



**Bundesstelle für Seeunfalluntersuchung**  
**Federal Bureau of Maritime Casualty Investigation**  
Bundesoberbehörde im Geschäftsbereich des Bundesministeriums  
für Verkehr, Bau- und Wohnungswesen

**Investigation Report**  
**198/02**

**15 December 2003**

**Serious Marine Casualty:**

**Collision**  
**CMV HONGKONG EXPRESS**  
**and**  
**TMV SARAH GLORY**

**on 10 December 2002**  
**in the approach to the Suez Canal, Port Said**

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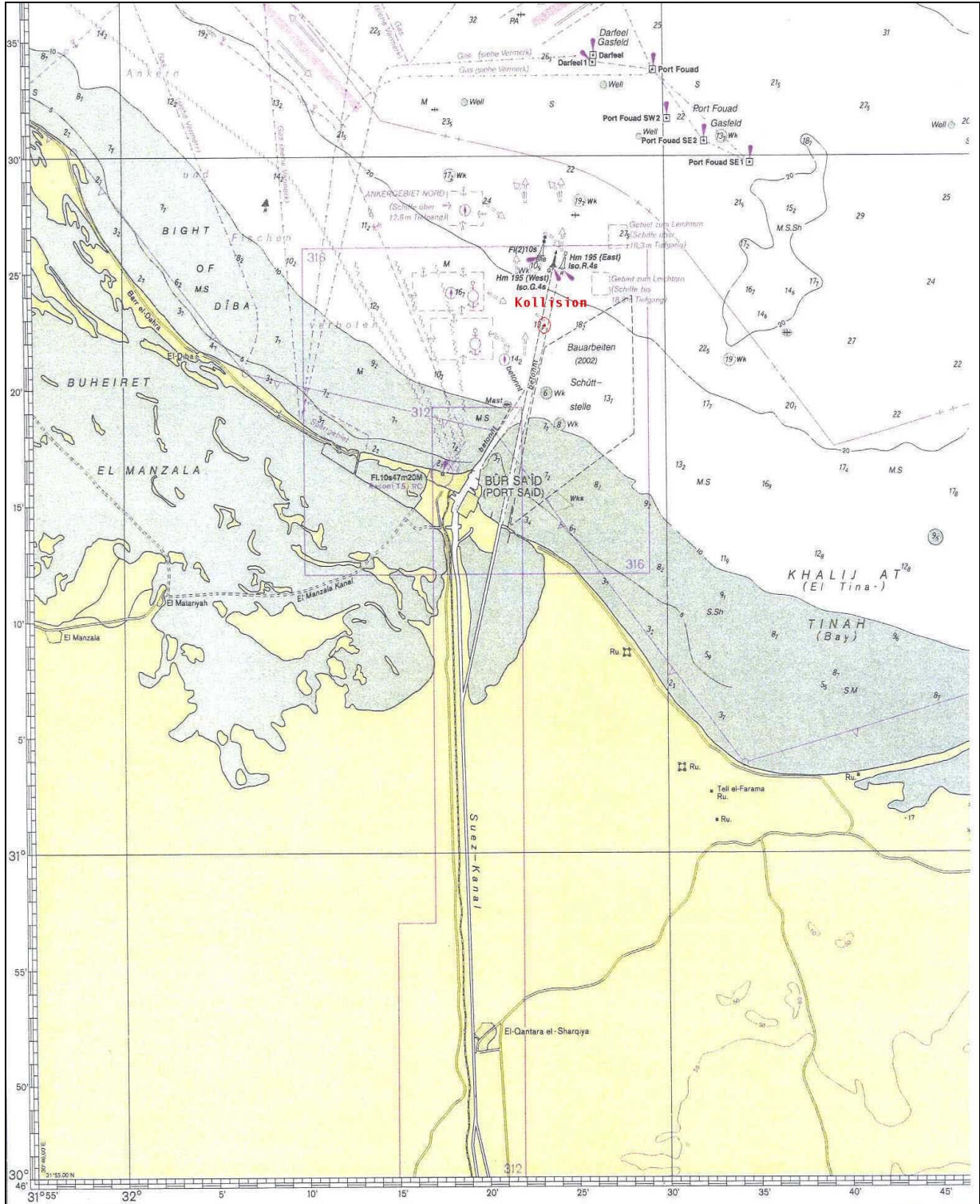
## 1 Summary of the marine casualty

The Container Motor Vessel (CMV) HONGKONG EXPRESS was on her voyage from Gioia Tauro/Italy to Port Keelung/Taiwan and entered Port Said roads on December 10, 2002, 18.25 hrs local time (It). The ship laid at anchor until 22.00 hrs. Then the ship followed the order from Port Said Port Control (PSPC) to line up as fourth ship in a convoy for the Suez Canal passage which was to be formed. At 23.13 hrs the ship received the order by PSPC via VHF to speed up. This could only be done after the pilot was picked up at 23.15 hrs.

The Tank Motor Vessel (TMV) SARAH GLORY reached Port Said roads from Rotterdam on December 10, 2002, 10.12 hrs. The ship laid at anchor until 22.30 hrs. Then the ship followed the order from PSPC to line up as fifth ship in a convoy for the Suez Canal passage which was to be formed.

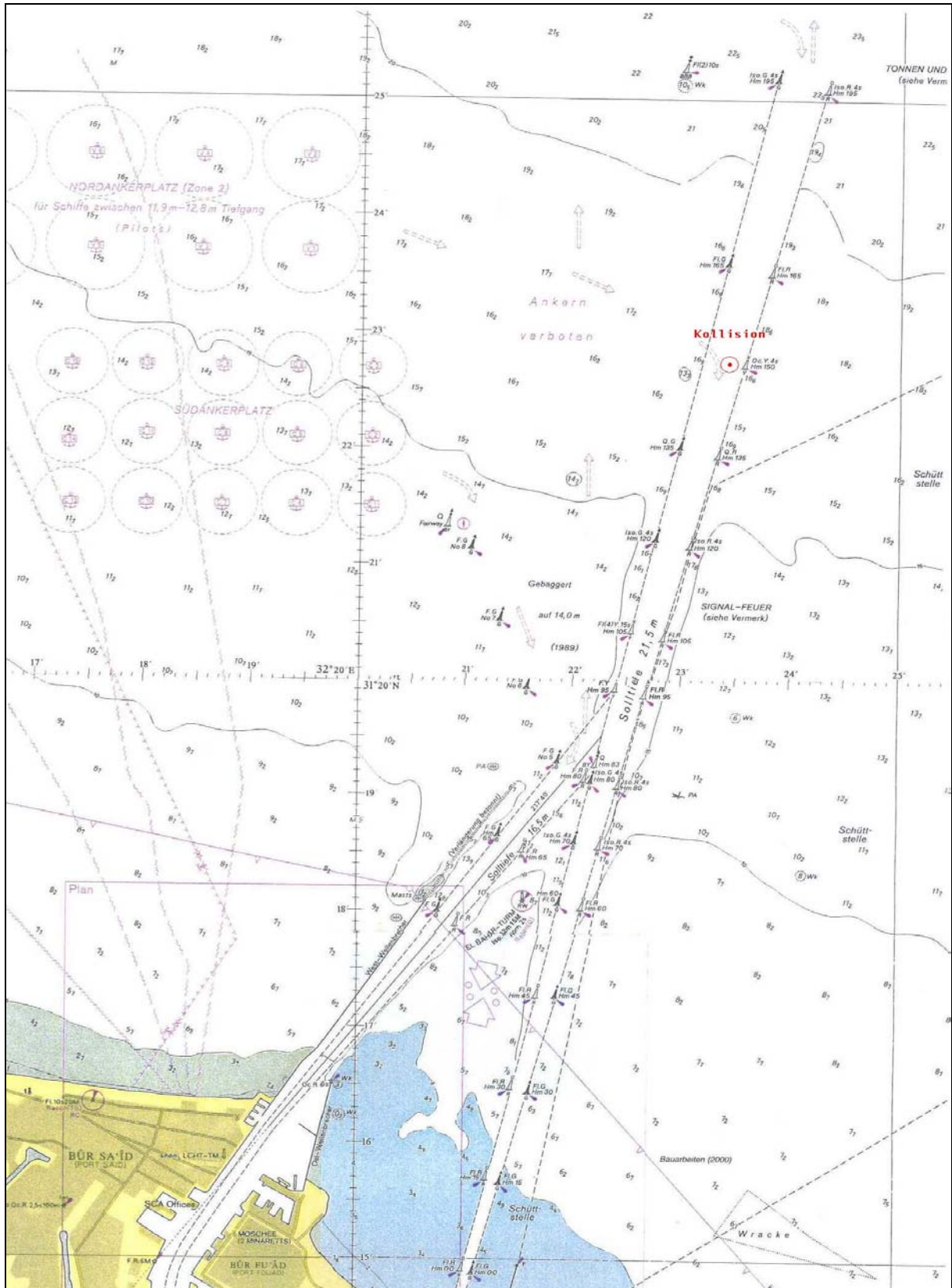
At 23.23 hrs both ships collided, first with their bows, then also side-to-side, at position 31° 23'N 32° 23,5'E near buoy „HM 150“. Both ships were damaged above the waterline. The cargo of containers was damaged as well. There were no injuries and no environmental pollution.

## 2 Scene of casualty



Detailed view of sea chart No 708 - Publisher: Federal Maritime and Hydrographic Agency Hamburg and Rostock

**Picture 1: Scene of casualty overview**



Detailed view of sea chart No 316 - Publisher: Federal Maritime and Hydrographic Agency Hamburg and Rostock

**Picture 2: Scene of casualty – detailed view**

### 3 Vessel particulars and photos

#### 3.1 Vessel particulars CMS HONGKONG EXPRESS



**Picture 3: CMS HONGKONG EXPRESS**

<b>Name of vessel:</b>	HONGKONG EXPRESS
<b>Owner:</b>	Amobilia Vermietungsgesellschaft mbH & Co. Ocean KG – BRD
<b>Port of registry:</b>	Hamburg
<b>Nationality/Flag:</b>	Bundesrepublik Deutschland
<b>Ship's Call sign:</b>	DHEB
<b>Type of vessel:</b>	Containerschiff
<b>Crew:</b>	27
<b>Classification/Class:</b>	GL+100A5 E MC AUT CONTAINERSHIP iW NAV-OC
<b>Year built:</b>	13.05.2002
<b>Shipbuilding yard:</b>	Hyundai Heavy Industries Co.Ltd. Korea
<b>Building material:</b>	Steel
<b>Length overall:</b>	320,58 m
<b>Width overall:</b>	42,90 m
<b>Draft at time of casualty:</b>	13,95 m
<b>Engine rating:</b>	68640 kW
<b>Propeller:</b>	1 fixed propeller right turning
<b>Steering gear:</b>	Electric-hydraulic
<b>Miscellaneous:</b>	1 Bow Thruster 2500 kW

CMS HONGKONG EXPRESS is equipped with modern nautical instruments, e.g. elektronische sea charts and three Atlas 1000 radar sets.

### 3.2 Vessel particulars TMS SARAH GLORY



**Picture 4: TMS SARAH GLORY**

<b>Name of vessel:</b>	SARAH GLORY
<b>Operator:</b>	Sarah Maritime LTD. - Greece
<b>Port of registry:</b>	Panama
<b>Nationality/Flag:</b>	Panama
<b>Ship's Call sign:</b>	H3YS
<b>Type of Vessel:</b>	Oil Tanker
<b>Crew:</b>	27
<b>Classification / Class:</b>	DNV
<b>Year built:</b>	2001
<b>Shipbuilding yard:</b>	Hitachi Zosen Diesel Japan
<b>Building material:</b>	Steel
<b>Length overall:</b>	332,95 m
<b>Width:</b>	60,0 m
<b>Draft at time of casualty:</b>	11,03 m
<b>Engine rating:</b>	25.848,9 kW
<b>Propeller:</b>	1 fixed propeller, right turning
<b>Steering gear:</b>	1 semi-balance spade rudder



## **4 Course of the voyage / course of the accident**

### **4.1 Voyage of the CMV Hongkong Express**

The CMV HONGKONG EXPRESS was on her voyage from Gioia Tauro/Italy to Port Keelung/Taiwan and entered Port Said roads on December 10, 2002, 18.25 hrs local time. On order of Port Said Port Control (PSPC) the ship anchored two nautical miles (nm) northerly of anchor berth „V2“. Until the evening the visibility was good. Wind was 280°, 4-5 Bft.

#### **4.1.1 Statement by the Master**

Around 21.00 hrs PSPC ordered to weigh anchor and be prepared to line up for the convoy. CMV HONGKONG EXPRESS was to be the fourth vessel in the convoy. Third ship was another Container Vessel and fifth ship was the tanker SARAH GLORY. Both vessels had less draught and subsequently anchored on North Roads. They were meant to enter the approach to the canal between the buoys HM 195 and HM 135.

While heaving the anchor present on the navigating bridge were the captain, the chief mate, who was relieved by the second mate when the anchor was out of the water, an AB as helmsman and one trainee (cadet).

All engines and devices were working properly. One radar set was covering the 6 nm range, another the 3 nm range and a third one the 1.5 mile range. After heaving the anchor, PSPC ordered to catch up speed and enter the fairway at buoy HM 195. This was at 23.00 hrs. At 23.03 hrs PSPC recommended to stop the engine to reduce speed again because ship No 3 had problems to leave roads in time. This was done. CMV HONGKONG EXPRESS could be kept in the fairway with rudder and bow thruster in order to let ship No 3 pass and wait for the pilot. During this time we were able to follow the communication between PSPC and TMV SARAH GLORY. TMV SARAH GLORY informed PSPC that her anchor was up and that they were waiting for the pilot. It could be heard that PSPC gave the instruction to TMV SARAH GLORY to line up as ship No 5 in the fairway and not to do so until ship No 4 had passed. TMS SARAH GLORY confirmed this advice clearly. At 23.13 hrs PSPC advised to raise speed again. As the pilot was not on board yet, the speed could not exceed 5 knots, because otherwise the pilot launch could not come alongside. At 23.15 hrs the pilot was on board. The heading was 203°, speed approximately 6.5 knots and again came the order from PSPC to raise speed to „full ahead“. The captain orderd the engine to 56 rpm, which would have led to a speed of 15 knots. At 23.17 hrs the pilot arrived in the wheelhouse and the captain made him familiar with the ship's data. The heading now was 200°. At this time the TMV SARAH GLORY was spotted on the radar screen as „dangerous target“ and at the same time TMV SARAH GLORY and PSPC were communicating via VHF. TMV SARAH GLORY received information that CMV HONGKONG EXPRESS was proceeding at full speed and the ship confirmed not to enter the fairway. When CMV HONGKONG EXPRESS heard this and also could see that the navigation lights of TMV SARAH GLORY were

slowly turning to starboard, the Captain decided to proceed. The pilot also demanded this and confirmed that TMV SARAH GLORY would stay outside.

At 23.19 the pilot recommended to alter course from 200° to 195°. CMV HONGKONG EXPRESS did so. Then he started to speak in Arabic via VHF, not understandable for the captain. The captain thought that he talked either to PSC or to the pilot of TMV SARAH GLORY. When at 23.20 hrs TMV SARAH GLORY neither had turned enough nor had stopped the captain interrupted the pilot and requested more information about the situation from him. When he apparently also did not know anything about the intentions of TMV SARAH GLORY, the pilot ordered to stop the engine at first. This was done by CMS HONGKONG EXPRESS. Then the pilot again asked for the ship's draught, because between buoys HM 135 and HM 165 was a water depth of only 13.30 m. Because of this and because of the fact that a turn „hard to starboard“ would lead to a collision nearly at right angles, the captain decided „hard to port“ and „full astern“, to reduce the angle and the force of the impact.

At 23.20 hrs the rudder was „hard to port“ and seconds later the engine was ordered „full astern“. At 23.23 hrs the first contact with TMV SARAH GLORY was with her port bow, hit by the starboard bow of CMV HONGKONG EXPRESS. The angle of collision was about 30°. Then the ship hit CMV HONGKONG EXPRESS again near bay 48 and bay 74. The collision occurred on position 31°23'N 32°23,5'E near buoy HM 150. CMS HONGKONG EXPRESS was damaged at the starboard bow and hatch No 6A. Numerous containers were damaged, 13 containers fell overboard, nine of which sank and four fell onto the deck of TMV SARAH GLORY. There were neither human casualties nor environmental pollution or underwater damages.

#### **4.1.2 Statement by the Second Officer and the helmsman**

The submitted statements of the watchkeeping second mate and the AB who was at the helm the whole time of the manoeuvre correspond to the statement of the captain.

#### **4.2 Voyage of the TMV SARAH GLORY**

The TMV SARAH GLORY came from Rotterdam and arrived Port Said roads on December 10, 2002, at 10.12 hrs local time. The ship lay at anchor until 22.30 hrs. Then the order from PSC was followed to line up as fifth ship in a new convoy to pass the Suez Canal.

##### **4.2.1 Statement by the Master**

On arrival in Port Said on December 10, 2002, TMV SARAH GLORY was carrying 98.344,3 ts ballast water in the forepeak, aftpeak and in the side ballast tanks, 1553 ts of fuel oil mainly in fuel tank No 1 (517 ts) and fuel tank No 3 starboard (812 ts), 95 ts Marine Diesel Oil and 628 ts of fresh water. Draught forward: 8.56 m, aft: 11.03 m. The wheelhouse of TMV SARAH GLORY was well equipped including radar sets (10 cm and 3 cm) with ARPA, three GPS receivers, GPS position printer, echo sounder,

magnetic compass, gyro compass, revolution indicator, course printer, doppler log, speed log, autopilot, engine command, Navtex receiver, two VHF sets, and a fully equipped wireless station. On December 10, 2002, all instruments were working satisfactorily and the used sea charts and publications were corrected and updated.

On December 10, 2002, TMV SARAH GLORY arrived at the northern end of the Suez Canal after a trip from the last port of discharge, Rotterdam. The third mate was on watch and at 10.12 hrs he informed the engine room that the trip was due to end in one hour. At 11.12 the captain took over from the third mate and the engine was ordered on standby. TMV SARAH GLORY informed Port Said Port Control (PSPC) of the arrival at 11.24 hrs and was advised to drop anchor on position „Victor 4“. The anchor places for ships waiting for the Suez Canal passage are clearly indicated in the British Admiralty Charts. In the northern anchorage (zone 2) where TMV SARAH GLORY was to drop anchor each anchoring position is marked with a circle of 0.4 nm radius. The „Victor“ anchoring places are designed for big and/or deepgoing vessels (11.9 to 12.8 m draught). There are eight anchoring places, four each in two rows in east-west direction. „Victor 4“ is in the northern row abt 4 nm west of the approach fairway to the Suez Canal. TMV SARAH GLORY proceeded to anchor place „Victor 4“ as advised and was safely moored at 12.48 hrs. PSPC was informed about this.

At 13.10 hrs PSPC called the ship via VHF and asked to test the steering gear. TMV SARAH GLORY was advised to lift anchor and to proceed to the fairway buoy. The captain was puzzled about this request because he had never experienced anything like this before. Subsequently he called the local agent and Northern Marine Management to inform about this situation. At 13.24 hrs the engine room was instructed that things would start in about one hour. At 13.40 hrs the local agent called and informed TMV SARAH GLORY that the Suez Canal Authority advised a forward draught of 31' and aft of 35' for the passage. At 14.24 PSPC called again and asked for the test of the steering gear. The captain declared that TMV SARAH GLORY would heave anchor and start soon. At 14.30 the main engine was ordered standby. At 14.36 the heaving of the anchor started and at 14.54 the anchor was up. The captain then started to proceed toward the fairway buoy, which was abt 3.5 nm away in a south-south-easterly direction from the anchor place.

At 15.02 hrs, before TMV SARAH GLORY had reached the fairway buoy, PSPC called again to call off the steering gear test. Instead, TMV SARAH GLORY was advised to return to the anchor place „Victor 4“. At 15.54 hrs the ship lay at anchor again and when PSPC was informed about this, they asked TMV SARAH GLORY to call at 21.00 hrs to receive information about the position of the ship in the evening convoy for the canal passage. At 21.00 hrs the watchkeeping third mate called PSPC to receive a list of the convoy ships. He was informed that TMV SARAH GLORY was ship No 5 and CMV HONGKONG EXPRESS was ship No 4. Ship No 6 was JUPITER GLORY, OLYMPIC SYMPHONY ship No 7 and ALPHA TANK ship No 8. He also was informed that the engines of TMV SARAH GLORY should be ready by 22.30 hrs and that the anchor chain should be shortened to two shackles.

In preparation for the canal passage, the captain had requested to be called after the third mate had spoken to the PSPC. As the captain, who slept in his cabin, woke up earlier he stepped up to the wheelhouse. Arriving there he just noticed that the third mate was being informed about the names of the other ships in the convoy.

At 21.21 hrs the engine room was informed that they would start in one hour and that the navigational instruments were tested. The wheelhouse crew for this part of the canal passage were the captain, the first mate who arrived at the wheelhouse at abt

22.30 hrs, the third mate, one cadet, one helmsman and one lookout. At 22.12 hrs TMV SARAH GLORY started to heave anchor and the engines were ordered on standby. At 22.30 hrs the anchor was at two shackles and TMV SARAH GLORY informed PSPC about this. It was advised to continue to heave anchor and then proceed to buoy „HM 150“ at the approach to the Suez Canal. PSPC informed that the pilot would come on board near this buoy.

The heading of the approach to the Suez Canal is 014°/194° true with a length of 10.7 nm. At the northern end the fairway is abt 0.4 nm wide and at the southern end the width is abt 0.1 nm. The fairway is marked by lightbuoys. The fairway is also used by vessels with destination Port Said and abt 5.8 nm from the northern entry there is a fairway with a heading of 217° true to Port Said. British Admiralty Sea Chart No 234 indicates two positions where ships passing the Suez Canal can enter this fairway to Port Said. The northern entry to this fairway is marked by two lightbuoys, both named „HM 195“. There is a second entry abt 2.4 nm further south in the region of buoy „HM 150“ which is used for ships coming from the anchorages west of the fairway. The indicated heading from anchor place zone 2 is abt 110° true before you turn to starboard 194° true into the fairway. Before the convoy starts, PSPC advises each ship in the convoy where to enter the approach and where the pilot is coming on board. Each vessel in the convoy has a number and PSPC controls every movement of every ship to make sure that it takes up the correct position in the convoy.

The anchor was up at 22.36 hrs and the captain started to manoeuvre TMV SARAH GLORY toward buoy „HM 150“. The weather was fine at this time with north westerly wind 4 Bft. and low to moderate swell. Visibility was more than 20 nm. The heading of the ship was 320° true and she turned to starboard now to proceed to the approach fairway. Fortunately the two anchor places easterly and southeasterly of „Victor 4“ - i.e. „Victor 1“ and „Victor 2“ - were not occupied so TMV SARAH GLORY was able to proceed directly to buoy „HM 150“. The captain informed PSPC that the anchor was up and that TMV SARAH GLORY was turning toward the buoy. PSPC advised a speed of 8 knots.

At 22.55 TMV SARAH GLORY informed PSPC that the ship had turned and headed 120° true toward buoy „HM 150“. The main engine was running „half ahead“ to keep the required speed of 8 knots. The position at this time was 31°24,78'N 32°19'E. The distance between this position and buoy „HM 150“ was abt 4.3 nm. At 23.10 hrs the first mate received a call from PSPC to proceed at „full ahead“ toward the pilot station (buoy „HM 150“). At this time the captain just had lowered speed to slack down a bit because „half ahead“ already meant a speed of more than 9 knots. After this order he raised speed to „full ahead“ what meant a speed of 11 knots. TMV SARAH GLORY kept the heading of 120° true. During this time the captain was in command and manoeuvring TMV SARAH GLORY according to the instructions of PSPC. The first mate was busy with VHF calls and assisted on request. The third mate was plotting the positions on the charts and kept lookout, optical and on the radar screen. The cadet assisted on demand and kept lookout for the pilot launch. TMV SARAH GLORY was steered by hand. All nautical instruments were working normally and both radar sets were switched on. It is not known which ranges were used but under these circumstances the captain assumes that they worked on 3, 6 and 12 mile range.

At 23.20 hrs PSPC ordered to stop the engine. TMV SARAH GLORY now was in position 31°23,1'N 32°22,95'E, which was abt 0.5 nm away from the middle of the approach fairway next to buoy „HM 150“. The speed in the meantime had reached 11

knots. The captain was aware of the fact that he had to slack down to keep clear of the fairway and therefore started to move the rudder from hard to port to hard to starboard. Soon it became clear that this action was not enough to slack down TMV SARAH GLORY and he decided to turn away from the fairway. At about the same time of this decision there was a call from PSPC which advised him not to enter the fairway. The captain immediately ordered „hard to starboard“. TMV SARAH GLORY stood abt 0.3 nm away from the fairway. TMV SARAH GLORY now started to turn to starboard and the captain decided to turn around completely and start a new approach. The first mate informed PSPC about this plan which was agreed.

The captain regretted being unable to prevent TMV SARAH GLORY entering the fairway. The earlier instructions of PSPC had caused the ship to be too fast and that she was too close to the fairway to stay away from it, after TMV SARAH GLORY had received the instruction of PSPC not to enter the fairway. Before PSPC advised TMV SARAH GLORY not to enter the fairway the captain noticed that there was another ship on his port side already in the fairway. This ship apparently had entered the fairway by the northern access to the fairway. He did not know which ship this was, but he had noticed that PSPC was speaking to a ship that was late and that was asked to proceed at full speed. When TMV SARAH GLORY turned to starboard it became clear that a collision was unavoidable.

At abt 23.25 hrs TMV SARAH GLORY was hit on her port side by a huge container vessel which was the CMV HONGKONG EXPRESS as the captain heard later. The first contact was with the starboard bow of this vessel which hit TMV SARAH GLORY slightly forward of the midshipsline in the region of ballast water tank No 2 port side. When the two ships turned away from each other, TMV SARAH GLORY to starboard and CMV HONGKONG EXPRESS to port, the aft part of CMV HONGKONG EXPRESS hit the superstructure of TMV SARAH GLORY in the region of ballast water tank No 5 and the fuel tank (which is adjacent aft to the ballast water tank). When the ships collided several containers fell from the deck of CMV HONGKONG EXPRESS; some fell into the water but four landed on the deck of TMV SARAH GLORY on the port side aft of the boarding ladder. The third mate fixed the collision position at 31°23'N 32°23.5'E.

After the two ships came clear, TMV SARAH GLORY turned on to starboard with the helm „hard to starboard“ and engine „half ahead“. The captain decided not to turn west in case there were more ships coming from this direction, but to turn on and go north instead. He was aware of the fact that the MV JUPITER GLORY was behind him which had to pick up the pilot. He therefore called the captain of this ship to inform him about his plans. They agreed to pass port to port.

Immediately before the collision the captain ordered general alarm to be raised so that all crew assembled at the muster stations. During the turning manoeuvre he ordered the crew to inspect the damages to the ship and report to him. He wanted to make sure that there were no personal injuries or fatalities nor any oil pollution. He was aware of the fact that one of the contacts between the two ships was in the region of the port fuel tank. From the navigating bridge it was visible that there was ballast water pouring out of tank No 5 port. The Chief Engineeer reported raising soundings in the port fuel tank. After further examination it was found out that this was water from the adjacent ballast side tank. The bulkhead between both tanks was damaged and water poured into the fuel tank in which the surface was significantly lower. Since TMV SARAH GLORY had lost ballast water on her port side, the ship started to list to starboard. To get the ship in an upright position again, the captain

ordered to lower the ballast water surface in ballast side tank No 5 until the ship was upright again. The rate of water intake in the fuel tank was reduced while the first mate reduced the water surface in ballast side tank No 5. When the loss of ballast water stopped, the surfaces in the ballast tanks were adjusted to keep the ship in an upright position.

While the determination and the judgement of the extent of the damage took place, the captain was busy with navigating the TMV SARAH GLORY. He contacted PSPC and asked for a safe anchor place. He was advised to proceed to „Victor 8“, the westernmost anchor place (together with „Victor 7“). At 24.00 hrs the TMV SARAH GLORY turned more westerly to pass north of the north anchorage (zone two). At 01.42 hrs on December 11, 2002, TMV SARAH GLORY anchored at „Victor 8“ which was passed on to PSPC. Upon this the answer came that TMV SARAH GLORY was free to join the convoy as last vessel if this was desired. The captain refused and declared he needed time to evaluate the damage. He was also told that the harbour master would come out to examine the ship.

Later at abt 03.00 hrs, a launch headed for TMV SARAH GLORY rounded the ship once and drove away again. The captain believed that the most important thing for the harbour master was to make sure that there was no oil pollution. Neither did the launch contact TMV SARAH GLORY nor did it try to come alongside. At 03.30 hrs, when the launch was gone, the main engine was run down.

In the afternoon of December 11, 2002, the harbour master himself came on board of TMV SARAH GLORY to assess the situation. During the talks it became clear that the convoy list of the Suez Canal Authority was different to the list that was passed on to TMV SARAH GLORY. The list showed JUPITER GLORY as No 4, OLYMPIC SYMPHONY as No 5, HONGKONG EXPRESS as No 6 and SARAH GLORY as No 7. When the captain learned this it became clear to him that the order from PSPC to speed up on the way to buoy „HM 150“ were passed on to him erroneously, because they believed that TMV SARAH GLORY was in fact JUPITER GLORY. PSPC was working on the basis that JUPITER GLORY was supposed to enter the fairway in front of OLYMPIC SYMPHONY and HONGKONG EXPRESS. If PSPC believed that TMV SARAH GLORY was JUPITER GLORY the order to proceed at full speed would make sense, probably to reach the fairway ahead of the other two vessels OLYMPIC SYMPHONY and HONGKONG EXPRESS. When the mistake was discovered and advice given not to enter the fairway, it was already too late to take action to avoid TMV SARAH GLORY entering the fairway. At this time the only alternative was to try to turn around TMV SARAH GLORY as fast as possible. Therefore the captain ordered „hard to starboard“ and „half ahead“.

#### **4.2.2 Statement by the third mate and two nautical representatives of the owner**

The submitted testimony of the watchkeeping third mate and the AB who was on the helm during the whole manoeuvre corresponds with the statement of the captain. In addition the detailed statements of the two owner's representative who were on board at the time of the incident are in hand. With regard to the contents, they also correspond with the statement of the captain as far as they were directly involved.

## 5 Summary of damage / photos of damage

Both vessels sustained damages at the shell plating. Numerous containers were damaged, 13 fell over the side, nine of which sank and four fell onto the deck of TMV SARAH GLORY. There were no personal injuries nor any oil pollution or underwater damages.

### 5.1 Damages to CMV HONGKONG EXPRESS

The photos were kindly provided by the shipping companies.



Picture 5: damage photo 1



Picture 6: damage photo 2



**Picture 7: damage photo 3**



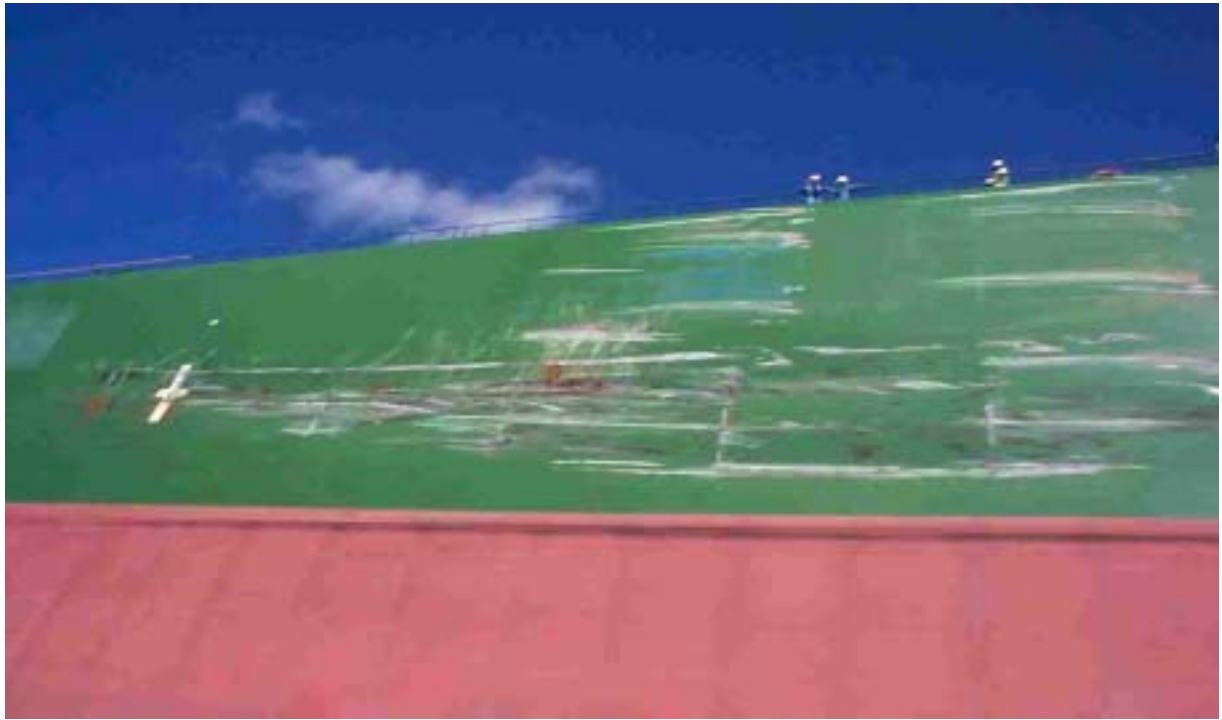
## 5.2 Damages to TMV SARAH GLORY



**Picture 8: damage photo 4**



**Picture 9: damage photo 5**



**Picture 10: damage photo 6**



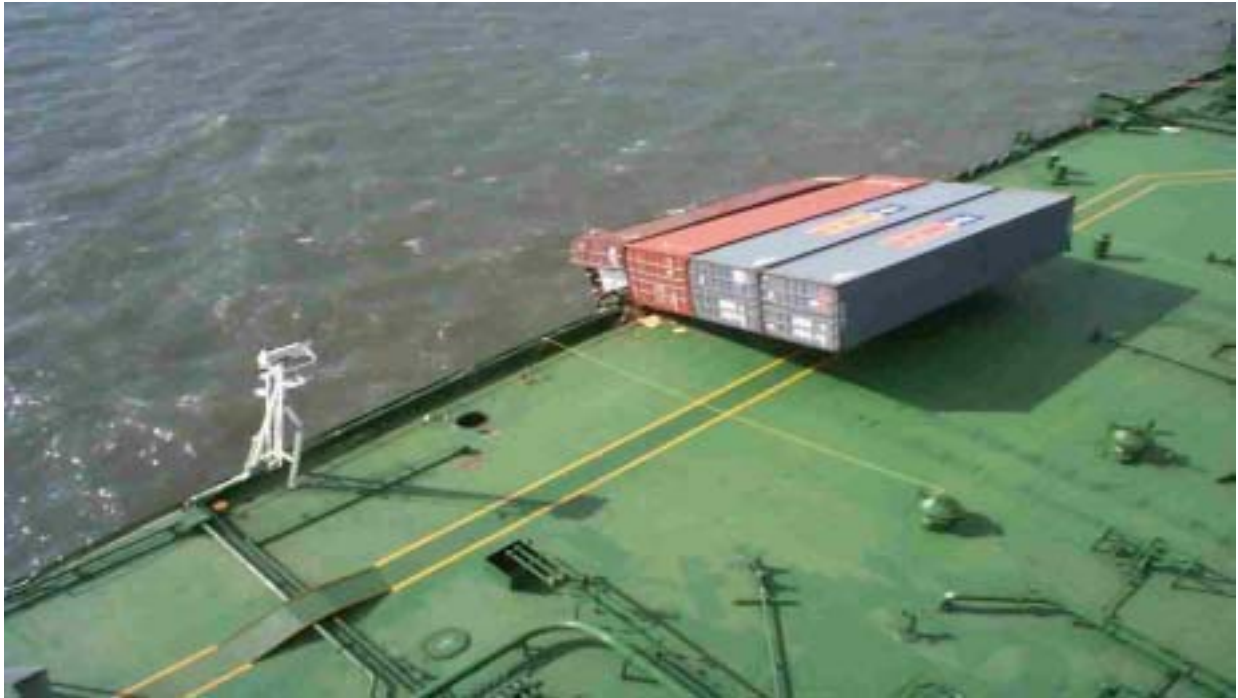
**Picture 11: damage photo 7**



**Picture 12: damage photo 8**



**Picture 13: damage photo 9**



**Picture 14: damage photo 10**



**Picture 15: damage photo 11**

## **6 Investigation**

### **6.1 Evaluation of the Voyage Data Recorder**

On board of CMV HONGKONG EXPRESS there was a prototype of a voyage data recorder (VDR), information of which could be evaluated. Unfortunately there was a technical fault so that the VHF channels could not be processed further.

At this stage the minimum of sensors that have to be linked to VDR after IEC 61996 is presented:

#### **6.1.1 VDR-Sensors**

##### **6.1.1.1 VDR-Input-Data**

#### **Navigation und Vessel particulars**

- date, time (UTC) of an external source (e.g. GPS)
- Position, date of EFPS (e.g. GPS) or INS.
- Speed in the water or ground speed in longitudinal and latitudinal direction
- Heading on the compass
- Depth under the keel from echo sounder
- Wind speed and direction from wind indicator
- Main alarms as data parameters and sound frequency signal. Status of all obligatory alarms on the bridge according to IMO
- Advised and repeated rudder angle
- Advised and repeated engine status. Engine telegraph or direct engine or propeller control, shaft revolutions or equivalent, bow and stern thruster (e.g. automatic positioning)
- Status of openings in the hull. This has to include all status informations that are obligatory to be shown in the wheelhouse according to IMO.
- Status of watertight fire protection doors. This has to include all status informations that are obligatory to be shown in the wheelhouse according to IMO.
- Exposure of the hull to accelerations and forces from a control device if demanded by classification society for a certain type of vessel.

## **Video**

Radar dates. Complete content of the main screen (mostly X-band radar)

## **Audio**

- One channel for one or more microphones that are positioned on the bridge
- One channel for VHF wireless signals that records transmitted and received dates

### **6.1.1.2 VDR-Output-Data**

- Alarm when integrity of VDR is disturbed
- Alarm when one or more microphones are defect
- Alarm when the electric current is interrupted

### **6.1.2 Competence for VDR- Recordings**

According to § 15,1 SUG and in combination with § 11,1 No 3 FIUUG, investigators and the personnel in charge of BSU are permitted immediate access to all kinds of recordings from the ship and the maritime traffic security services, to take possession of these and to make full use of them. Insofar Article 13 GG (inviolability of the residence) is limited.

Based on this the VDR-data had been evaluated in sound and vision. No clarifying knowledge could be gained from a translation of the conversation between the pilots and the PSPC. The following record of the bridge-conversations confirms the aforementioned statements.

### 6.1.3 Audio-Protocol of the Collision HONGKONG EXPRESS / SARAH GLORY

VDR, CMS HONGKONG EXPRESS

SG = TMS SARAH GLORY  
 PC = Port Control (Port Said)  
 HE = CMS HONGKONG EXPRESS  
 RC = MV Red Caution  
 Cap = Captain  
 SO = Officer at watch  
 P = Pilot  
 Time = UTC as shown on the Radarscreen

20:56:27 SG: Port Control – SARAH GLORY  
 PC: SARAH GLORY  
 SG: Could you let me know – as No. 5 – which is No. 4.  
 There's one coming in from the north – going ahead of us  
 or coming in behind  
 PC: Proceed to buoy 165, then to 150 and increase the speed  
 to 8 kn.  
 SG: What was that? We're currently at 7 going up to 8. And will  
 continue outwards.

20:57:26 PC: Port Control Sarah ... on bridge  
 SG: Go ahead.  
 PC: By the way I think 215 now  
 ?? Increase the speed . ...bridge

20:59:12 PC: SARAH GLORY, SARAH GLORY, Port Control.  
 SG: SARAH GLORY, go ahead.  
 PC: Increase the speed more and ready for combination ladder  
 starboard no port side port side combination.  
 SG: Port Control SARAH GLORY. Increase the speed, how  
 much do you require: 9, 10 knots?

20:59:56 PC: 9 knots is enough.  
 SG: 9 knots is enough.  
 PC: Combination?  
 PC: Combination Ladder Roger

21:00:11 SG: Arranged Combination on port side.  
 PC: Combination port side.  
 HE: Hard to port  
 HE: Mid ship  
 HE: Hard to starboard.

21:00:57 PC: Red Caution come in please.  
 RC: Port Control Red Caution, come in please.  
 PC: Red Caution ETA on anchorage 0015  
 RC: We are anchored, we are waiting for southbound....

21:01:56 HE: Port control HE.

PC: Port beam ... channel here, No. 3 coming now from your port beam, port position into view, stop completely.  
 HE: OK, stop.  
 PC: *Starboard 133*  
 21:03:57 PC: HE are you stopped now?  
 HE: We have stopped now but we are a big ship.  
 ... Yes we have stopped now.  
 21:08:12 HE: 194  
 21:09:11 ?? 198  
 PC Combination port side.  
 21:09:26 PC SARAH GLORY. SARAH GLORY, Port Control.  
 SG Port Control, SARAH GLORY.  
 21:09:56 SG Stopped now – waiting for pilot  
 21:11:41 SG Port Control SARAH GLORY  
 SG Port Control SARAH GLORY. We're told to stop.  
 We're still doing 11 kn. We're waiting for pilot.  
 21:12:10 PC Captain, don't enter the channel, until container vessel No.4 passed you, she's coming from port of you, you can see her on your port side.  
 SG: She is passing ahead now. She is approaching the channel.  
 PC: Wait outside.  
 21:12:26 PC: Do not enter the channel. Wait outside please.  
 SG Copy that. We do not enter the channel. Stop outside until we have the pilot on board  
 21:12:57 PC HE, HE, Port Control  
 HE Port Control, this is HE, please go ahead.  
 PC Pilot on board now?  
 HE No, not yet, not yet!  
 PC Please increase the speed a little bit, pilot will be with you, pilot is boarding, try to find buoy No. 165, repeat it again.  
 21:13:27 HE Yes, we increase the speed  
 21:13:42 PC Speed up please, please repeat, full speed.  
 21:14:10 HE(so) Pilot on board  
 HE(cap) Pilot on board  
 HE (so) Heading 203  
 HE(cap) Yes, that's correct.  
 21:14:56 PC HE, increase your speed please.  
 HE Yes, we increase our speed.  
 HE You can tell him, we go now to increase our speed  
 HE Port Control, we increase the speed now  
 21:15:11 HE(cap) 200  
 HE 200  
 21:15:42 PC HE, HE, PC calling.  
 HE PC, HE  
 PC HE, here is PC  
 HE(so) Yes, PC, HE  
 PC What's your speed now?  
 21:15:57 HE Speed is 8 kn.



HE Speed is 8 kn, over  
 PC OK, increase the speed 14.  
 HE OK.  
 PC After pilot on board hold your speed and full speed.  
 21:16:12 HE After pilot on board increase the speed to full speed.  
 HE Yes, pilot on board, we increase.  
 PC Pilot on board now?  
 HE Yes, he's on board.  
 HE Yes, he's on board.  
 PC Please increase speed full.  
 21:16:26 HE Yes, we increase speed.  
 HE Yes, it's full speed already. Over.  
 21:17:11 ?? You are the captain. ... Hello. You are the captain, Now  
 the engine is half ahead.  
 SG Port Control, SG.  
 HE Our course is 200, setting ??, and she have to wait for us.  
 SG There's a ship in the channel coming from north on our  
 port side, is he now approaching?  
 PC Yes, she's approaching, she's No. 4  
 21:17:26 SG OK, slow down as much as we can, if she's speeding up  
 we should be OK.  
 PC OK captain, don't enter the channel until the container  
 passed you, ok?  
 21:21:38 SG ... (*inaudible*)  
 HE You'd like to have channel 1-2.  
 21:18:12 HE(P) OK, OK, captain full ahead please.  
 HE(cap) We have full ahead.  
 HE (cap) We have 60 revolutions. You can't stop this ship, it is a big  
 ship with 120,000 tonnes.  
 HE(P) She will turn now outside, OK.  
 HE(cap) Pardon?  
 21:18:27 HE(P) She will turn outside.  
 HE(cap) Which one?  
 HE (P) This supertanker.  
 HE(cap) OK, then he haven't turned. That's his problem.  
 21:18:56 HE(P) Where is the speed over ground captain?  
 HE(cap) You can see the speed over ground here, 11.2.  
 HE(P) That is slow speed?  
 HE(so) 11.2  
 21:19:11 HE(cap) ... stop again, we are a big ship!! (*inaudible*)  
 HE(P) We want 195.  
 HE(so) 195  
 21:19:56 HE(P) OK, channel 1-2 please captain.  
 HE(so) 1-2  
 21:20:12 HE(cap) What are they doing there!!  
 HE(P) OK, stop engine captain!  
 HE(cap) Stop!  
 HE(P) What's the draft captain?  
 HE(so) 13.9

	HE(cap)	13.9
	HE(P)	Hard to port!
	HE(cap)	Hard to port!!!
	HE(so)	Hard to port!
	HE(P)	Where is ...
21:20:26	HE(cap)	He's crazy!
	HE(P)	Stop engine captain.
	HE(cap)	Is stopped.
	HE(P)	Full astern.
21:20:42	HE(cap)	Full astern.
	HE(P)	Full astern.
	HE(P)	What's about the bow thruster captain?
	HE(cap)	He's going to port.
	HE(P)	OK.
21:21:26	HE(P)	Full astern captain.
	HE(so)	Full astern.
21:21:41	HE(P)	Full astern please.
	HE(cap)	Full astern, we try it!
21:21:56	HE(so)	Chief mate
	HE(P)	Chief mate, come in.
	HE(so)	Shit!
	HE(cap)	We have collision!
	HE	Chief mate come in.
21:22:26	HE(so)	23
	HE(P)	What about the engine now captain?
	HE(cap)	Come in chief, come in chief.
	HE(so)	We have collision already, starboard side.
21:22:42	HE(P)	OK, captain, stop engine.
	HE(cap)	Stop engine.
21:22:57	HE(cap)	Chief come in!
	HE(P)	Hard to port!
	HE(so)	Hard to port.
21:23:27	HE	Stop engine captain.
	HE(cap)	Yes, is stopped.
	HE	Engine stopped pilot.
21:23:41	HE(so)	Now hard to port,
	HE(P)	OK, mid ship.
21:23:56	HE(P)	Slow ahead.
	HE(cap)	Yes, slow ahead.
21:24:11	HE(P)	Mid ship.
	HE(so)	Mid ship.
	HE(P)	Stop engine.
	HE(so)	Stop engine.
	HE(P)	Hard to starboard.
	HE(so)	Hard to starboard.
21:24:57	HE(P)	What is speed now?
	HE(so)	Our speed is 7.6
	HE(P)	Stop now captain.
21:25:12	HE(so)	<i>Hard to starboard.</i>

	HE(P)	Channel 1-2
21:25:42	HE(cap)	We drop the anchor.
	HE(cap)	We will drop the anchor <i>starboard</i> at once.
	HE(P)	What about the ( <i>inaudible</i> )
21:26:11	HE(cap)	We have a look, OK.
	HE(P)	Engine stopped?
	HE(cap)	Yes, engine stopped but we ....
	HE(P)	How many knots?
	HE(cap)	We have 6 kn.
21:26:26	HE(P)	Full astern!
	HE(so)	Full astern!
21:27:11	HE(?)	(deutsch:) Ich gehe die Backbord Seite nach vorn. (German:) I am now going the portside forward.
21:27:27	HE(cap)	Switch on the light.
21:27:42	HE(cap)	We have damage on our starboard side but we have to check....
		We have to drop the anchor, I think. Yes, we have damage.
	HE(P)	Bow thruster full to starboard, captain.
	HE(so)	Bow to starboard.
21:28:27	HE(so)	Engine is astern. Bow thruster is full to starboard.
	HE(cap)	Where we drop anchor?
21:28:41	HE(cap)	Pilot, this vessel should not have anchor on the traffic way.
	??	HE, HE, come pilot please.
21:28:56	HE(cap)	Captain. Pilot.
	HE(P)	Yes.
	HE(P)	What's up captain?
21:29:26	HE(P)	Captain, your boat was anchored. You have damage mid ship.
	HE	We haven't checked that.
	HE(P)	You'd better check quickly – If we can catch ...
21:29:57	HE(cap)	Let's go to the anchorage and then we check.
21:30:27	HE(P)	Bowthruster go to starboard.
	HE(cap)	Yes, bow thruster is going to starboard.
	HE(so)	Engine is still astern.
21:31:11	HE(cap)	We go to anchorage and check the damage.

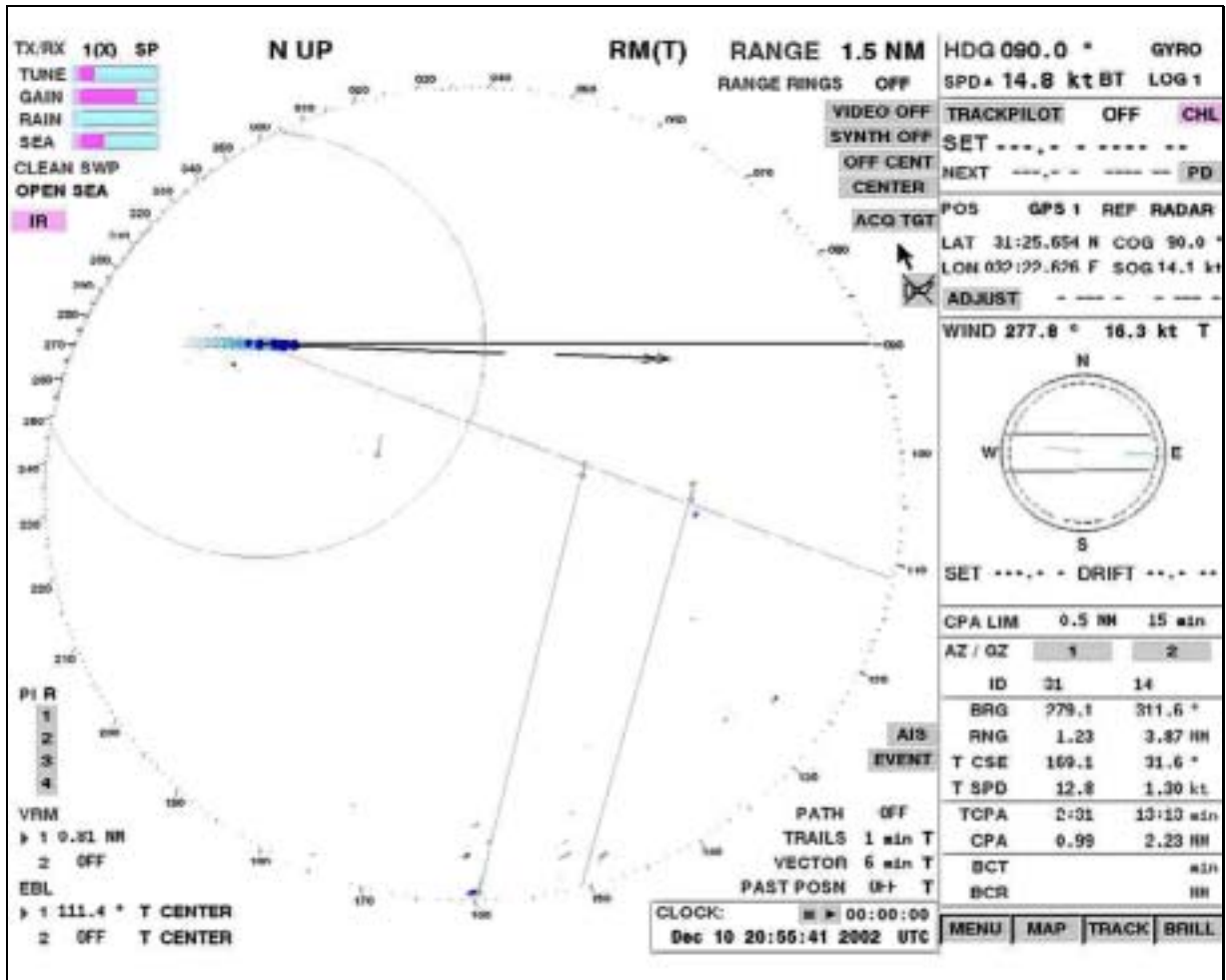
**The entire audio record was processed by two English and two Egyptian interpreters.**

**Due to the poor tone quality attributable to technical conditions, however, it cannot be ruled out that within the scope of writing up the VDR deviations from the actual communication (choice of words) might have occurred. However, it is ensured that the content of the radio traffic has been reproduced correctly.**

### 6.1.4 Radar data

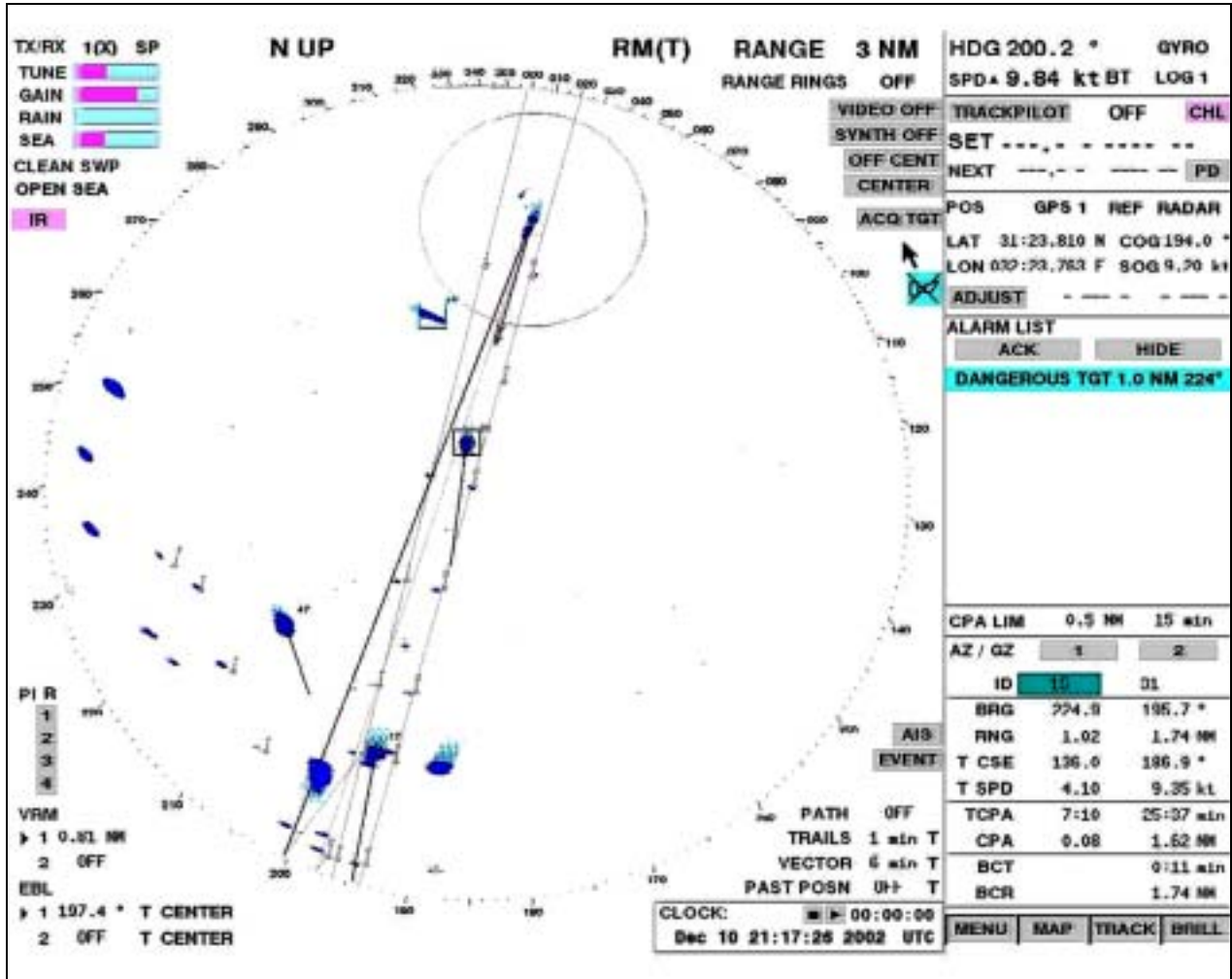
For clarification additionally the following relevant display details were extracted from the radar data:

The radar display of the CMV HONGKONG EXPRESS at 22.55 Uhr LT:



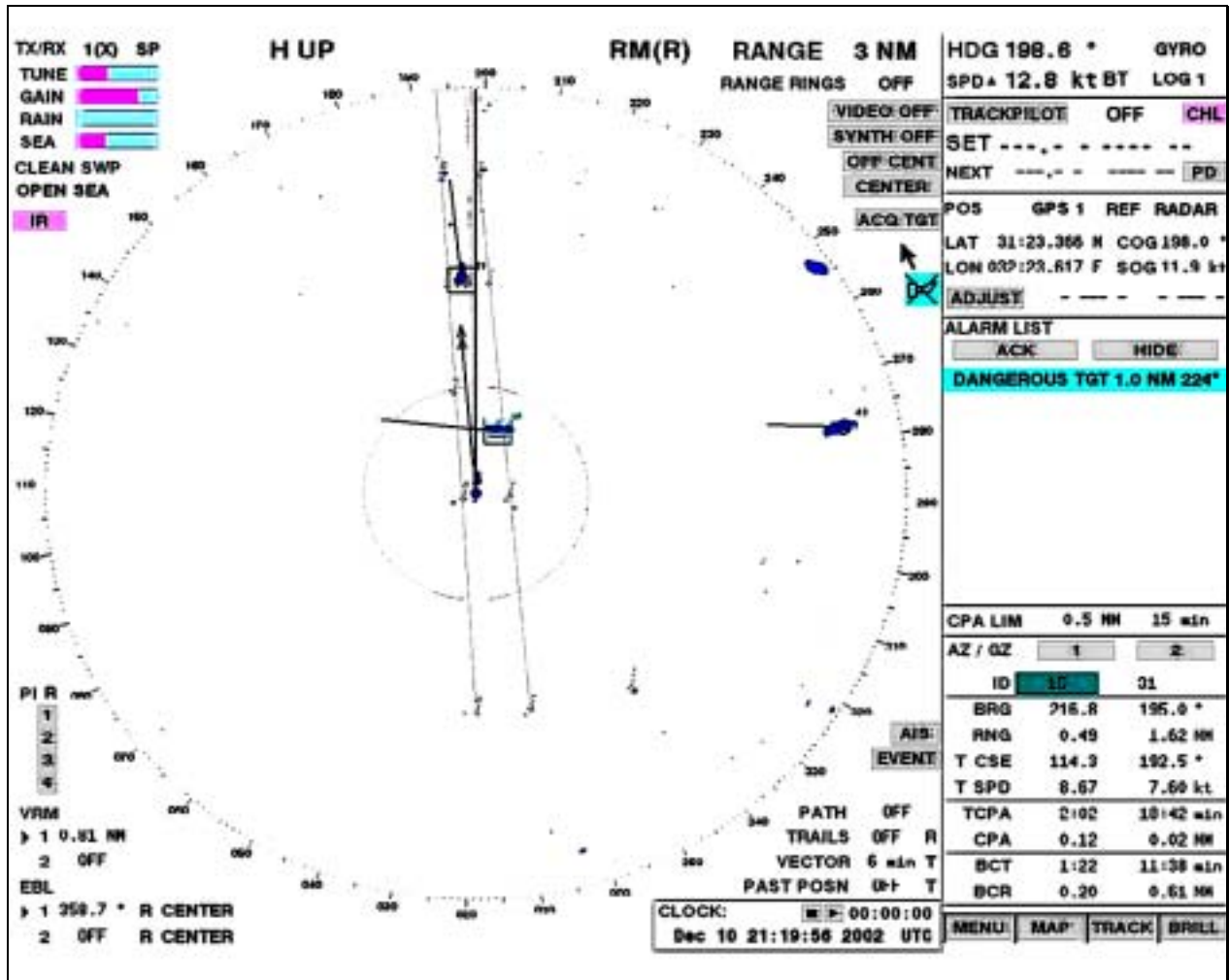
**Picture 16: Radarplot 1**

The Radar display of the CMV HONGKONG EXPRESS at 23.17 Lt.:



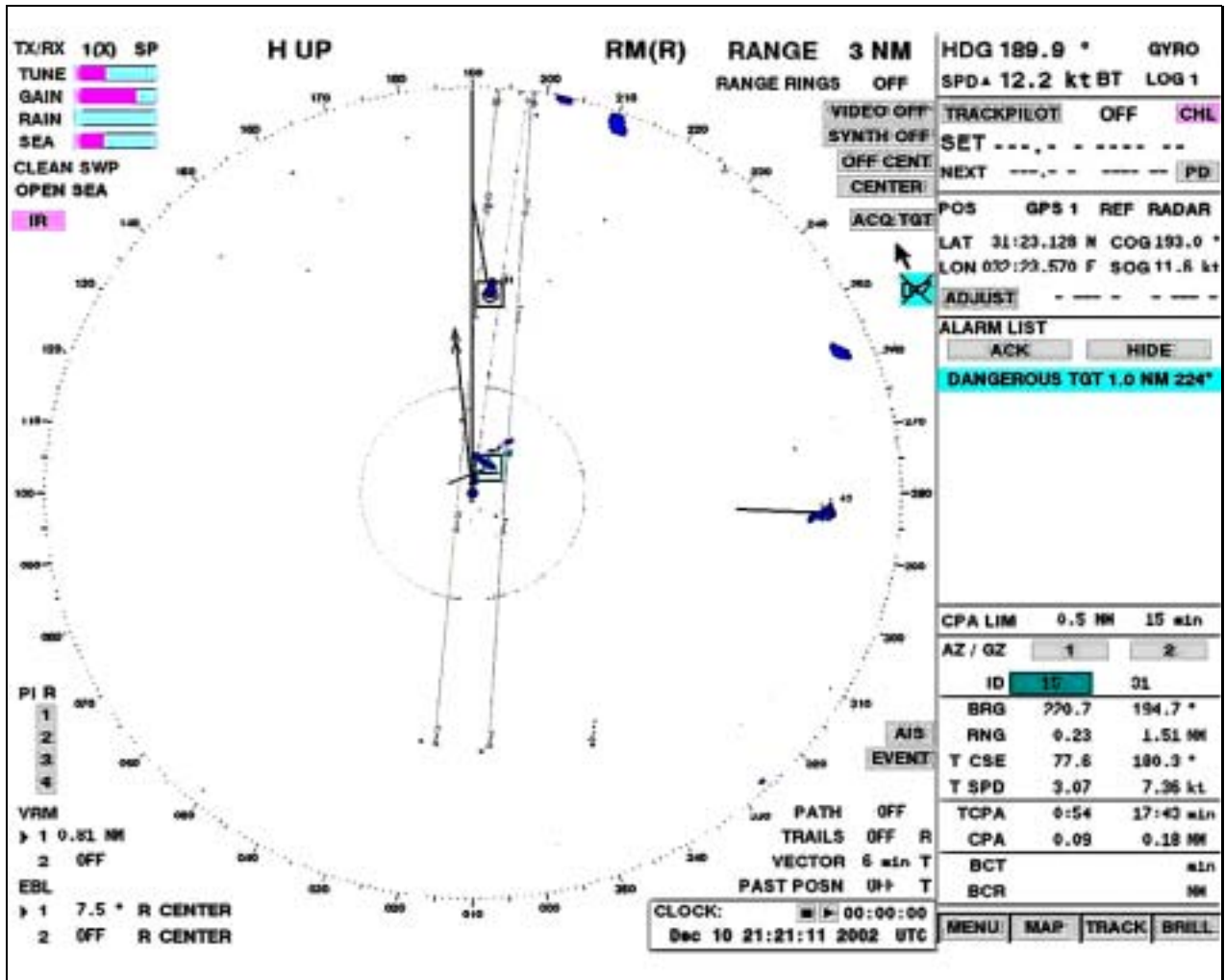
Picture 17: Radarplot 2

The Radar display of the CMV HONGKONG EXPRESS at 23.20 Uhr LT:



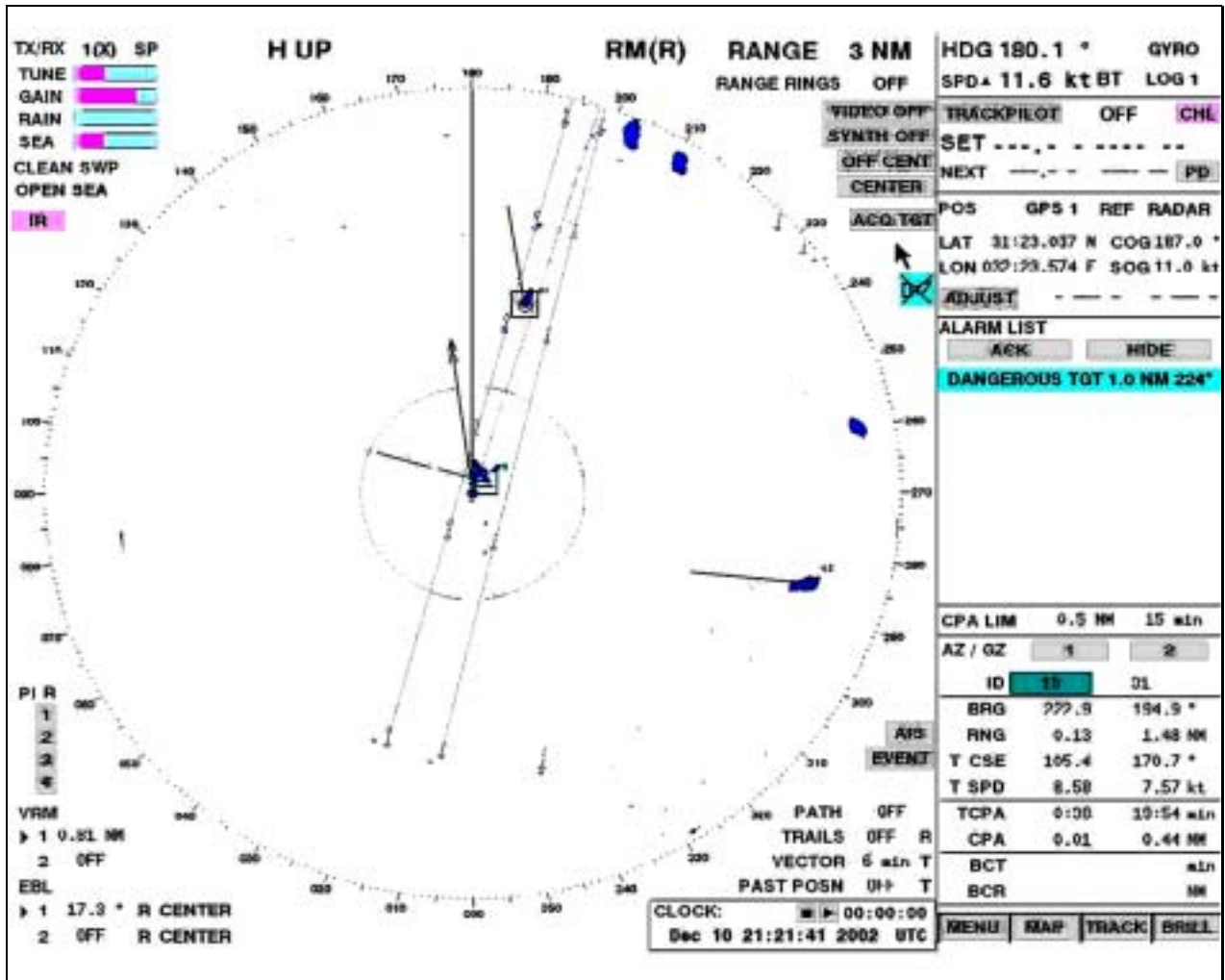
Picture 18: Radarplot 3

The Radar display of the CMV HONGKONG EXPRESS at 23.21 Uhr LT:



Picture 19: Radarplot 4

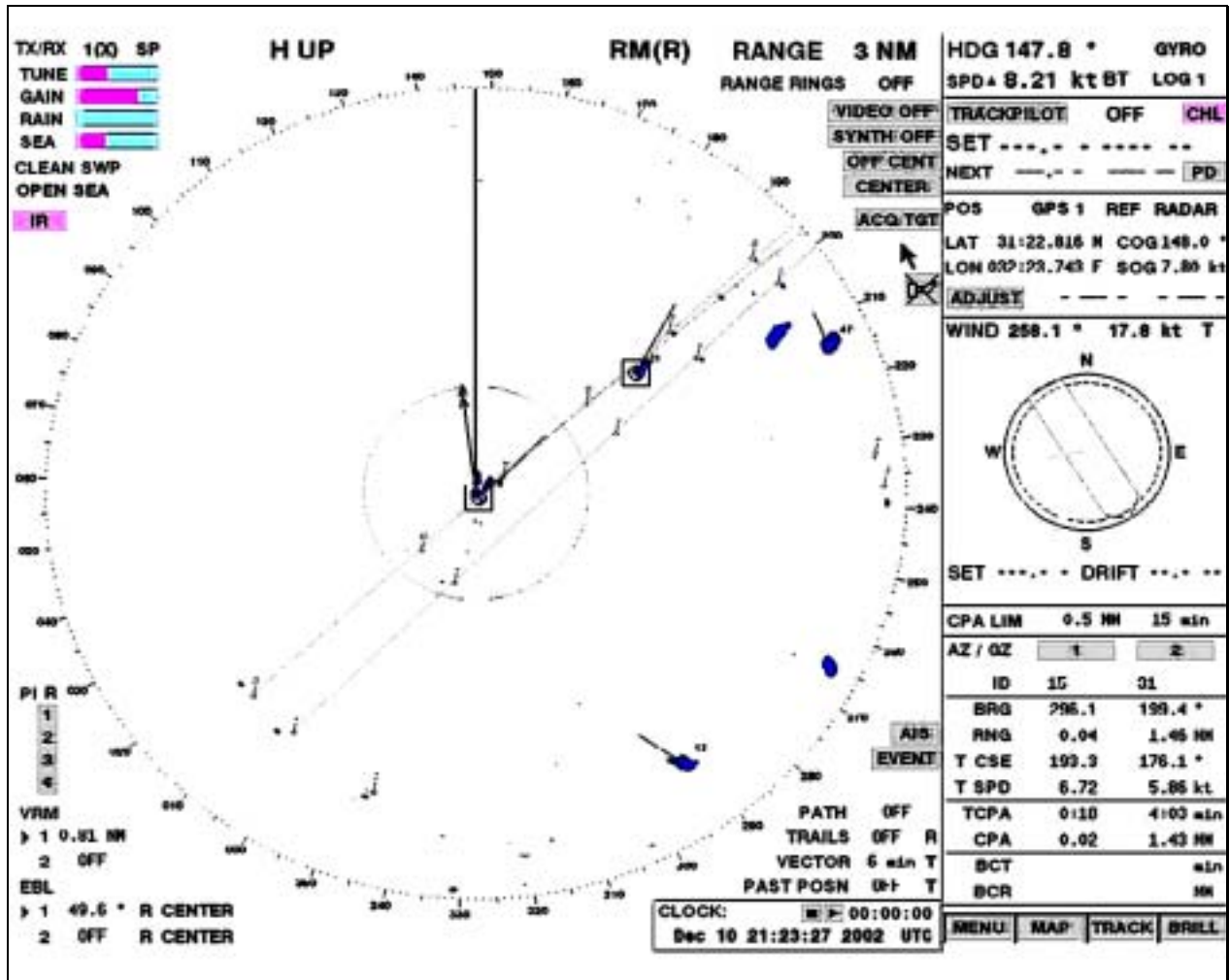
The Radar display of the CMV HONGKONG EXPRESS at 23.22 Uhr LT:



Picture 20: Radarplot 5



The Radar display of the CMV HONGKONG EXPRESS at 23.23 Uhr LT:



Picture 21: Radarplot 6

## 6.2 Meteorological situation

Visibility was good with more than 20 nm. Wind was northwest (abt 280°) 5-5 Bft. with moderate to low swell.

## 6.3 Crew

CMV HONGKONG EXPRESS was manned with a crew of 27.

The captain first went to sea in 1973. In 1982 he received the master's licence for foreign trade/STCW and he served the whole time on different ships of Hapag-Lloyd. 1997 he was appointed captain. On his trips as officer and as captain he regularly passed the Suez Canal and was familiar with the rules of the canal. Before he took over the newbuilding in November 2002, he joined a special Shiphandling course in Hamburg to become familiar with the manoeuvring characteristics of the ship.

The TMV SARAH GLORY also had a crew of 27.

The captain first went to sea in 1971 with Texaco as a sea cadet. In 1989 he received the master's licence Class 1, still in service with Texaco. In 1995 he left Texaco after 23 years of service, joined Ermis Maritime, and served four years as master on tankers. In 2000 he joined Northern Marine Management, Clydebank, the managers of TMV SARAH GLORY, and was appointed master of the VLCC STENA COMMODORE. On this ship he remained for two service periods and went on board TMV SARAH GLORY afterwards, in July 2001. In October 2002 he signed on the ship for his second service period in Barbados.

The captain has spent his entire career as a seaman on tankers of different sizes. He passed the Suez Canal several times as a nautical officer and three times as captain.

## 7 Analysis

### 7.1 Approach to the Suez Canal

The fairway is divided between buoys „HM95“ and „HM83“ and has a nominal water depth of 21.5 metres. Outside the fairway, nearly up to buoy „HM120“, both vessels had enough water depth for manoeuvring except west of the collision location where abeam to buoy „HM150“ there is a spot with a lesser water depth of 13.3 metres. The region of approach is not marked as vessel separation zone and - as far as is known - there are no regional traffic rules which must be followed. As shown in several excerpts from the „Canal Regulations“, listed in the appendix, the captain is responsible for the ship, and the pilots and the Vessel Traffic System (VTS) have only consultative status. This means that in this case the International Regulations for preventing Collisions at Sea (COLREG) - except rule 10 - are applicable.

### 7.2 Juristical assessment of the term „fairway“

CMV HONGKONG EXPRESS entered the marked fairway at 23.00 hrs Localtime at buoy „HM195“ and followed this until the collision with TMV SARAH GLORY. One basic question in this marine casualty is if this buoyed fairway is a „narrow fairway“ according to rule 9 COLREG. BSU believes that this is not the case in the region of the approach up to buoy „HM135“ southern of the collision position. Here BSU follows a leading decision of „Bundesoberseeamt“ (Federal Appeal Board for Maritime Investigation) of December 12, 1990 (collision of MV ACHAT and FGMS OSLO-FJORD on July 3, 1989, in the Oslo Fjord - Az 9/10 - published in BOSeeAE 8/91 p. 321 ff). This decision denies the „subjective“ understanding of the term „narrow fairway“ which makes the judgement in the concrete case under inclusion of navigational aspects dependent on the ship's navigation or on the ship's size (BOSeeA p. 328 in the place cited). Thus the „objective“ understanding of „narrow fairway“ is to be applied i.e. narrowing factors, mainly natural barriers and shoals - derived from the geographical situation - have to be of prime importance for the definition of this term (BOSeeA p. 328 ff.).

Finally the narrowness of a fairway is explained by the fact that a ship has no possibility to carry out manoeuvres to port or to starboard without problems because of the restricted space. Since the buoys are laid out in a distance of around one nautical mile and outside the fairway there were no obstructions regarding the water depth for CMV HONGKONG EXPRESS, this vessel did not sail in a „narrow fairway“ according to rule 9 COLREG.

### 7.3 Assessment of the collision situation

From the previous remarks it is evident that basically Rules 6, 7, 8, 15, 16, 17 and 18 of the Collision Prevention Rules are to be applied to the subject collision situation. In addition, however, the following circumstances are to be taken into account too.

The vessel's command and the advising pilot on board CMV HONGKONG EXPRESS had received the clear and distinct recommendation from PSPC to increase the rate of speed and take up their place in the convoy ahead of MT SARAH GLORY, while this latter vessel was to wait outside the navigation channel and take a pilot on board. The Master of MT SARAH GLORY also acknowledged this several times.

According to the principle of trust and confidence developed by court findings that is fundamentally applied in ocean traffic too, each traffic participant who behaves properly may rely on the fact that other traffic participants also behave properly and base his own behaviour on this. He is thus not obliged to operate so defensively that he can encounter every aspect of traffic-endangering behaviour by another participant in such a way that an accident can be avoided. At any rate this holds true as long as there are no clearly evident counter-indications that a danger situation is building up. Transferred to the command of CMV HONGKONG EXPRESS, this means that it could initially rely on the command of MT SARAH GLORY behaving as recommended by PSPC, and in turn initiate the measures recommended by PSPC and the pilot on board to steer for the Canal.

However, the same considerations also apply initially for the command of MT SARAH GLORY as regards making for the pilot station at buoy "HM150". It must also be credited to the command of SARAH GLORY that on the basis of many years of experience and routine it is fundamentally possible to trust the instructions of PSPC, and that measures extending beyond these or even contrary to them are not generally indicated. The latter also applies above all against the background that the other traffic participants too should and must be able to assume that the vessel instructed by PSPC does exactly what it is told to do.

The Master's statement that his Chief Mate received a VHF call from PSPC at 23:10 h ordering him to proceed to the pilot station at top speed cannot be validated by the audio record or by the radar display of the VDR either, however, (see p. 13).

On the contrary, according to the sound record MT SARAH GLORY was instructed to stop and wait for the pilot at 23:10 h. This was distinctly confirmed by SARAH GLORY. According to the VDR, SARAH GLORY was travelling at a speed of 12 kn at this moment. This speed was then reduced further and further up to the collision.

At the time MT SARAH GLORY was requested to stop her engines and wait, however, it should have been clear to the vessel's command that at a distance of 1.5 nm from the navigable channel the ship could not remain outside the marked navigation channel without a resolute and drastic change of course and/or speed. Instead of taking these measures the Master initially claims that he tried to slow down his vessel by "fishtailing", a completely unusual manoeuvre for a bulk tanker.

However, CMV HONGKONG EXPRESS could no longer fundamentally invoke the principle of trust and confidence at the latest as of the time it became evident to the vessel's command with the aid of all the means available that MT SARAH GLORY was going to run into the navigation channel after all, contrary to her assurance. It should be noted, however, that the time now remaining for the command of CMV HONGKONG EXPRESS was very short, so that the last-minute manoeuvre was no longer able to prevent the collision.

In conclusion it can be said that according to the information available to the BSU the entire accident proceedings were actually triggered by the PSPC's coordination within the framework of making up the convoy, especially the connected instructions issued to the participating vessels to filter into the line. The accident was contingent on this, as well as on the fact that subsequently the principle of trust and confidence was adhered to uncritically for too long.

Although the BSU repeatedly requested the PSPC for clarification and even tried to contact the pilots directly, no information or documentation of any kind was made available to the BSU.

The German Embassy in Egypt, whose representative herself approached the PSPC frequently and vigorously, was also unable to move the Egyptian authorities to assist in investigating the causes of the maritime casualty.

In particular due to this lack of willingness by the Egyptian authorities to support the clarification of the causes of the accident, the Federal Bureau of Maritime Casualty Investigation has ultimately not been enabled to make a binding statement on the concrete extent to which the conduct of the two vessel commands and the pilot on board of CMV HONKONG EXPRESS was co-responsible for the entire accident proceedings in addition to the conduct of the PSPC.

As a supplement it should be mentioned that the cooperation with the aforementioned vessel operators was very fruitful.

The investigation was conducted in conformity with the law to improve safety of shipping by investigating marine casualties and other incidents (Maritime Safety Investigation Law - SUG) of 24 June 2002. According to this the sole objective of the investigation is to prevent future accidents and malfunctions.

**The investigation does not serve to ascertain fault, liability or claims.**

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## Appendix: Suez-Canal-Regulations

### GENERALITIES of the Suez Canal Authority

#### Art.1 - Transit through the Suez Canal

- (1) Transit through the SC is open to vessels of all nations subject to their complying with the conditions stated in the present Rules of Navigation. All references and circulars which shall be issued by the SCA will constitute an integral part of these rules. Vessels also have to comply with the provisions of the International Regulations for SOLAS and its amendments, MARPOL 73/78, as well as the provisions of the International Regulations for Preventing Collisions at Sea and all laws, orders, and regulations issued by the Egyptian Government.
- (2) The SCA reserves the right to refuse access to the Canal waters , or order the towage or convoying of vessels considered dangerous or troublesome to navigation in the Canal .
- (3) By the sole fact of using the Canal waters, masters and owners of vessels bind themselves to accept all the conditions of the present Rules of Navigation, with which they acknowledge being acquainted, to conform with these conditions in every respect, to comply with any requisition made with a view to their being duly carried out, and to adhere to CA private Code of Signals as shown in Part III of these Rules.

#### Art. 4 - Responsibilities:

- (1) When on Canal waters or at its ports or roads, any vessel or floating structure of any description are **responsible for any damage** and consequential loss she may cause either directly or indirectly to herself or to CA properties or personnel or to third party.
- (2) The vessels' or floating structures' owners and/or operators are responsible without option to release themselves from responsibility by limited liability.
- (3) The words (owners and/or operators) for the purpose of the present article, shall be considered to mean person/persons or corporate body responsible for the vessel at the time of navigational accident or incident.
- (4) Moreover, the vessel guarantees to indemnify the CA in respect of any claim against the latter by reason of any damage, whatsoever she may cause either directly or indirectly to third party.
- (5) The vessel waives the right to claim the SCA for any damages caused by third party that she may sustain while on Canal Waters.

## Navigation:

Southbound vessels :

The maximum draught authorized for southbound vessels is limited to 42 feet on condition to comply with the tables of p. 72 giving the maximum draught according to the vessel's beam.

- i - VLCC's in ballast or partially loaded, 4th Generation Containerships and 3rd Generation containerships, LASH over 35.000 SC.G.T,L.P.G & L.N.G.(Loaded or N.G.F) and vessels having a draught of more than 42 feet and up to 56 feet maximum, have to use the east approach channel, Course : 194 degree. The said vessels enter the channel between FL.GR. buoys of Hm. 165 and Hm. 135.
- ii - All other vessels, transiting the Canal or berthing at Port Said, have to enter through the west approach channel. Course : 180 degree from the entrance, passing between the west green buoys and the east yellow buoys till Hm. 80, then alter course to 217.5 degree passing between green and red buoys, till Port Said Harbour. A fixed red light on a pylon on the North Quay of Abbas Basin in line with an occulting red Light on a pylon West of the Fuel Oil Tanks at Raswa, indicates the axis of the entrance channel to the harbour.

## Pilotage - General:

All vessels entering or leaving Canal Waters, must take a pilot (Pilotage is compulsory ). However, the SCA reserves the right to assign a tug master on board vessels under 1 500 tons Gross, and under 800 tons Gross a coxswain, instead of a pilot.

Navy ships and vessels carrying dangerous cargo must have a pilot regardless of their tonnage.

Roads pilots on board vessels arriving from sea shall hand over to the Master, the Declaration of State of Navigability and the Pilotage Form.

**Masters are held solely responsible for all damage or accidents of whatever kind resulting from the navigation or handling of their vessels directly or indirectly by day or night.**

The pilot must inform the Movement Control Office or the Port Office immediately by W/T, R. TELEX , Inmarsat and/or V.H.F. or U.H.F. if his advice regarding the safety of navigation is not accepted or not respected by the vessel.