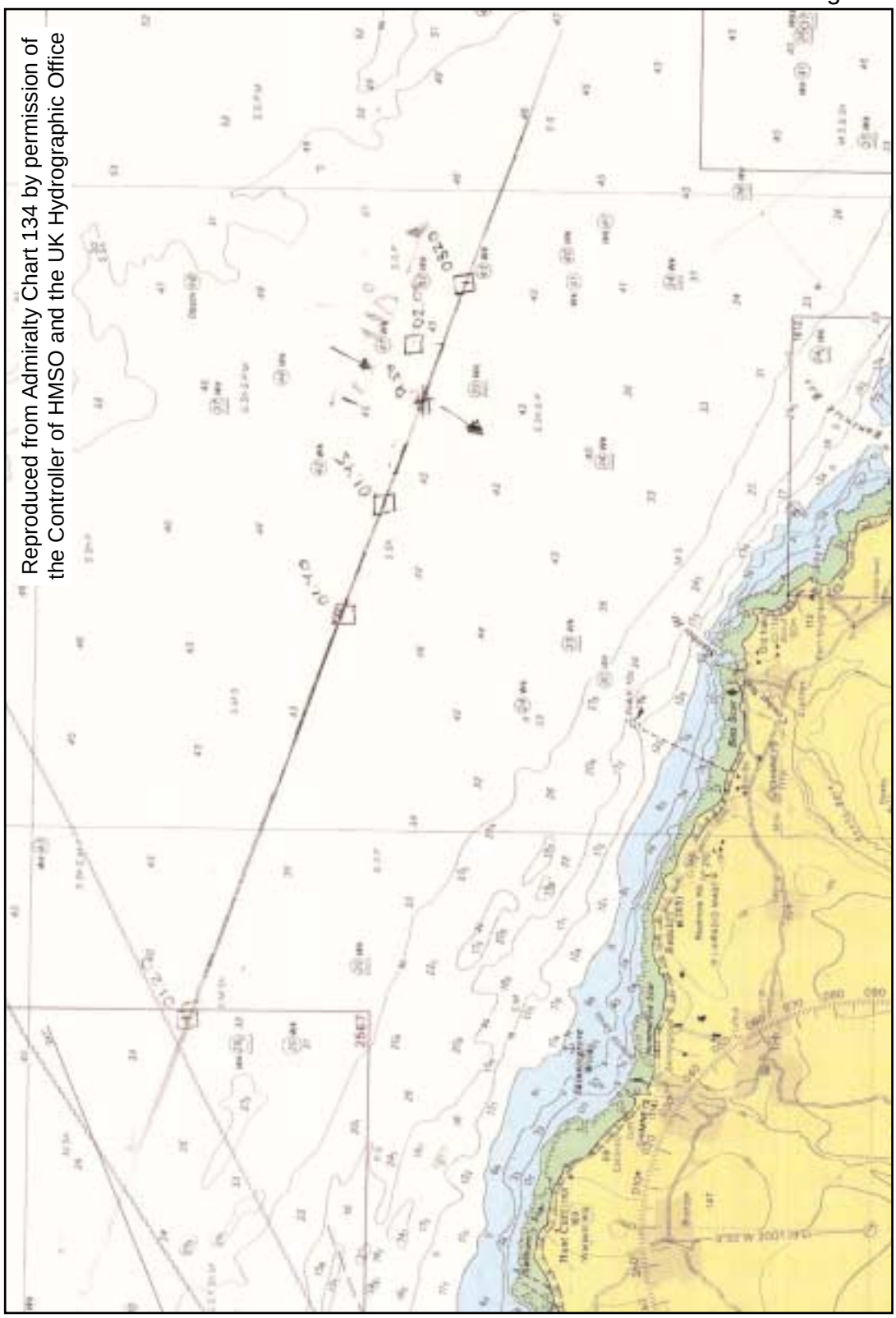
At about 0040, when the fishing vessel was at about 3 miles, her CPA remained between 0.5 and 1 mile**.** About 4 minutes later, however, when the fishing vessel had closed to about 2 miles, her bearing became steady. The second officer then heard the fishing vessel calling on VHF radio channel 16, and recalls her trying to establish radio contact on several occasions thereafter. The second officer did not respond because he did not want to get involved in a VHF radio conversation, which might have confused the issue. By now, the second officer was mainly monitoring the fishing vessel visually rather than by radar, using fixed points about the bridge to gauge her bearing movement. He did not rely on ARPA information as the system had lost the fishing vessel target on two or three occasions as the vessels closed.

The fishing vessel was now very close and, as the second officer tried to determine her aspect, he saw that the green light he had seen previously was at her masthead. He also assessed that the vessel had altered course to starboard to a more northerly course. Hand steering was selected and 30° of starboard helm was applied to avoid her. As the ship started to turn, the second officer realised the fishing vessel was now altering to port. He also saw the fishing vessel flashing a white signal light in the direction of *Reno,* but did not recognise the flashes as having any particular meaning. The second officer reversed the helm back to port, but the two vessels collided. The AB lookout was

immediately ordered to call the master. After hearing the fishing vessel's "Mayday" on VHF radio channel 16, the second officer applied starboard helm to close her position.

During this period, the second officer plotted fixes on the paper chart at 0040 (GPS), 0045 (radar) and 0050 (GPS). These are shown at **Figure 2**.

Figure 2



Extract of chart BA 134 showing fixes plotted by the OOW of *Reno*

The AB lookout's account

After the master left the bridge, the AB maintained a lookout while moving between the port and starboard radar displays. The second officer was working on charts at the chart table, but checked the radar displays periodically. At some point, the second officer informed the AB that he was going down to his cabin to get changed out of his winter overalls that he had been wearing for the mooring operations. He checked the radar displays before leaving the bridge. There were no signs of any vessels, but lights on the shore to starboard were visible.

Later, the AB saw a fishing vessel about 2 miles off the starboard bow. Through binoculars, he saw a green over white light, and a second green light, and assumed that she was engaged in fishing. He also assumed that she would pass down the starboard side. The AB lookout tried to tell the second officer about the fishing vessel, but after receiving no response, realised that the second officer was still absent from the bridge. The AB telephoned the second officer's cabin, and also the mess room and the cargo office. There was no reply, so the AB left the bridge and went to the second officer's cabin on the deck below, and found the door closed. He did not knock on the door or try to open it, but went down another level and shouted for the second officer down the stairway leading to the mess room. Again, there was no response. The AB ran back up the two flights of stairs to the bridge. He estimates that he was away from the bridge for no more than 60 seconds.

On his return to the bridge, the fishing vessel was about 1 mile away on the starboard bow, and showing the same lights as before. Soon after, however, when the fishing vessel was very close, the AB saw one of the green navigation lights change to red, and thought that she was trying to cross ahead. It was, however, very difficult to determine her aspect because of the brightness of her deck lights. He also saw the fishing vessel flashing a signal light, and heard her calling on VHF radio. To avoid the fishing vessel, the AB adjusted course to starboard using the push button controls on the automatic pilot, and recalls the rudder indicator showing 15°, which was the limit set when steering in this mode. As *Reno* started to turn, the AB saw that the fishing vessel was now altering course to port and, although he tried to stop the turn to starboard with the automatic pilot, the vessels collided.

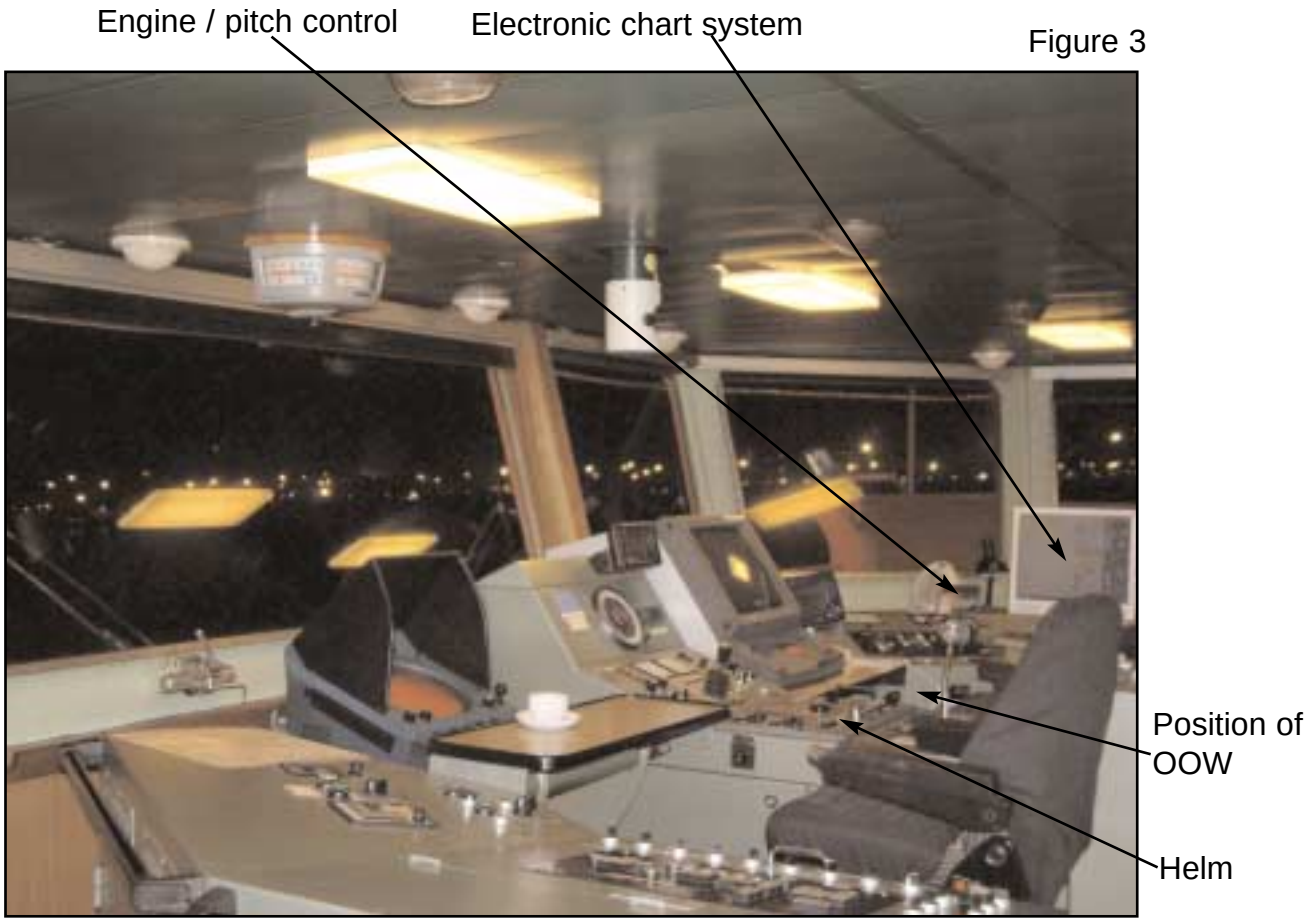
After the collision, the AB ran to the deck below and opened the second officer's cabin door. The second officer was standing in the toilet area of his cabin; he was fully clothed but had changed his overalls. The AB told him that *Reno* had collided with a fishing vessel and that he must go to the bridge immediately. The AB also alerted the master before he returned to the bridge.

1.4 SUBSEQUENT MANOEUVRING

Reno's master was still up and about in his cabin at the time of the collision, but did not feel the ship manoeuvring. He did feel the collision, however, and was readying himself to go to the bridge when the AB arrived. He went straight to the bridge and asked what had happened. The AB informed him that the ship had been in a collision with a fishing vessel. The second officer did not reply. The master could see a fishing vessel on the starboard quarter, which appeared to be manoeuvring. The pitch control lever was still at position '8', the position it had been in when he had left the bridge earlier. The master ordered the second officer to put it to 'stop'. The vessel's engine control record indicates this action was taken between 0054 and 0055. As the master also considered the vessel to be on her original course of 110°, he also ordered the second officer to apply starboard helm.

Reno manoeuvred towards *Ocean Rose* with the master operating the pitch control lever, and the second officer on the helm **(Figure 3)**. The second officer remained standing in front of the starboard radar display, while the master

Figure 3



Reno bridge layout

Figure 4

Photograph showing damage to power block

Flattened bracket

Figure 5

Photograph showing roller fairlead bracket damage

periodically moved from a position beside the second officer, towards the radio room located on the port side, aft of the bridge. The master tried to call *Ocean Rose* at 0055 and 37 seconds, and 0058 on VHF channel 16. During the first transmission, the master initially used the sister ship name *Ebro*, a vessel he had commanded previously, instead of *Reno*, but immediately rectified his error. *Ocean Rose'*s skipper did not reply to these calls, but called *Reno* at 0059 and 38 seconds when concerned that the chemical tanker was getting too close. The call stated:

> *Reno this is Ocean Rose, will you keep clear of our stern sir, we have gear overboard, will you keep clear of our stern sir, we have gear overboard, no chance of moving.*

Humber Coastguard immediately asked *Reno* if this had been copied, and at 0100 and 1 second, *Reno'*s master stated:

> *We are close to the fishing vessel and stopped with her.*

As the master finished this statement, the skipper of *Ocean Rose* immediately broadcast that *Reno* had hit him a second time, this time on the stern.

Both the master and second officer recall passing very close to *Ocean Rose* during this period, but were not aware of a second collision between the two vessels. Accounts differ regarding whether *Ocean Rose* disappeared from view under *Reno'*s bow as the vessels closed. *Reno'*s master estimated that the vessels came no closer than 1 cable. The crew of *Ocean Rose* recall that *Reno* approached at an angle of about 90° on their starboard side, and clipped the fishing vessel's stern at a right angle. This is reported to have damaged the power block and roller fair lead on her starboard quarter **(Figures 4 and 5)**, and pushed the fishing vessel forward.

1.5 ELECTRONIC CHART SYSTEM

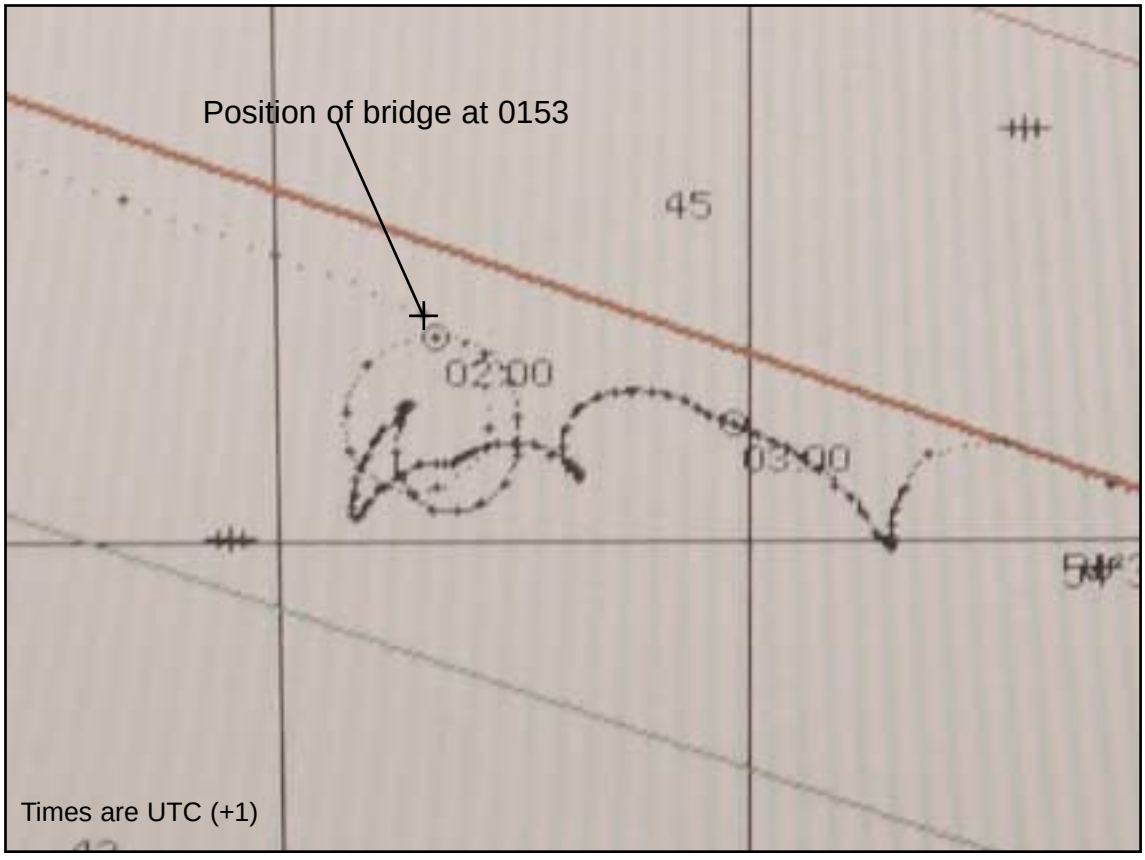
Reno was fitted with a Transas ECS. The vessel's recorded track for the period is at **Figure 6**. The following navigational data was retrieved from the system:

Time (UTC)	Position	Heading	Cog	SoG
0051	54 36.433N 000 43.322W	108.2	111	12.1
0052	54 36.364N 000 43.006W	108.2	111	11.9
0053	54 36.290N 000 42.690W	127.5	115	11.7
0054	54 36.144N 000 42.557W	208.5	192	9.2

0055	54 36.068N 000 42.635W	271.8	246	5.0
0056	54 36.070N 000 42.780W	313.3	290	3.7
0057	54 36.112N 000 42.847W	347.8	330	3.3
0058	54 36.164N 000 42.960W	018.1	004	3.2
0059	54 36.222N 000 42.813W	054.1	038	4.8
0100	54 36.259N 000 42.668W	103.7	085	5.8
0101	54 36.240N 000 42.560W	147.5	120	3.8

The ECS was also capable of displaying radar targets acquired by ARPA, and this facility was normally selected. No ARPA targets were recorded by the system during this period. The ARPA/ECS interface was tested several days after the accident, and was found to be working correctly.

Figure 6



Reno's recorded track from ECS

1.6 EXTERNAL RESPONSE

On receipt of the “Mayday” call from *Ocean Rose,* initiated at 0052 and 56 seconds, Humber Coastguard immediately tasked a rescue helicopter, the Whitby lifeboat, and the Staithes inshore lifeboat. The Staithes inshore lifeboat arrived on scene at 0118, and the rescue helicopter and the Whitby lifeboat shortly after.

1.7 ONBOARD RESPONSE

Ocean Rose

Following the initial collision, the crew donned lifejackets, and the skipper ordered the liferaft to be launched. The deckhands forward made the liferaft ready for launching, by removing the lashings, but did not put it into the water. The forepeak was checked and water ingress was immediately evident. The mate, who had been in the galley during the collision, went straight to the engine room and started the bilge pump powered from an auxiliary engine to remove a small amount of water in the bilge. The second collision occurred as he was moving to the upper deck to check that the water was being pumped over the side.

Immediately following the second collision, the crew launched, inflated, and secured the liferaft on the port side. One of the deckhands then secured the power block aft, which had been knocked from the gallows on which it had been resting; the hydraulic pipes to the power block had also been ruptured. The mate returned to the engine room and found a pipe from the deck hose system, powered by the main engine, had fractured, forcing water over an electrical distribution board. The mate covered the distribution board and isolated the fractured pipe. He then saw spray coming from a strum box **(Figure 7)** on the starboard side of the engine room. When he tried to tighten the nuts securing its cover, two of them disintegrated due to corrosion.

The bilge pump could not keep pace with the water ingress, and the water level was soon up to the deck plates. Although the mate had managed to find spare nuts, he had difficulty securing them because the strum box cover was now under water. When the Whitby lifeboat arrived, a portable pump was transferred via the inshore lifeboat at about 0137, and water was pumped from the engine room bilge. This allowed repairs to be made to the strum box. By 0152, *Ocean Rose* was able to proceed at slow speed under her own power, and was escorted by the Whitby lifeboat to Whitby, where she arrived at about 0400.

Reno

After alerting the captain in his cabin, the AB lookout tried to alert the remainder of the crew in their cabins by telephone, but some did not reply. The general alarm was not activated. The master initially considered taking this action when he arrived on the bridge, but had then decided that it was not necessary as he

Figure 7

Photograph of strum box cover

believed his crew were already up and responding. He also thought that the crew were preparing the ship's freefall lifeboat for operation, even though no specific instruction to do this had been given and, subsequently, there was no confirmation from any crew member that this had been done.

The chief engineer was woken by the collision, and went straight to the bridge before checking the engine control room. He then returned to the bridge, where he remained for several minutes. After seeing the fishing vessel launch her liferaft, the chief engineer went forward to check for damage, particularly in the forepeak, which contained a diesel tank.

The pumpman also felt the collision from his cabin and, after dressing and alerting an AB nearby, went forward to check for damage in the bow thruster space. This action was taken within 10 minutes of the collision.

The integrity of the cargo tanks was initially checked by the pumpman via inspection of the manometer gauges fitted to the cargo tanks. Although Number 1 Starboard Tank initially showed a drop in pressure, the pressure readings returned to the expected level after the gauge was reset. The pumpman checked the cargo tank pressures by himself, and did not see the chief officer when forward on deck. The ballast tanks were checked for signs of leakage from adjacent cargo tanks at about 0300, and the cargo tanks were sounded prior to discharging on arrival in Immingham.

The master informed the ship managers about the accident by mobile telephone at 0104; the ship managers reported that the wrong contact telephone number was initially used. At 0117, the master reported to Humber Coastguard that there was no leakage of the cargo. At 0147, the inshore lifeboat confirmed that the damage to *Reno's* hull was superficial only, and consisted of scrape marks about 10 feet above the waterline on her starboard bow.

The chief officer cannot remember how, or at what time, he was woken, but recalls looking out of his cabin window and seeing that *Reno* was completely stopped in the water. Although he went out on deck, he was not involved in the damage assessment or any other activity. The chief officer was under the impression that the pumpman had sounded the cargo tanks. The third officer was woken by the general noise outside his cabin, and remained within the accommodation area; he did not go to the bridge or on to the deck.

1.8 ENVIRONMENTAL CONDITIONS

The visibility was good, the sea was calm, and the wind was light and variable. The tidal stream was southerly at about 0.3 knot.

1.9 CREW INFORMATION

Reno

Reno had a multinational crew off 11, comprising a Portuguese master, a Lithuanian chief officer, a Portuguese chief engineer, a Russian second officer, a Peruvian third officer and 6 Filipino ratings. The total complement exceeded the number of crew required by the ship's Safe Manning Document, by one OICNW.

The master first went to sea in 1971 with the Portuguese navy, before transferring to the merchant fleet in 1976. He had been qualified as a master since 1985, and had served only in oil, gas and chemical tankers. The master had been employed by John T Essberger for 15 years, and joined *Reno* on 27 January. He was normally engaged on a 3 month contract +/- 15 days.

Since joining John T Essberger, the master had attended several training seminars organised by the ship manager, and had also attended a three day bridge resource management course in 1999, which he found to be very useful.

The Russian second officer first went to sea in 1986, and worked as a radio officer until 1998 when he became a bridge watchkeeping officer. He qualified as a second officer in 1999 and as a chief officer in 2002. Having been recruited to *Reno* via Elv Shipping, a manning agency based in Russia, the second officer had been on board for 3 months. This was his first time on board a chemical tanker. In addition to his bridge watchkeeping duties, the second officer was responsible for the maintenance of the ship's navigational charts, publications, and medical chest, and producing the daily reports to the ship's managers. For

about 80% of his time on board he had kept the 0000 to 0600 and 1200 to 1800 watches on the bridge, working opposite the third officer. For the remaining time, the chief officer had also kept watches, and the second officer had kept the 0000 to 0400 and 1200 to 1600 watches.

From 1 to 5 March inclusive, the second officer's recorded hours of rest were 12 hours each day. On 6 March, he had been on watch on deck between 1200 and 1800 during cargo operations. After eating a meal, he then corrected navigational charts until about 1900 when he went to bed, and slept for between 1 and 2 hours. The second officer stated he was not tired when he took over the watch after securing the aft deck, his mooring station, after leaving Teesport, but was feeling a little stressed. He had spoken about personal problems regarding his family to the AB lookout during their watches together since 1 January. It was reported that the second officer had left the bridge while on watch on a number of previous occasions.

The AB lookout had been at sea for 7 years: 1 year as a trainee, 3 years as an ordinary seaman, and the remainder as an AB. He had worked for vessels managed by Transocean Shipmanagement throughout this time. He joined *Reno* in June 2003, and had kept bridge watches with the second officer for about the previous two months.

Ocean Rose

The crew of *Ocean Rose* comprised a skipper, a mate, and two deckhands. Her 50 year old skipper had been at sea since 1972. Since being awarded his Certificate of Competency Class 1(Fishing) in 1979, he had owned and been skipper of 14 vessels, including *Ocean Rose*, which he bought in1999. The mate had worked for the owner-skipper for about 14 years. The two deckhands had completed training courses in sea survival, fire-fighting, first-aid, and safety awareness, but the skipper and mate had not.

1.10 SHIP MANAGEMENT

Organisation

Reno was one of 12 chemical tankers trading in the North and Baltic seas managed by Transocean Shipmanagement, a sister company of John T Essberger, the vessels' commercial operator and chemical transport specialist within the Rantzau group of companies. John T Essberger also operated a further 14 chemical tankers managed by Vopak, which also ply in the North and Baltic seas, and three chemical tankers plying in the far east but managed by an independent sister company of Transocean based in Singapore.

Transocean Shipmanagement also managed dry cargo and liner services operated by the Deutsche Afrika Linien and Transocean Liners, also sister companies of John T Essberger, and other types of vessels including cement carriers, for independent operators outside the Rantzau group. A diagram showing the company's organisational structure is at **Annex A**.

Immediately following the accident, Transocean Shipmanagement began its own investigation, and was open and co-operative in providing information to the MAIB.

Manning

Transocean recruits the officers for its vessels via Marine Transport Consultants, an independent agency based in Germany, and its ratings via its sister company in Singapore. In general, the origin of its officers is north-west Europe, although due to shortages, an increasing number of eastern Europeans are also employed. The ratings employed are Filipino. When possible, officers are interviewed before starting a contract at the company's offices in Hamburg. Otherwise, a telephone interview is normally conducted. The company also checks all officers' references and certification. The company stated that it was finding it increasingly difficult to recruit officers of north-west European origin, and considered that this was due to fewer people being attracted to the sea, and those at sea moving ashore much earlier in their careers than had traditionally been the case.

Reno and her sister vessels had previously been manned entirely by Portuguese officers and crew, but a shortage of Portuguese officers, together with a general lack of understanding of the English language among Portuguese ratings, necessitated a change in this policy. The ships were consequently flagged into the Madeira register in June 2003, to allow the introduction of multinational crews.

Quality assurance and training

Annex A shows the DPA and quality assurance manager for all the vessels managed by Transocean Shipmanagement was separate from the fleet management of the vessels, and had direct access to the company's managing directors. The DPA was assisted by a team of four, and worked closely with the quality assurance manager of the Rantzau group. Responsibility for the internal audits of the vessels managed by Transocean lay with the DPA. Responsibility for the organisation of external audits, and implementation of new requirements, lay with the group's quality assurance manager. The DPA visited each of the 34 ships for which he was responsible, at least once per year, but more frequently if required. The managers and superintendents of each of the three fleets also visited vessels, and reports were raised and passed to the DPA when considered necessary. The master of each vessel also wrote an end-of-year safety and environmental report in December. With regard to crew training, the master's report for *Reno* written in December 2003 included:

> *The crew training is an important target now. With the lack of Portuguese crews, vessel has changed register from Lisboa to Madeira, this allowing other sources of recruitment. This means a lot of newcomers and despite experienced before and Trained Certified they need familiarisation with our specific trading area and Company Policy and Customers.*

In October 2003,Transocean Shipmanagement employed an experienced chemical tanker master to train its crews, spending between 5 and 7 days on each ship on a rotational basis. He instructed in the requirements of ISO, ISM, as well as other general areas such as security, navigation, and cargo operations. This instruction replaced the training of senior officers via seminars covering a wide range of topics including safety and quality management, MARPOL, SOLAS, and STCW 95, which the company had conducted for the previous 20 years. The aim of the training master's visits was to interview the crew, identify training shortfalls, and then tailor training accordingly. During the visits, the training master worked around each vessel's programme, and no drills outside those already scheduled on the drill plan were conducted. The training master visited *Reno* between 29 January and 4 February 2004, when training was focused on the ISPS and ISM codes. The reports raised on completion of the training assessed the master's competency in navigation and shiphandling to be:

> *Fairly good overall handling of the vessel and in command on the bridge*.

The training master's assessment of the second officer's competency in navigation was *good*.

All masters employed by John T Essberger, and many of its chief, second, and third officers have attended bridge resource management training in either Warnemuende, Germany, or in Manila in the Philippines. This training included collision and grounding exercises. The second officer had not attended this training.

1.11 *RENO* STANDING ORDERS AND EMERGENCY PROCEDURES

Master's standing orders

The master's standing orders included that the master should be called:

- *If in doubt*
- *If traffic conditions or movements of other ships causing concern*

The orders did not specify the minimum distance to pass other vessels, or the maximum distance the vessel should deviate from the planned track. The master had set the ARPA to alarm for targets within 1 mile CPA, and had set the GPS receiver cross track error alarm to activate when more than 5 cables from the planned track. The master wrote a set of night orders relating to the calls to be made on VHF radio, and the time he was to be called prior to the ship's arrival in Immingham.

Emergency Procedures

The ship had a drill/training plan, which included collision **(Annex B)**. The last two collision exercises conducted on board had been on 21 June and 28 December 2003. The master had not been on board at the time of these exercises. Detailed guidance for the procedure to be followed in the event of a collision was provided in the ship manager's procedures manual, which stated:

> *Immediate Reaction after Collision:*
>
> ***Sound the General Alarm***
>
> *In this way it is possible to rapidly discover if any persons are injured/missing and to start organizing action to reduce the consequences of the accident.*

Following the collision, the master did not refer to this procedure.

1.12 OTHER REGULATION AND GUIDANCE

STCW 95

With regard to the principles to be observed in keeping a navigational watch, Section A-VIII/2, part 3.1, paragraph 23 includes:

The officer in charge of the navigational watch shall:

.1 Keep the watch on the bridge;

.2 in no circumstances leave the bridge until properly relieved;

ICS Bridge Procedures Guide

An emergency checklist for use following a collision is contained in the ICS Bridge Procedures Guide, and is included at **Annex C**.

International Regulations for Preventing Collisions at Sea

Rule 18 states

Except where Rules 9, 10, and 13 otherwise require:

(a) A power-driven vessel underway shall keep out of the way of :

(i) a vessel not under command;

(ii) a vessel restricted in her ability to manoeuvre;

(iii) a vessel engaged in fishing;

(iv) a sailing vessel.

SECTION 2 - ANALYSIS

2.1 AIM

The purpose of the analysis is to determine the contributory causes and circumstances of the accident as a basis for making recommendations to prevent similar accidents occurring in the future.

2.2 ACTIONS ON BOARD *OCEAN ROSE*

Ocean Rose was engaged in fishing and was therefore hampered by her fishing gear. As power-driven vessels are required to keep clear by Rule 18 of the Collision Regulations, the skipper's concern about the lack of avoiding action taken by *Reno* as she approached, was understandable. The skipper's actions to alert *Reno* to his concerns, via the signal lamp and VHF radio, started when the vessels were about one mile apart, and therefore allowed ample time for action to be taken to avoid collision.

When the skipper assessed that *Reno* was not taking action to keep clear, but would pass uncomfortably close down his starboard side, the alteration of course to port would have increased the CPA had *Reno* taken no action. An alteration of course to starboard, which would normally have been appropriate however, would have taken *Ocean Rose* across the bows of *Reno,* and with her fishing gear astern, this action would have been potentially hazardous.

After the initial collision, the skipper's action to broadcast a "Mayday", and instruct his crew to launch the liferaft, was timely and sensible. This resulted in the prompt tasking of rescue resources by the coastguard. Consequently, pumps were provided in time to prevent the loss of the vessel.

On finding the water ingress in the engine room, the mate's action was positive in difficult circumstances. Subsequent inspection of the failed strum box nuts indicated that their corrosion was caused by the use of dissimilar metals. This highlights the need to ensure that all through-hull fittings are properly maintained, and that appropriate materials are used.

2.3 *RENO* - ASSESSMENT OF DIFFERING ACCOUNTS

The accounts of the OOW and AB lookout were fundamentally different. The AB lookout stated that the OOW had been absent from the bridge for some time before the initial collision, whereas the account of the OOW indicated that he had been on the bridge throughout. There are, however, several anomalies in the OOW's account, which cast doubt over its validity.

First, although it was normal practice for ARPA information to be displayed on the ECS, no such data was recorded during the period in question, despite the fact that the OOW stated that the course, speed, and CPA of *Ocean Rose* had been displayed by ARPA.

Second, the OOW recollected *Ocean Rose* calling on VHF radio when at a range of about 2 miles, and several times thereafter before the first collision. The skipper of *Ocean Rose*, however, called only twice. Also, as the first call was made only 20 seconds before the collision, the distance between the vessels must have been less than one cable at that time.

Third, the rationale of plotting three fixes within ten minutes on the paper chart when in a close quarters situation with a fishing vessel, is difficult to comprehend. It is unlikely that such action would have been taken, and therefore the retrospective plotting of these fixes, to disguise the OOW's absence from the bridge during this period, cannot be ruled out.

Finally, had 30° of helm been applied when taking avoiding action, as stated by the OOW, it is likely that this manoeuvre would have been felt by the master seated in his cabin. Because it was not, this action was more likely to have been taken using 15° of helm in automatic pilot, as described by the AB lookout.

In view of these anomalies, along with the OOW's silence - possibly through ignorance - when asked for information by the master, more reliance is placed in the AB lookout's account. It is considered, therefore, that the OOW was not on the bridge at the time of the first collision.

2.4 *RENO* - ACTIONS OF THE OOW

The presence of an OOW on the bridge at sea is fundamental to ship safety in every respect, including: navigation, the application of the collision regulations, and reaction to on board emergencies. It is a regulatory requirement, which is considered to be so widely understood that its inclusion in company and master's standing orders and instructions is not usually considered necessary.

On this occasion, the OOW reportedly left the bridge to change his overalls. The length of his absence, however, was much longer than the few minutes this should have taken. When he left the bridge, there were no radar contacts of note on the off-centred radar display set to the 6-mile range scale, and the closing speed with *Ocean Rose* was between 14 and 15 knots. It is therefore possible the OOW was away from the bridge for at least 24 minutes. It is not known what he was doing during this period.

The absence of the OOW from the bridge is unacceptable under any circumstances, and the MAIB is concerned that this type of incident is becoming more common. Only recently, the MAIB investigated another accident caused by a bridge watchkeeper leaving the bridge of a dry cargo ship. The vessel collided with a small, single-handed fishing vessel in the North Sea. The master of the dry cargo vessel, who was the duty bridge watchkeeper, was in his cabin at the time of the collision, and never saw the fishing vessel. The fishing vessel was badly damaged.

It is the MAIB's overriding concern that leaving the navigating bridge of vessels unattended for 'short' periods while vessels are at sea is becoming a more accepted practice among seafarers, rather than a strict taboo.

Owners and managers must ensure, through a targeted regime of direction, audit, training and education, that this attitude is strongly discouraged if further accidents of this type are to be avoided in the future.

2.5 *RENO* - ACTIONS OF THE AB LOOKOUT

Confronted with an approaching fishing vessel, while alone on the bridge, the AB lookout was placed in a very awkward position, and his initial action to contact the OOW by telephone was understandable. When this was unsuccessful, however, his subsequent actions to leave the bridge and find the OOW, and then to return to the bridge and take avoiding action, and not to inform the master, were inappropriate.

The AB's actions can be partly explained by his friendship with the OOW, with whom he had shared watches over several months. It was equally possible that the AB's culture also influenced his judgment, as the experience of the ship managers was that the Filipino ratings it employed were only comfortable working and reporting within a well-defined hierarchy. Within the bridge watch system, the AB lookout would have been aware of his position in relation to the OOW. However, he might have felt uncomfortable or have been worried about reporting the proximity of the fishing vessel and the absence of the OOW, directly to the master.

As the internationalism of shipping increases, a greater mix of nationalities and cultures on board ships is becoming more commonplace. The dynamics of this mixing of cultures impacts on ships' operations in several ways. Some of its effects are positive. Others, however, possibly have a detrimental effect on the values crews place on safe operation. This is despite all mariners being trained to an international standard. Management awareness of the dynamics of the mixing of cultures is essential to ensure crew effectiveness, and to fully utilise the competencies of the individuals concerned. This might require modifications to manning policies, and to on board organisation and procedures.

2.6 *RENO* - ACTION FOLLOWING THE FIRST COLLISION

Given the absence of the OOW from the bridge when *Reno* collided with *Ocean Rose*, it is understandable that the immediate reactions on board were not as positive as might otherwise have been the case. Having been informed of the collision by the AB lookout when still in his cabin, the OOW went to the bridge, and would have been in the process of orienting himself when the master arrived.

The master would also have required time to familiarise himself with the situation. As soon as he was aware that the ship had been involved in a collision, however, he ordered the pitch control to be put to ‘stop’, and starboard helm to be applied to turn towards *Ocean Rose*. He also tried to contact the fishing vessel on VHF radio. These actions were positive and well intended. The general alarm, however, was not sounded in accordance with company instructions and the ICS Bridge Management Guide.

This resulted in several adverse consequences. First, the master undertook several important tasks in addition to his overall command and co-ordination of ship reactions. These included the control of the ship’s speed, and VHF radio communication. Second, actions expected of the crew by the master, such as the readying of the lifeboat, were not delegated, monitored or confirmed, and were probably not undertaken. Finally, the assessment of damage and the checking of the cargo tanks were not systematic, and relied to a large extent on the initiative of the chief engineer and the pumpman.

Had the general alarm been sounded, all of the crew would have been immediately alerted to the situation. They would have mustered in one location, and a more systematic and co-ordinated response would have been possible. The chief and third officers could certainly have been used to greater effect with regard to the checking of the cargo, the readying of the lifeboat, and assisting the master on the bridge.

There is nothing to be lost by sounding the general alarm during an emergency, and there is much to gain. Fortunately, because the damage to *Reno* was minimal, there was no pollution, the cargo tanks were intact, nobody was injured or missing, and *Ocean Rose* did not require assistance; the adverse consequences of not sounding the general alarm were not severe. This might not always be the case.

2.7 THE SECOND COLLISION

There are conflicting accounts regarding the occurrence of the second collision between the two vessels, which was reported to have happened about 7.5 minutes after the first collision at 0052. *Reno’s* master states that the vessels came no closer than about 1 cable, whereas the crew of *Ocean Rose* state that *Reno* crossed astern at an angle of about 90° on their starboard side, and made contact with the stern roller and power block as she passed.

As the report of the second collision, made by the skipper of *Ocean Rose* on VHF radio, was spontaneous, it was unlikely to have been triggered by anything other than some form of contact. After the first collision, *Ocean Rose* was anchored by her fishing gear from her stern, and it is likely that the tidal stream would have caused her head to lie in a southerly direction. The ECS data shows

that at 0000, *Reno* was adjacent to the position of the first collision, on a heading of 085°. This supports the fact that the vessels were in close proximity, and the description of the angle of *Reno's* approach given by the crew of *Ocean Rose.*

The resulting damage reported to be from this contact is difficult to confirm with any certainty. Damage to the power block **(Figure 4)** might have been sustained during the first collision. It is also possible that the damage to the roller fair lead bracket **(Figure 5)** might have been caused by the bulbous bow of *Reno* momentarily snagging the fishing warps passing over the fair lead, rather than via direct contact with the structure itself. Although the major damage in the engine room was first seen after the second collision, it is not certain how the fracture of the pipe, and water ingress via the strum box, could have been initiated by this contact.

Regardless of the nature of the contact, it is evident that *Reno's* master's perception of the proximity of the two vessels was incorrect. This might have been because at the time of the second collision, he was talking on the VHF radio, and might, therefore, have been distracted or overloaded. This is supported by the fact that at 0100, the master stated on VHF that he was stopped, whereas the speed over the ground recorded on the ECS was 5.8 knots. The error regarding the ship's name when using the VHF, and the use of the wrong telephone number when informing the ship managers, were also possible indicators of the stress the master was under.

2.8 MANNING AND TRAINING

Since flagging into the Madeira register in June 2003, the composition of *Reno's* crew changed from being predominantly Portuguese, to being multinational. Significantly, a need to train and familiarise the newly recruited crew was highlighted 6 months later by the previous master. Assuming a crew is qualified, the fact that it is multinational should not affect how it reacts in an emergency. However, in order to overcome potential difficulties caused by culture and communication, the responses to emergency situations must be pre-planned, automatic, and well drilled. This can only be achieved via effective training.

In this case, the ship managers had arranged bridge resource management training and training seminars for its senior officers, had employed a qualified chemical tanker master for the purpose of crew training, and had required its ships to conduct a programme of drills, including collision drills. It is disconcerting that, despite these positive measures, the master and crew still did not respond to the initial collision in accordance with the laid down procedures.

Effective drills are often difficult to achieve within the constraints of a commercial schedule, a constantly changing crew, and a lack of external assistance. As a result, many on board drills are only conducted in accordance with a drill plan, and are organised and controlled by the master, who therefore cannot

participate. To maximise the effectiveness of on board drills, they should be realistic, contain the element of surprise, and include all personnel who would be involved in a real emergency. Greater consideration needs to be given on how this can be achieved, particularly in view of the ever-increasing number of multinational crews, and the perennial problem of crew rotation.

2.9 FATIGUE

As the second officer had changed his overalls and was in his cabin when alerted by the AB lookout, it is highly likely that he had remained there during his absence from the bridge. It is not known if he fell asleep through fatigue during this period. However, this is considered to have been unlikely considering his hours of rest available during the previous five days, his stated lack of tiredness, and the stimulus from mooring operations.

SECTION 3 - CONCLUSIONS

3.1 SAFETY ISSUES

The following safety issues have been identified by the investigation. They are not listed in any priority order.

1. The actions of the skipper of *Ocean Rose* to alert *Reno* to his concerns, via the signal lamp and VHF radio, allowed ample time for action to be taken to avoid collision. [2.2]

2. The alteration of course to port by *Ocean Rose* would have resulted in an increased CPA had *Reno* taken no action. An alteration to starboard would have caused *Ocean Rose* to cross ahead of *Reno*, which, considering her fishing gear astern, would have been potentially hazardous. [2.2]

3. The broadcast of a “Mayday” via VHF radio, by the skipper of *Ocean Rose,* allowed the prompt tasking of rescue resources by the coastguard. As a consequence, pumps were provided to prevent the loss of the vessel. [2.2]

4. The failure through corrosion of the nuts securing the strum box cover in *Ocean Rose*, highlights the need to ensure that all through-hull fittings are properly maintained at all times, and that appropriate materials are used. [2.2]

5. It is considered that the OOW of *Reno* was not on the bridge at the time of the first collision. [2.3]

6. It is possible that *Reno’*s OOW was away from the bridge for at least 24 minutes, but it is not known what he was doing during this period. [2.4]

7. The absence of *Reno’*s OOW from the bridge on this and previous occasions, along with similar instances occurring during accidents reported to the MAIB, highlights that this practice is more common than ship managers and masters are aware of. [2.4]

8. The actions taken by the AB lookout, without informing the master, were inappropriate. [2.5]

9. The Filipino AB lookout might have felt uncomfortable or have been worried about reporting the situation directly to the master. [2.5]

10. Management awareness of the dynamics of the mixing of cultures is essential to ensure crew effectiveness, and to fully utilise the competencies of the individuals concerned. This might require modifications to manning policies, and to on board organisation and procedures. [2.5]

11. After the collision, the general alarm was not sounded on board *Reno* in accordance with company instructions and the ICS Bridge Management Guide. [2.6]

12. Had the general alarm been sounded, the chief and third officers could certainly have been used to greater effect with regard to the checking of the cargo, the readying of the lifeboat, and assisting the master on the bridge. [2.6]

13. It is difficult to confirm the nature of the contact or the damage caused during the second collision. [2.7]

14. At the time of the second collision, it is evident that *Reno'*s master's perception of the proximity of the two vessels and his vessel's speed, was incorrect. This might have been because he was talking on the VHF radio, and might, therefore, have been distracted or overloaded. [2.7]

15. It is disconcerting that, despite the number of positive measures taken by the ship managers with regard to training, the master and crew still did not respond to the initial collision in accordance with the laid down procedures. [2.8]

16. Greater consideration needs to be given on how the effectiveness of on board drills can be achieved, particularly in view of the ever-increasing number of multinational crews. [2.8]

17. It is likely *Reno'*s OOW remained in his cabin during the period he was absent from the bridge, but it is considered unlikely that he fell asleep. [2.9]

SECTION 4 - ACTION TAKEN

The following action has been taken by Transocean Shipmanagement:

- Masters have been advised to report any serious incident where ships' personnel fail to perform their duties. This is to be reported as a hazardous incident in accordance with the company's quality management system.

- A policy of minimising the number of nationalities onboard its vessels has been adopted with the aim of increasing the crew's effectiveness, and to minimise the negative effects resulting from the mixing of cultures.

- Managers and training captains have been made aware of the need for careful handling of different nationalities onboard and any inter-cultural differences that might exist.

- Masters have been advised to pay special attention to their own responsibilities and duties during any drills conducted onboard.

- The company has stated its intent to distribute this report to all its vessels for discussion during safety committee and bridge management team meetings. It also intends to highlight the lessons learned from this accident through its training captains during periods of onboard training.

SECTION 5 - RECOMMENDATIONS

The International Chamber of Shipping is recommended to highlight to its shipping companies the need to:

2004/230 Reinforce the unacceptability of OOWs leaving the bridge when on watch, through a targeted regime of audit, direction, training, and education.

2004/231 Stress the importance of realistic drills to ensure adherence to procedures and effective response in an emergency, and to fully test the roles of all personnel, including the master.

The International Chamber of Shipping and the **International Shipping Federation** are jointly recommended to highlight to their members the need to:

2004/232 Review the effects of nationality and cultural mix on board ships
2004/233 with regard to ship operation, training requirements and procedures.

Marine Accident Investigation Branch
October 2004

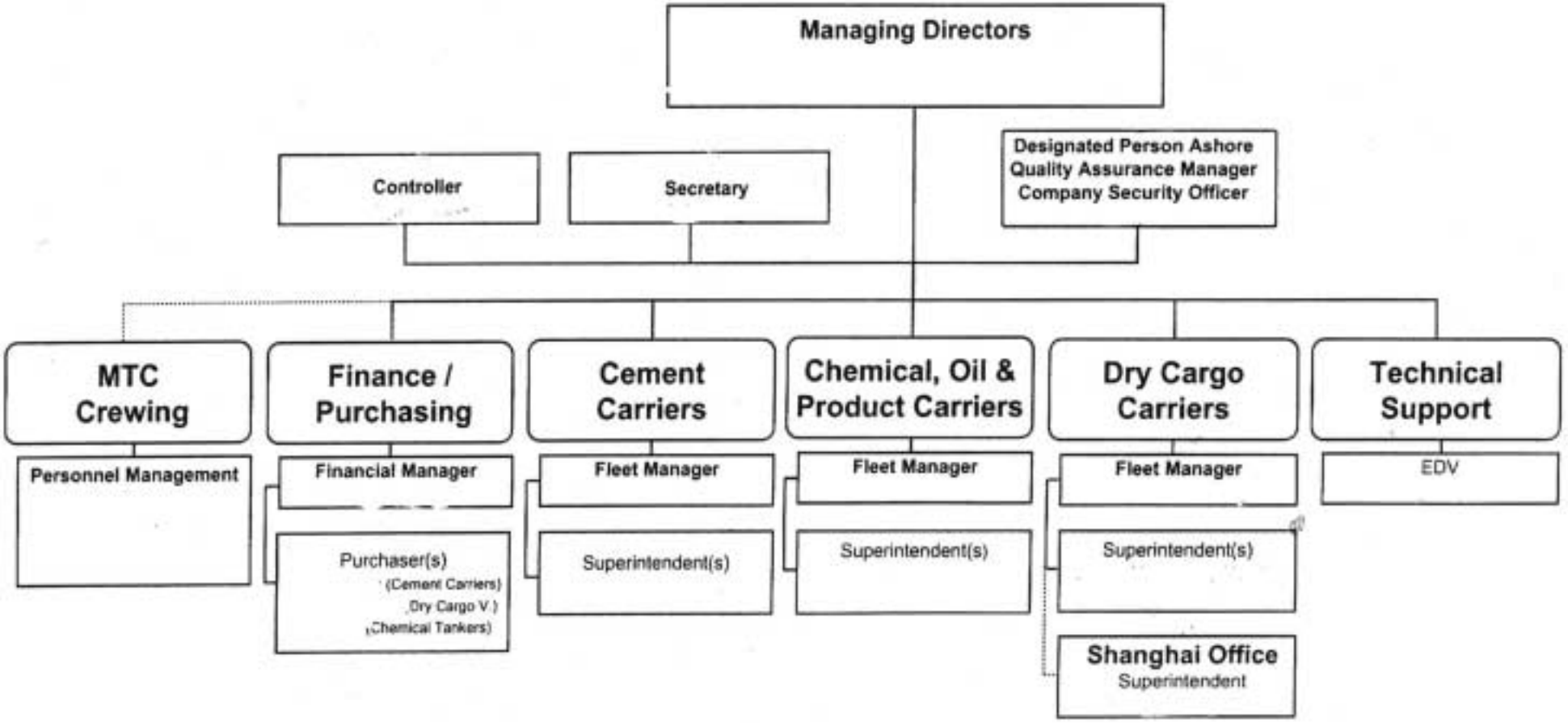
ANNEX A

Transocean Shipmanagement Gmbh - Organisation Chart

Transocean Shipmanagement GmbH

Organization Chart

Document Issue: 1st July 2003 Revision : 9



ANNEX B

Reno - drill plans

Transocean Shipmanagement

Document Issue 11 Oct 2001 Form T604 Revision 5

DRILL / TRAINING PLAN

VESSEL: 'RENO'

	YEAR: 20023		JAN planned (week)	JAN executed (date)	FEB planned	FEB executed	MRZ planned	MRZ executed	APRIL planned	APRIL executed	MAY planned	MAY executed	JUNE planned	JUNE executed	JULY planned	JULY executed	AUGUST planned	AUGUST executed	SEPT planned	SEPT executed	OCT planned	OCT executed	NOV planned	NOV executed	DEZ planned	DEZ executed
	Drills / Training																									
45	Fire Drill 1)	M	01 Deck+Car	22	06 Acc+Car	15	10 Eng.	03	14 Deck+Car	19	18 Acc+Car	04	23 Eng.	10	28 Deck+Car	24/7	32 Acc+Car	10/8	36 [illegible]	04/09	41 [illegible]	23/10	45 Acc+Car	05/11	49 Eng.	08/12
1	Abandon ship drill	M	02	21	07	15	11	16	15	19	20	04	24	10	29	26/7	33	27/8	37	09/09	42	21/10	46	06/11	50	28/12
1	Boat launching 2)	Q					11	16					24	20					37	09/09					50	28/12
2	Rescue boat launch 3)	H					N/Ap.						N/Ap.						N/Ap.						N/Ap.	
13	Man over board	Q					11	21					24	22					37	30/09					50	28/12
9	Rescue from encl. spaces	H	03	26											29	15/07										
8	Entry into enclosed spaces	H	03	26											29	15/07										
20	First aid (incl. CPR+Chem)	Q	03	26					15	16					29	09/07					43	05/11				
18	Helicopter Operations	H	03	26											29	09/07										
9	Search and Rescue assist	H			05	24											31	03/08								
23	Piracy / Terrorism G	H			05	24											31	09/08					46	16/11		
13	Power failure / Black out	H							15	16											44	09/11				
12	Main Engine failure	H							16	16											44	09/11				
27	Cargo/Chem. poll./fire prev.	H	04 (a)	03/02											30 (a)	14/07										
26	Bunker pollution prev.	H	04	03/02					16	16											46					
21	Collision/Grounding	H											25	21											51	28/12
34	Flooding	H											25	21											51	23/12
11	Use of Emergency Signals 4)	Q					11	04					24	22					37	10/9					50	21/12
14	Emergency Radio training	Q					11	04					24	21					37	10/9					50	23/12
14	Emergency steering	Q					12	28					26	22				15/8	38	30/9					52	05/12

Y= yearly H=each half year Q=quarterly M=monthly (a) Enter Drill date in Sopep File Vol. 1st App. 8 (a) with Crane

1) Accommodations or Eng Room or Deck 3) only applicable for vessels with an additional rescue boat 4) Instructions for use of Emergency Signals, e.g. line throwing apparatus, etc.

2) EACH Lifeboat in three month, for Lifeboats arranged for free-fall launching, is acceptable at least once every six month free-fall launching when impracticable within three month.

Name of Master: Signature: Date: 01-Jan-03

Analyse and document all exercises in the Logbook, issue Remarks as minutes for Safety Committee Meeting with appropiate action ! The topical Drill Plan to be displayed on the Bridge !

For additional training sessions please check Flag State requirements, for example Liberia: SMS, Oily Bilge Water / Garbage Management or Ballast Water Exchange ! FORM to be filed onboard only !

DRILL / TRAINING PLAN

VESSEL: 'RENO'

	YEAR: 2004		JAN		FEBR		MRZ		APRIL		MAY		JUNE		JULY		AUGUST		SEPT		OCT		NOV		DEZ	
			Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed	Planned	Executed
1 & 5	Drills / Training		Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date	Week	Date
4/5	Fire drill 1)	M	01	17/01	06	[illegible]	10	26/03	14		19		23 Eng		28		32		36 Eng		41		45		49 Eng	
1	Abandon ship drill	M	02	7/01	07	15/02	11	23/03	15		20		24		29		33		37		42		46		50	
1	Boat launching 2)	Q					11						24						37						50	
2	Rescue boat launch 3)	M					N/Ap						N/Ap						N/Ap						N/Ap	
10	Man over board	Q					11	18/3					24						37						50	
7	Rescue from encl. spaces	H	03	13/01											28											
7	Entry into enclosed spaces	H	03	13/01											28											
20	First aid (incl. CPR+Chem)	Q	03	13/01					16	20/4					29						43					
18	Helicopter Operations	H	03	19/01											29											
9	Search and Rescue coord.	H			05	15/02											31									
23	Piracy/Terrorism (Security)	Q			06	13/02					18						31						46			
13	Power failure / Black out	H							16	15/4											44					
12	Main Engine failure	H							16	19/4											44					
27	Cargo/Chem. pollution prev.	H	34 (a)	19/01						06.04					30 (a)											
26	Bunker pollution prev.	H							15 (a)	06.04											44 (a)					
21	Collision/Grounding	H									21												47			
30	Flooding	H									21												47			
11	Use of Emergency Signals 4)	Q					11	26/03					24						37						50	
24	Emergency Radio Training	Q					11	26/03					24						37						50	
14	Emergency steering	Q					12	10/03					26						38						52	

Y= yearly H=each half year Q=quarterly M=monthly (a) Enter Drill date in Smpep File, App. 5

1) Accommodation or Eng.Room or Deck 3) only applicable for vessels with an additional rescue boat 4) Instructions for use of Emergency Signals, e.g. line throwing apparatus, etc

2) EACH Lifeboat in three month; for Lifeboats arranged for free-fall launching, is acceptable at least once every six month free-fall launching when impracticable within three month.

Name of Master: Signature: Date: 01-Jan-04

Analyse and document all exercises in the Logbook, Use Remarks as minutes for Safety Committee Meeting with appropiate action ! The topical Drill Plan to be displayed on the Bridge !

For additional training sessions please check Flag State requirements, for example Liberia: SMS, Oily Bilge Water / Garbage Management or Ballast Water Exchange ! FORM to be filed onboard only !

ANNEX C

ICS emergency checklist - collision

Collision

Action to be carried out:

- ☐ Sound the general emergency alarm
- ☐ Manoeuvre the ship so as to minimise effects of collision
- ☐ Close watertight doors and automatic fire doors
- ☐ Switch on deck lighting at night
- ☐ Switch VHF to Channel 16 and, if appropriate, to Channel 13
- ☐ Muster passengers, if carried, at emergency stations
- ☐ Make ship's position available to radio room/GMDSS station, satellite terminal and other automatic distress transmitters and update as necessary
- ☐ Sound bilges and tanks after collision
- ☐ Check for fire/damage
- ☐ Offer assistance to other ship
- ☐ Broadcast DISTRESS ALERT and MESSAGE if the ship is in grave and imminent danger and immediate assistance is required, otherwise broadcast an URGENCY message to ships in the vicinity

Other actions:

- ☐
- ☐
- ☐