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**REPORT OF THE
INVESTIGATION INTO AN
INCIDENT
INVOLVING THE GROUNDING
OF THE OIL TANKER
“BRO TRAVELLER”
ON 17th SEPTEMBER 2005**

REPORT No. MCIB/117



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1. SYNOPSIS

- 1.1 At 07.36 hours (local time) on 17th September 2005 a Swedish registered tanker of 7,973 gross tonnes with a cargo of 11,000 metric tonnes of gas oil inbound from Milford Haven/Pembroke to Dublin Oil Jetty No.2 grounded approximately 0.3 cables (180 feet) outside the northerly defined fairway channel in Dublin bay and 2.78 cables (1,700 feet) west of No. 3 conical lateral (starboard hand) buoy. There was no damage or injuries to personnel and the vessel was re-floated an hour later at 08.35 hours without tug assistance. The hull remained intact with paint scrape to hull plating in area of grounding. There was no loss of cargo or bunkers. The wind at the time of grounding was west northwest at 12 knots (force 4) gusting 15 knots (force 4) with a flood tide setting in a northerly direction. The visibility was bright and clear and the channel was clear of outward traffic. The ship had a warranted pilot on board at the time of grounding. Refer to Appendix 1 and Appendix 2 for abstracts of Admiralty Charts 1415 and 1447 respectively.

2. FACTUAL INFORMATION

2.1 Description of the ship

Name:	Bro Traveller
Flag	Sweden
Call Sign:	SMJH
Port of Registry	Gothenburg
Type of ship	Oil/Chemical Tanker
Built	1988
Company	Brostrom Ship Management, Skarhamn, Sweden
IMO No.	8705321
Gross Tonnage	7,973
Net Tonnage	5,309
Deadweight Summer	14,371
Draft summer	9.03 metres
Length	143 metres
Beam	18 metres
Bowthruster	600 Hp / 441 Kw
Rudder	Becker
Propeller	Left handed controlled pitch propeller (CPP)
Engine power	3,663 Kw
Speed (full sea) loaded	12.5 knots
Slow Speed Loaded	6.1 knots

2.2 Navigation equipment on board “Bro Traveller”

The ship was equipped in accordance with Safety of Life at Sea (SOLAS) Chapter V Carriage requirements for ship borne navigational systems and equipment.

Navigational systems and equipment were operating and available including 3cm and 10 cm radars and Automatic Radar Plotting Aid (ARPA), Doppler speed logs for ground speed and water speed, rudder and revolution/pitch indicators, rate of turn and compass and satellite positioning system, telegraphs to engine and pitch controls are operated from the bridge and steering gear had two motors operating.

Paper charts and nautical publications covering the trading area were on board and corrected to the weekly Admiralty Notices to Mariners.

The onboard graphic record of the vessel’s course and rudder angle was not functioning correctly at the time of the incident and is not a Carriage requirement. EU Legislation requires this type of ship to be fitted with a Voyage Data Recorder (VDR) (S-VDR) by 1st July 2007, that will include inter alia course and rudder angle recorder.

2.3 Passage/Voyage Planning.

The ship had the relevant Voyage Planning documents:-

Voy Form 1 for Coastal/Harbour Passage (Dublin Pilot to Dublin Oil Berth) prepared 15th September. Refer to Appendix 3 for copy of the Dublin Pilot to Dublin Oil Berth Voyage Planning document.

2.4 Manning and Certification of Personnel

The ship was manned in accordance with the requirements of the Swedish Safe Manning Document. The ship had on board 14 crew (Master, chief officer, second officer, third officer, chief and first engineers, Bosun and three deck ratings, motorman, cook and messman and a deck cadet). In addition to the ship's manning a warranted pilot provided by Dublin Port Company was on board for inward passage to Oil Jetty No. 2. Refer to Appendix 4 for Officer's qualifications and experience matrix.

The personnel on board "Bro Traveller" referred to in the report are the master, third officer as watchkeeping officer, second officer as the navigating officer and a DPC warranted pilot.

The master is a 57-year-old Swedish national and holds a certificate of competency as "master unlimited" issued by the Swedish Maritime Authority in accordance with STCW 78/95 (International Convention on Standards of Training, Certification and Watch keeping) as amended. He has a dangerous cargo endorsement for oil and chemical liquid bulk cargoes with 39 years spent with the operator Brostrom and 8 years in the rank of master. He has 12 years experience on this type of tanker and was two months on board "Bro Traveller" prior to this incident. This was his second visit to Dublin on "Bro Traveller". His standard of English was good and readily understandable. He was interviewed on Saturday 17th September 2005 and again during Sunday 18th September 2005 about this incident.

The third officer (watchkeeping officer) is a 49-year-old Filipino national with a certificate of competency as an officer in charge of a navigational watch, O.O.W., with the appropriate oil and chemical endorsements and a flag endorsement recognising his professional qualifications. His standard of English was good and readily understandable. He was interviewed regarding this incident on the 17th and 18th September 2005.

The second officer is a 46-year-old Filipino national and was the designated navigating officer who held all appropriate certificates with endorsements from flag and was off duty at the time of the incident and the period leading up to same. His standard of English was good and readily understandable.

He was first interviewed regarding the incident on Sunday 18th September 2005.

The pilot is a 63-year-old Irish national employed by Dublin Port Company. He obtained a Master Home Trade certificate of competency in December 1967. This certificate has not been revalidated.

Prior to joining Dublin Pilot Service in November 1978 the Pilot had been Master on the short sea trade and was appointed a 1st Class Pilot in 1980. The Pilot attended for interview at MCIB offices on Tuesday 27th September 2005.

2.5 Status of Convention and ISM Certification.

All Convention Certificates and International Safe Management (ISM) Certificates (SMC) and Document of Compliance (DOC) were valid.

3. EVENTS PRIOR TO THE INCIDENT

3.1 Passage from Milford Haven Texaco Berth to boarding Dublin pilot

The “Bro Traveller” was on a voyage charter with Chevron Texaco, London and departed Milford Haven/Pembroke Texaco berth at 19.15 hours on Friday the 16th September 2005 with a cargo of 11,000 metric tonnes of gas oil bound for Dublin. The departure draft was 7.95 metres forward and 8.10 metres aft.

Sea watches were set and the sea passage up the Irish Sea commenced at 20.00 hours on Friday 16th September 2005. The master had Master’s Standing Orders in place with supplementary night orders. At 03.50 hours on Saturday 17th the third officer attended the bridge and took over the watch from the second officer. The watch keeping ratings also changed watches as the lookouts. The ship was still on sea passage up the Irish Sea towards Dublin with instructions from the master to adjust speed for arrival at Dublin pilot station at 06.00 hours on Saturday morning 17th September 2005. The third officer carried out navigational duties that included applying a technique referred to as Parallel Indexing (PI).

At 04.00 hours the third officer called Dublin Port Radio (DPR) on VHF channel 12 in accordance with the master’s night orders and Admiralty List of Radio Signals, (ALRS Volume 6(1) for vessels inward bound). Dublin port Vessel Traffic Service (VTS) acknowledged the position report and advised that the tidal window for “Bro Traveller” was open at 07.15 hours.

At 04.50 hours the master came to the bridge and at 06.55 hours formally took over the conning from the third officer with ship on automatic steering as it entered the north Traffic Separation Scheme (TSS) and at inward report position Charlie. Course was 2400 at an estimated speed over the ground of 6.8 knots.

3.2 Passage from boarding pilot to ship grounding.

At 07.05 hours DPR/VTS confirmed to “Nordzee” that “Bro Traveller” would be the first ship to receive a pilot. “Nordzee” was an inbound feeder container ship due to berth at Ocean Terminal which would follow the “Bro Traveller” in.

At approximately 07.06 hours the pilot boat proceeded from the pilot shore station with two duty pilots on board towards the intended pilot boarding area for “Bro Traveller” close to the north and west of Dublin Bay buoy and further east for “Nordzee”. On the way out the two pilots stated that they agreed subject to other traffic that the “Nordzee” would overtake the “Bro Traveller” when inside the Breakwater. This would allow “Nordzee” to proceed to Ocean terminal while “Bro Traveller” manoeuvred in order to berth at Oil Jetty No. 2.

Shortly before 07.20 hours the third officer went off the navigating bridge to

meet the pilot on the main deck and escort him back up to the bridge. The Master Pilot Exchange (MPX) was completed and the pilot took the conn on the automatic steering. The master requested the pilot to change out from automatic steering to manual steering.

At 07.25 hours “Bro Traveller” reported to Vessel Traffic Service (VTS) that the ship was at No. 1 buoy inwards and draft of 8.10 metres. The ship passed very close to No. 1 buoy at about 10 metres off. While the ship was setting down on the buoy the pilot stated that he was happy enough and well aware how close they were to the buoy. He did not want to come to port in order to avoid the ship’s quarter swinging onto No. 1 buoy. At the time the pilot who was steering the ship felt that they were clearing No.1 buoy nicely.

At 07.25 hours a tidal gauge situated at the end of North Wall was 1.48 metres and given to “Bro Traveller” by VTS as the height of water over a depth of 7.8 metres as indicated on Admiralty Chart No. 1447. The speed of “Bro Traveller” was set at “Slow” which is about 6/7 knots. It was approximately one hour after low water with a Spring Tide making. The pilot estimated that there was 1.2 metres of water under the keel and when taking into account the affect of squat this would leave 1 metre of water. The pilot’s preference is for 2 metres under the keel and therefore applied a slower speed than normal. Generally the pilot would expect to be doing 7 to 9 knots in the outer fairway because of the effect of the flood tide. The pilot had been on “Bro Traveller” on numerous occasions and was aware the ship had Becker rudder and variable pitch propeller. The master was conscious that the tide and ship was setting in a northerly direction and was under the impression that the slow speed was to allow “Nordzee” which was astern with another pilot to overtake in the channel before “Bro Traveller” arrived at the Breakwater Head. Please refer to Appendix 15 for times of tides.

As the “Bro Traveller” proceeded inbound the master was positioned close to the pilot while the third officer made a coffee for the pilot and then carried on with placing observed positions on the chart.

At 07.34 hours the pilot stated that the ship had passed close to No. 3 Buoy and he noticed the ship was setting rapidly to the north. The pilot had come off the helm and went out on the bridge wing to have a look. At the same time the third officer had placed a position on the chart which indicated that the ship was approximately 60 metres abeam of No. 3 buoy and in the Channel though well to the north of the course line drawn on the chart. From inspection of the VTS screen print outs it would appear that this position was inaccurate. The ship was in fact very close to No. 3 buoy. We refer to Appendix 5 for VTS radar video screen print outs of the movement of “Bro Traveller” in relation to the fairway channel and navigational marks as fixed on the VTS screen. Please refer also to Appendix 2.

4. THE INCIDENT

4.1 Grounding

At 07.36 hours the “Bro Traveller” grounded forward with a gentle shudder and stopped remaining well afloat aft in a Global Positioning System (GPS) position Latitude 53020.61’ North Longitude 006007.19’ West and observed position 2.78 cables west of No. 3 buoy and 0.3 cables north of the pecked line between No. 3 and No. 5 buoys on chart datum 63 metres. At the time of grounding the pilot was on the helm at the console of the wheelhouse with the master standing to the right of the pilot. The third mate declared that he was at the chart table transferring the position obtained at 07.34 hours on to a large-scale chart. The ship was aground heading in a westerly direction lying parallel to the dotted lines joining No. 3 and No. 5 buoys.

4.2 Period “Bro Traveller” was aground until float off.

The master maintains that he and the pilot had different views on how to re-float the ship. The pilot advised that they should go full ahead whereas the master, having considered the situation felt that, by going astern with the engines/controlled pitch propeller and using the bow thruster, the tide would push in on the port side resulting in the ship coming off stern first and into the channel.

At 07.37 hours the pilot on the “Nordzee” called the “Bro Traveller” as the “Nordzee” was at full speed of 12 knots and was gaining quickly on the “Bro Traveller”. The pilot on the “Bro Traveller” did not communicate with “Nordzee” immediately and said he would call back.

At 07.38 hours the “Bro Traveller” pilot called the “Nordzee” pilot on the VTS operational channel and requested that they go down to Channel 6. The pilot on “Bro Traveller” stated that channel 6 was selected to avoid general VHF discussion being overheard by other stations. He requested the “Nordzee” to slow down as she passed by.

At 07.40 hours approximately Dublin Port VTS operator observed from the VTS radar that the “Bro Traveller” was not making headway and was outside the channel. At first he thought that the “Bro Traveller” had reduced speed to allow the “Nordzee” to overtake but then discounted this as there was a flood tide.

At 07.45 hours the chief officer on board the “Bro Traveller” reported to the bridge after he had completed electronic tank gauge readings and established hull integrity. He relieved the master so that the master could engage in informing the various interested shore parties (commercial and operational) by

radio and telephone. There had been no immediate VHF contact between the “Bro Traveller” and Dublin VTS to report the grounding incident.

At 08.04 hours DPR advised the “Bro Traveller” the gauge reading was 1.99 metres.

At 08.06 hours DPR requested the “Bro Traveller” to go to channel 13. It is understood that during this communication the pilot informed DPR that the “Bro Traveller” was OK and would be off shortly but did not use the term “aground”. During the conversation VTS offered the assistance of tug(s) and said that the authorities would have to be informed. VTS stated that the pilot responded that “it would be alright in a minute”.

At 08.08 hours the “Bro Traveller” called DPR requesting one tug.

At 08.08/10 hours DPR called out duty tug skipper and then informed the duty harbour master (DHM) that the pilot of “Bro Traveller” said he would be “off in a few minutes” and that a tug had been requested. The DHM instructed VTS to call out the second tug crew who were also an hour away.

08.15 hours the Master of the “Bro Traveller” informed Chevron Texaco (charterers with voyage instruction requirement); and Irish Coast Guard via Dublin Port Radio (VTS station).

At 08.17 hours MRCC Dublin (Irish Coast Guard) received notification from Dublin Port that tanker “Bro Traveller” was aground west of No. 3 buoy and issued a situation report from Coastguard (SITREP) - no sign of ruptured tanks - 2 tugs proceeding.

At 08.22 hours the position on the chart of the “Bro Traveller” indicated that it had moved further to the west some 3.48 cables (2,100 feet) west of No. 3 buoy and marginally further north of the pecked line- 0.4 cable (240 feet). Please refer to Appendix 2 AC 1447.

5. EVENTS FOLLOWING THE INCIDENT

5.1 At 08.28 hours the “Bro Traveller” was afloat. It came off stern first and proceeded into the channel and deeper water.

At 08.30 hours DPR advises “Stena Adventurer” (a ship outbound) that the “Bro Traveller” appeared to be going astern.

At 08.31 hours the pilot on the “Bro Traveller” informs DPR that the ship was coming astern and moving out into the channel to No. 3 buoy. DPR advises the “Bro Traveller” that the gauge is reading 2.37 metres.

At 08.33 hours the GPS position on the “Bro Traveller” indicated that the ship was in the channel.

At 08.40 hours the “Bro Traveller” is inbound towards Oil Jetty No. 2.

At 09.25 hours the “Bro Traveller” is secure alongside Oil Jetty No. 2. Draught forward was 07.95 metres and aft 8.10 metres.

At 12.05 hours recognised organisation (R/O) acting for the flag state of Sweden advises that they will board with divers to inspect for hull damage.

At 14.00 hours the “Bro Traveller” is detained under Section 32 of the Merchant Shipping (Investigation of Marine Casualties) Act, 2000. It was released at 16.05 hours on Sunday 18th September 2005.

Following completion of discharge of cargo the “Bro Traveller” shifted berth to Ocean Pier on Sunday 18th September 2005. A port State control inspection was carried out with 5 deficiencies noted to the ship. Please refer to Report Form B in Appendix 6.

The recognised organisation (R/O) acting for the flag state of Sweden issued a statement of information indicating that no structural damage had been found and included an examination of rudder and propeller by divers. Please refer to Appendix 7.

6. FINDINGS/CONCLUSIONS

6.1 Immediate reasons leading to the grounding of “Bro Traveller”.

Neither master, pilot nor officer of the watch (OOW) were monitoring the ship’s track or echo sounder (water under the keel) prior to the grounding. The team individually or collectively were not sufficiently alert to the developing situation and did not take timely action to counter the effect of a northerly flood tide.

The master-pilot information exchange appears unsatisfactory. The ship did not follow standard procedures for Coastal or Pilotage waters. The pilot did not become integrated into the bridge team. There was a lack of clear communication between master and pilot.

Note: International Maritime Organization (IMO) Resolution A.960 (23) Annex 2 paragraph 2.1 states that the pilot’s presence on board does not relieve the master from his duty and obligation for the safety of the ship.

6.2 Bridge Resource Management

Brostrom Ship Management state in their declared policy that master and officers of the watch shall devote their full attention towards navigational safety. Company instruction ‘WI 162’ refers to Navigation with a Pilot on Board. The pilot is not included as part in the Brostrom “Bridge Watch Conditions”. However the pilot is acknowledged by Brostrom as having a critical role within the Bridge Team.

Note: IMO Resolution A.960 (23) Annex 2 paragraph 2.3 states that it is the responsibility of the bridge team to assist the pilot to work within the team. Please refer to Appendix 12.

Prior to the pilot boarding the bridge team was not as required by Brostrom Bridge Watch Conditions Level II (Lookout on the bridge) or Level III (Helmsman and Lookout on the bridge). There was non-compliance with Brostrom Safety Circular No. 5 (OOW leaving the bridge to escort pilot from main deck up to bridge). Refer to Appendix 8, 9 and 10.

Note: STCW 78/95 Section A-VIII/2 part 3-1 paragraphs 49 and 50 refers. See Appendix 11.

The master stated that the ship employs parallel indexing in other ports but could not state with good reason why this was not carried out during this passage in Dublin Port area. He acknowledged that parallel indexing is a very effective method of navigation by radar and that there was no technical reason why this could not be carried out in Dublin Port.

6.3 The Master Pilot Information Exchange (MPX).

The Master Pilot Information Exchange is often far too brief. Please refer to IMO Resolution A.960 Annex 2 Paragraph 5.

It is sometimes the case that because the ship is approaching the navigation channel there is not sufficient time for a formal exchange to take place. IMO Resolution A.960 (23) Annex 2 Paragraph 3.3 states that the pilot boarding point should be situated at a place allowing for sufficient time and sea room to meet the requirements of the master-pilot exchange.

It is noted that some ports have arrangements in place through their safety management system for the proposed passage plan to be communicated to arriving ships in electronic format so that the ship may respond if required and is well prepared and given every opportunity for agreed courses to be laid on charts or set up on Electronic Charts Display and Information System (ECDIS) and that PI is set up on the Radar(s) before the pilot embarks.

6.4 Passage/Voyage Planning.

In coastal and pilotage waters navigational techniques need to be used which enable the Watch Keeping Officer (OOW) and/or the master to maintain a forward outlook and provide the pilot with information as required. The passage plan should be monitored to ensure that the ship remains within an acceptable and practical Cross Track Error allowance. Often the first warning of signs that a vessel is standing into danger is the echo sounder. Frequent and prolonged visits to the chart table to fix the ship's position in the pilotage area may not be the most effective method of doing so and in many cases does not provide essential information for safe navigation of the ship in the Dublin Bay area.

Please refer to Appendix 3. The voyage-planning sheet regarding Coastal/Harbour Passage appears to be generic to suit all ships in the company and does not provide the level of detail expected of a well laid out passage plan. For example: -

The Cross Track Error is given throughout as 0.05 nautical miles (304 feet) for pilotage in Milford Haven, Dublin and indeed from Dublin Oil Jetty No. 2 to Ocean Pier and similarly for the sea passage;

An interval for fixing the ship is given as 15 minute for a 5-minute passage and a 22-minute passage;

the intervals for positioning the ship on the chart during the sea passage in the Irish Sea are given as 30 minutes and 60 minutes;

Under keel clearance (UKC) is stated to be within the safety range based on Low tidal datum and considering ship's squat in loaded or ballasted condition. Additionally the under keel clearance is given as greater than one metre though the note on the contingency plan states the "Vsl. To enter the channel at high water". These guidance notes should be unambiguous and specific to the area or port in question.

Parallel indexing method and no go areas are marked on the chart, which was not the case for Chart 1447.

None of the Voyage Forms 1 contains information on the column P/I (nm) [Cross Index Range]; The CIR is noted on AC 1415.

6.5 Brostrom Ship Management

Brostrom sent a copy of their in-house investigation into the grounding to the MCIB. The Designated Person and Marine Superintendent from Brostrom Ship Management in Sweden attended the MCIB on 21st November 2005 for a meeting.

There were sufficient qualified ratings or other officers available or on duty to escort the pilot from the place of embarkation to the bridge without utilising a qualified OOW to leave the bridge and distract his attention from full navigational duties.

The OOW stated that having been relieved of the conn earlier in the morning by the master he did not feel it was his position to advise the master on navigational matters but just to plot positions on the chart every 10 or 15 minutes by Radar or GPS. The OOW claimed that he was unable to carry out effective Parallel Indexing as well as attending to the pilot embarking and then plotting and transferring positions on the chart. The company should be well aware of this matter from their knowledge of shipboard operations. This matter should be addressed through the ISM Safety Management System and effective auditing.

Note: The situation of one person alone having the conn without support from the remainder of the Bridge Team should be discouraged. Officers and ratings should become active and contributing members of the Bridge Team in order to eliminate the chance of single person human error occurring. It would appear that the third officer was not encouraged to be an effective contributor to the bridge team.

There is nothing to suggest that fatigue had any part to play in this incident.

6.6 Warranted Pilot on “Bro Traveller” at time of grounding.

- (i) The pilot declared that following the grounding he was interviewed by the Harbour Master who requested that the pilot should obtain a medical examination report. The pilot stated that during his medical examination a suggestion was made that he should not be driving ships or even driving a car without spectacles.
- (ii) On 27th September 2005, the Examiner of Masters and Mates carried out a Maritime Safety Directorate sight test that is in place for professional competency examination purposes. The result was that without glasses the pilot could not read all of the third line on the Snellan Board with each eye but with glasses could read the full range of the Snellan Board. The pilot stated that he was not suffering from fatigue but that his sight was a problem.

Note: If the matter of sight is considered as having a significant contribution to this grounding then mature and responsible persons and particularly a person holding a position as a marine pilot would be expected to be sufficiently astute to recognise this problem developing if indeed it was a developing deterioration of sight. Furthermore IMO Resolution A.960 (23) Annex 1 paragraph 4 refers to Medical Fitness and makes particular reference to eyesight. (The MCIB is aware that Dublin Port Company has since implemented measures to ensure regular eyesight checks for its pilots).

- (iii) The charted place for pilot boarding vessels entering from the north TSS is 0.8 miles ENE of the actual boarding position of the pilot on “Bro Traveller”. The position is indicated by a diamond enclosed in a circle on Admiralty Chart 1415. This distance would allow 8/10 minutes for a Master Pilot Information Exchange. Very little, if any, discussion took place between the master and the pilot and no discussion took place on the squat and under keel clearance. The ship’s squat card had not been consulted by the pilot.
- (iv) The pilot did not inform VTS immediately following the grounding. Had he done so all stations in the vicinity could be advised and, if necessary, appropriate control by the VTS put in place. Resolution A.960 (23) Annex 2 paragraph 7 refers to pilots reporting of incidents or accidents.
- (v) The pilot maintains that he was not aware of the term Parallel Indexing. Resolution A.960 (23) Annex 1 paragraph 6 refers to continued proficiency of pilots and updating their knowledge.
- (vi) The pilot said that the courses shown to him by the harbour master on the radar video screen prints were not in accordance with his own recollection. He thought the course of the ship west of the Bar buoys was 273/2700 though the VTS Screen prints have the ship on a different course. The pilot did not agree with the courses as indicated on the screen prints. He acknowledged that he had miscalculated the amount of set that was there and that the ship was too far to the north for the approach in.

Note: There appears to be a variance between courses and speeds as taken from the chart and those that are given by the print outs from the VTS Radar Video. This may be due to the incorrect positions/times being laid off on the chart by the OOW and the “heading line” on the VTS radar video being a course made good over a specific period as opposed to a course steered or ships heading. The afterglow or wake left on the screen print gives a good indication of the course made good. The onboard graphic record of the vessel’s course and rudder angle was not functioning correctly at the time of the incident.

6.7 Dublin Port Marine Operations.

- (i) DPC Marine Notice No. 10 of 2005 was issued on Standard Operating Procedures for Vessels Entering, Shifting and Departing the Port of Dublin. Please refer to Appendix 14. The Marine Notice also provides information that the Port Radio (VTS) was upgraded from an advisory service to a VTS that controls the movement of all ships within the jurisdiction of DPC. The instructions from DPR will be result orientated only and shall not encroach upon the master’s responsibility for safe navigation or interfere with the traditional relationship that exists between the master and pilot. The criteria being that the DPR control the space and shipmasters control their ships.

NOTE: Very little information is given in the Irish Coast Pilot, (i.e. the official nautical publication) on the tides other than across the entrance of the River Liffey where the out-going stream may reach 3 knots. High and Low water may be determined from the Admiralty Tide Table. There is no general indication of what rates the tides reach in for example the vicinity of No. 3 buoy or the outer fairway. It is not possible to estimate in advance what the rate of tide will be at different stages of the flood/ebb on Neaps or Springs from inspection of the Admiralty Charts. However, during the grounding incident both master and pilot were well aware that there was a strong tidal effect.

Pilots have received training with DPC covering:

- Man overboard;
- GMDSS Restricted Operators Certificate;
- Large ship model handling in UK; and
- In Rotterdam a simulated purpose developed one-day course for manoeuvring large passenger cruise ships in Dublin port.

The pilots who attended courses (iii) and (iv) were positive and complimentary as to their effectiveness. DPC does not provide other simulated training specially designed for pilots with particular reference to Bridge Resource Management or updating their professional qualifications.

(ii) Communications and VTS.

At times during the incident the spoken English on the VHF by Vessel Traffic Services (VTS) operator and pilot, as indicated on the transcript from Channel 12, was not in accordance with IMO Standard Marine Communication Phrasing and did not appear sufficiently clear for other interested parties.

The levels of formal training that VTS operators undergo followed by examination and assessment is noted. It is understood that VTS operators hold V-103-1 and V-103-2 qualifications.

VTS was not aware of the agreement made between the two pilots regarding ship “Nordzee” overtaking “Bro Traveller”. As noted in section 3.2 of this Report the master was of the opinion that “Nordzee” intended to overtake “Bro Traveller” in the outer Fairway hence the slow speed. There is a debate about whether the intention was to overtake in the outer Fairway or inside the Breakwater.

Observation of the VTS Radar should have indicated that the “Bro Traveller” was well to the north of the normal inwards course line particularly as there was no outward traffic. It should have been noted sooner that the “Bro Traveller” was aground.

7. RECOMMENDATIONS

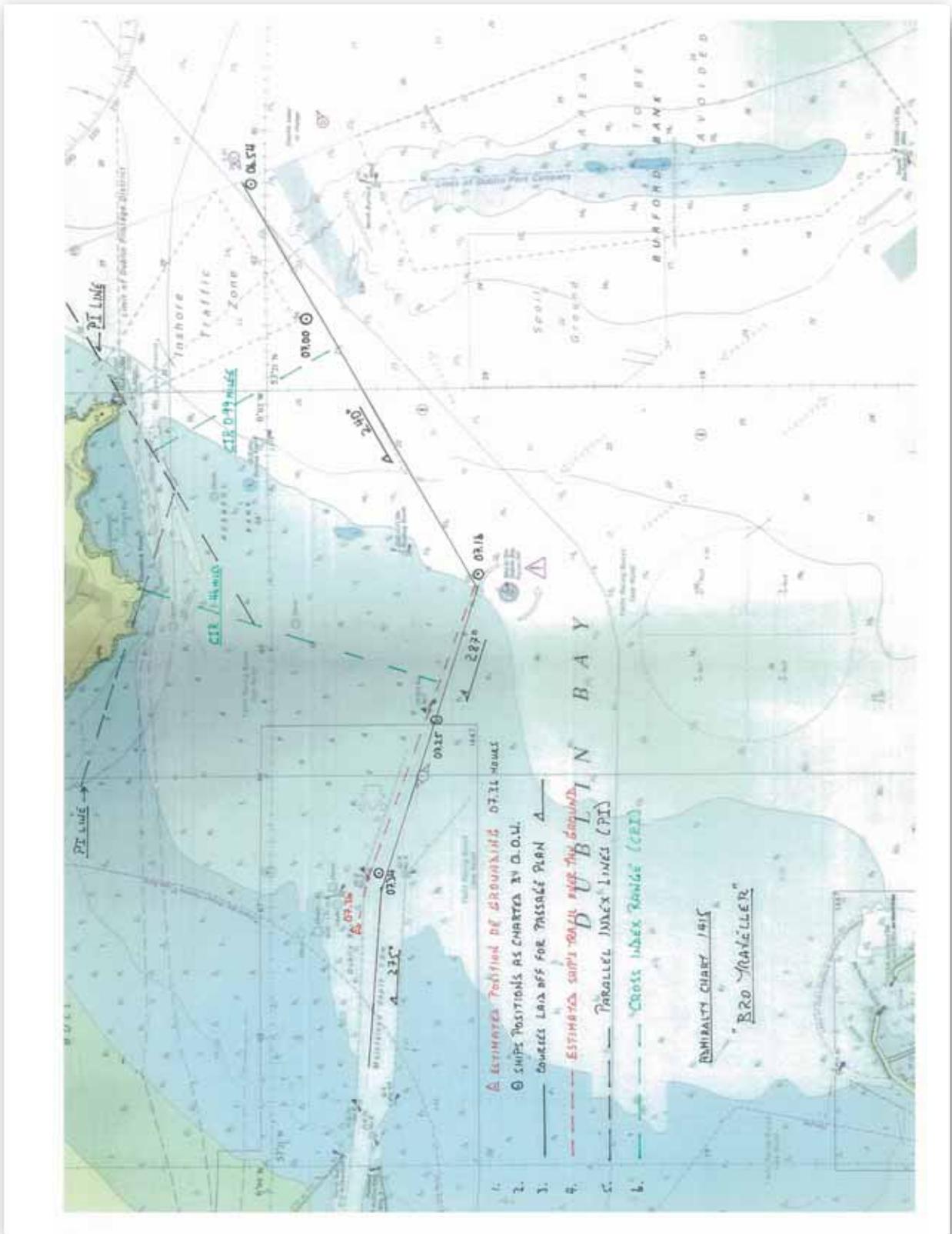
- 7.1 Brostrom Ship Management should review their Voyage Planning and Bridge Management Procedures.
- 7.2 The need, perceived or otherwise, for the master to deal with external radio or telephone communications with company personnel and charterers to the exclusion of giving full attention to the ship and dealing with the grounding, or indeed, when otherwise occupied on the bridge should be addressed by the ISM Code and respected by the charterers. The company and charterers should appreciate the stress and anxiety that may be experienced by the master and pilot during and after such an incident as this. The ship was sufficiently manned to delegate matters of external communication.
- 7.3 The Maritime Safety Directorate should disseminate the relevant IMO Resolutions to interested parties.
- 7.4 Ports in the State should ensure that IMO Resolution A.960 (23) is implemented and complied with in relation to recommendations on Training and Certification of Maritime Pilots and recommendations on Operational Procedures for Maritime Pilots other than Deep Sea Pilots

NOTE: Resolution A.960 (23) was introduced in December 2003 updating Resolution A.485 (XII) of November 1981. This can be obtained from the International Maritime Organisation (See Appendix 12).

8 LIST OF APPENDICES

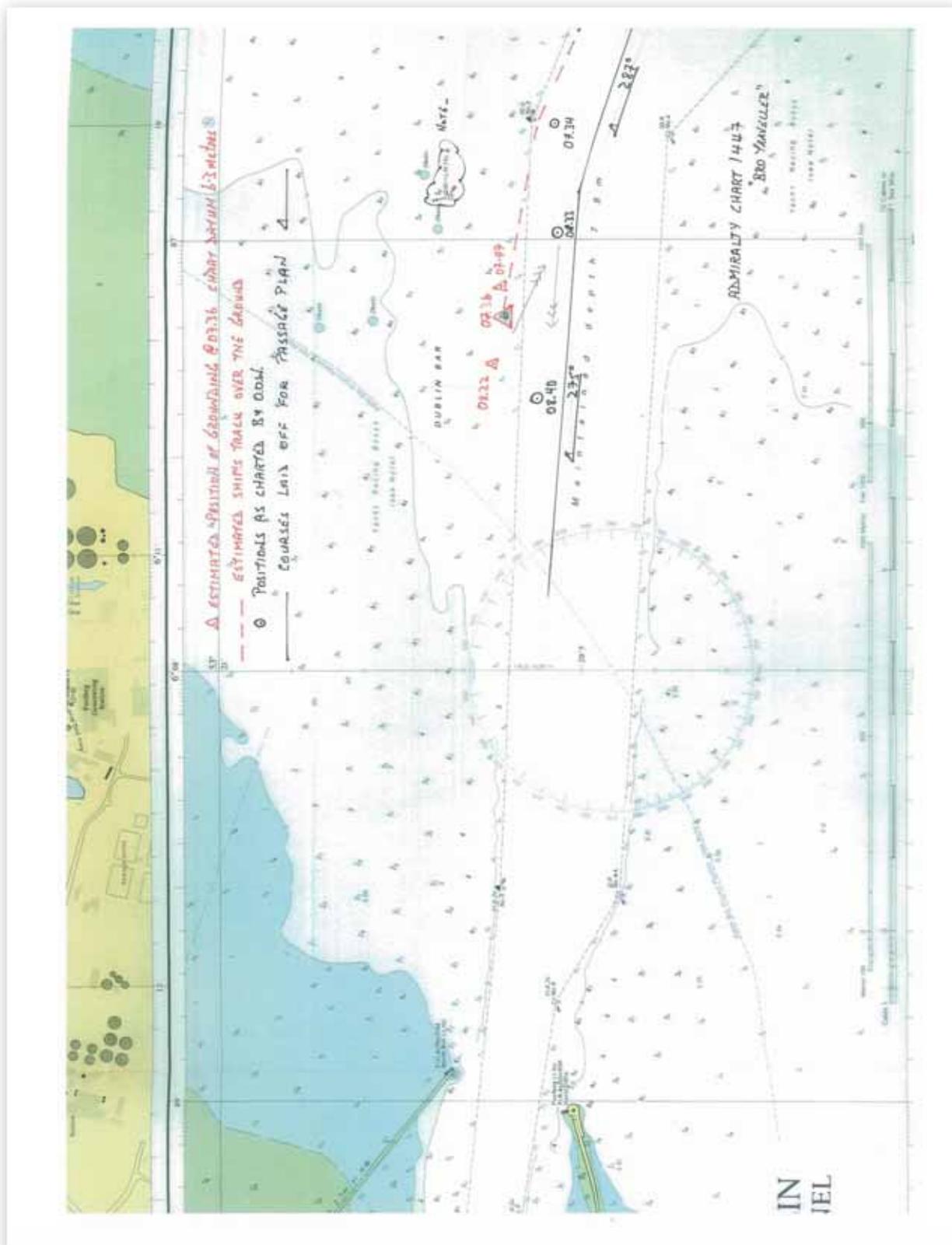
- Appendix 8.1 Abstract from AC 1415
- Appendix 8.2 Abstract from AC 1447
- Appendix 8.3 Passage Dublin Pilot to Dublin (Oil Berth) - Voyage Form 1
- Appendix 8.4 Officer's qualification and experience matrix
- Appendix 8.5 Port Radio VTS Radar Video
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- Appendix 8.6 Report Form B/1 of Port State Control Inspection Reverse side of Form B/1
- Appendix 8.7 Lloyds Register
8.7(1) - 8.7(2)
- Appendix 8.8 Brostrom Bridge Watch Conditions
- Appendix 8.9 Brostrom Safety Circular 8/00 Bridge Watch on Arrival/Departure
- Appendix 8.10 Brostrom Safety Circular 5/01 Compliance with Instructions Bridge Manning
- Appendix 8.11 STCW A-VIII/2 part 3-1 Navigation with pilot on board
- Appendix 8.12 Recommendations on Training and Certification and on Operational
8.12(1) - 8.12(7) Procedures for Maritime Pilots other than Deep-Sea Pilots.
- Appendix 8.13 Simplified Voyage Data Recorder
- Appendix 8.14 Dublin Port Note on Future Traffic Operations - 15.07.2002
8.14(1) - 8.14(9)
- Appendix 8.15 Dublin Port Company - Notice to Mariners, No. 10 of 2005
8.15(1) - 8.15(3)
- Appendix 8.16 Predicted heights and times of High and Low Water at Dublin.

Appendix 8.1 Abstract from AC 1415



APPENDIX 8.2

Appendix 8.2 Abstract from AC 1447.



APPENDIX 8.4

Appendix 8.4 Officer's qualification and experience matrix

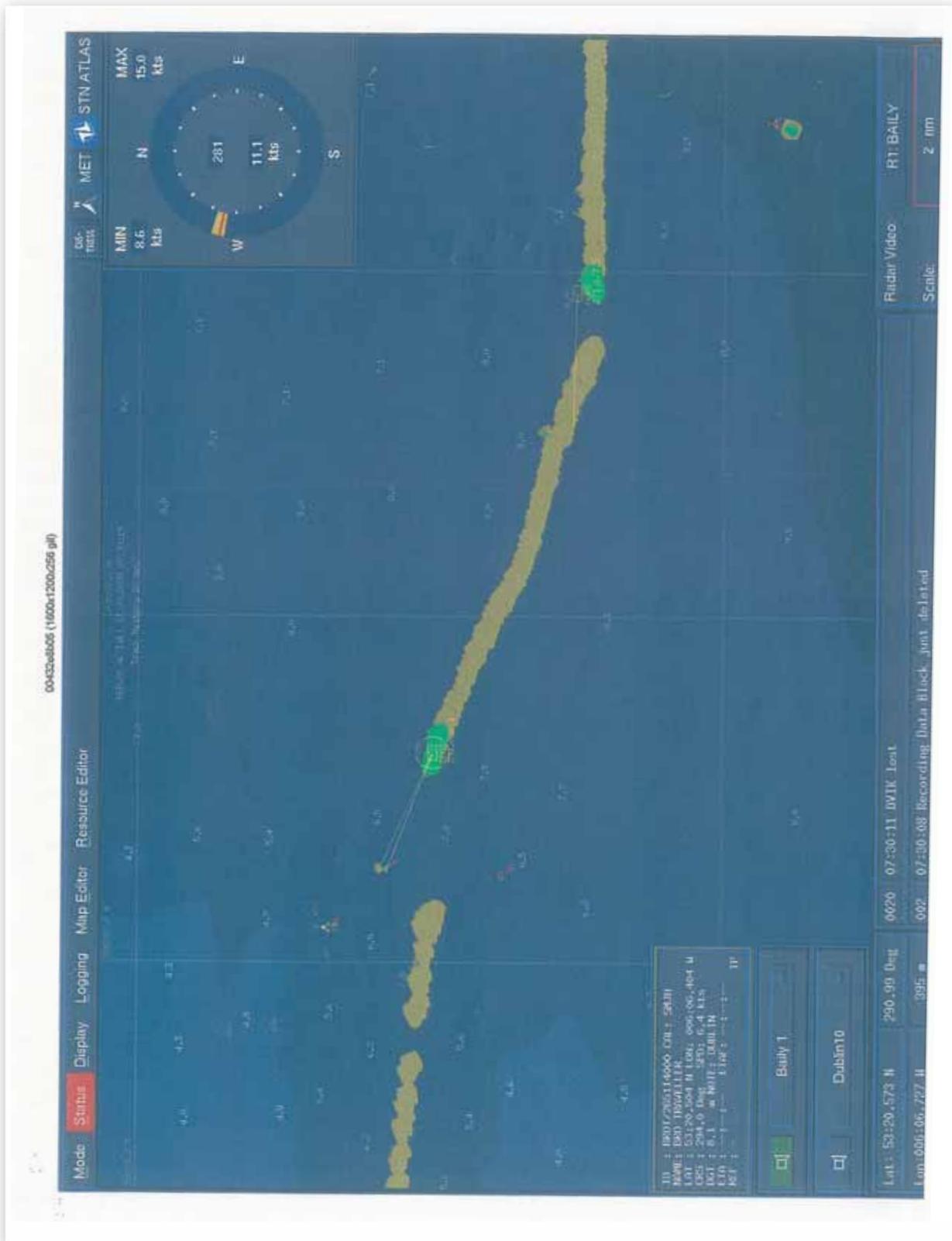
Bro Traveller
Officer's qualification and Experience Matrix

	Master	Ch Off./SSO	2nd Officer	3rd Officer	Ch Eng	1st Eng
Cert. Of Competency	Master	Master	2:nd off	3:rd off	Ch Eng	1st Eng
Iss. Country	Sweden	Sweden	Sw / Ph	Sw / Ph	Sweden	Sweden
DCE (O,G,C)	Oil, Chem	Oil, Chem	Oil, Chem	Oil, Chem	Oil, Chem	Oil, Chem
Years with operator	39	7	5	2	17	4
Years in rank	8	11	10	8	30	2
Years on this type of tanker	3	13	23	1	26	4
Years on all types of tankers	12	16	23	4	29	4
Months on vessel, this assignment	2	2	7	2	2	2
English proficiency (good, fair, poor)	G	G	G	G	G	G

Master
2005-09-18

APPENDIX 8.5

Appendix 8.5 (2) Port Radio VTS Radar Video

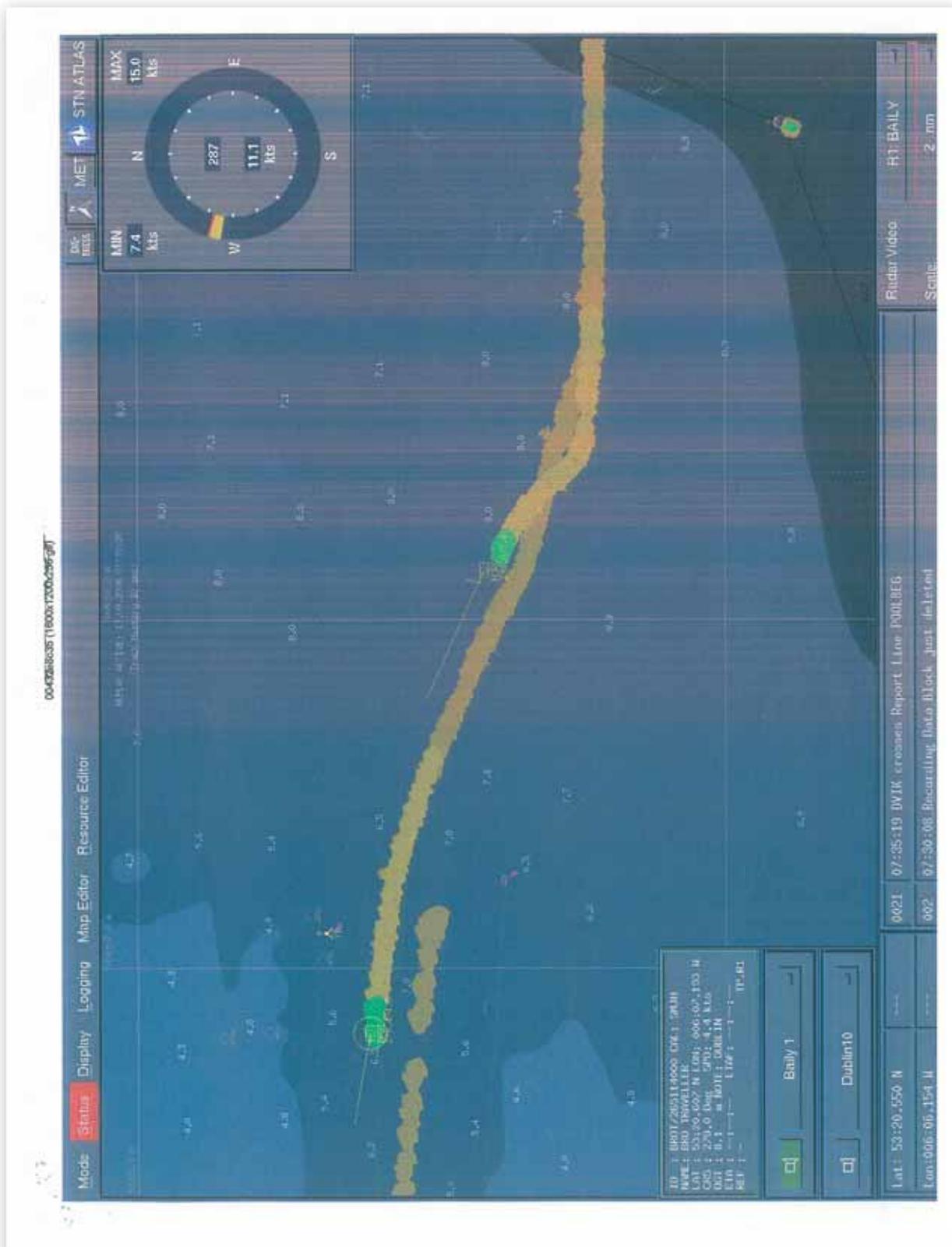


Appendix 8.5(3) Port Radio VTS Radar Video



APPENDIX 8.5

Appendix 8.5 (4) Port Radio VTS Radar Video



Appendix 8.5(5) Port Radio VTS Radar Video



Appendix 8.6 Report Form B/1 of Port State Control Inspection Reverse side of Form B/1

REPORT OF INSPECTION IN ACCORDANCE WITH THE PARIS MEMORANDUM OF UNDERSTANDING ON PORT STATE CONTROL FORM B/1

Maritime Safety Directorate
26/27 Eden Quay,
Dublin 1, Ireland.
Telephone: ++353 1 8744900
Telefax: ++353 1 8724481

Copy to: - master
- head office
- PSCO
ship is detained, copy to: - Flag State
- recognised organisation, if applicable

1. Name of ship BLO THANE 2. IMO number 9705301 3. Date of final report 20.05.2011 4. Place of inspection DUBLIN

DEFICIENCIES FOUND AND FOLLOW UP ACTION1)**

Group code	Defective item	Nature of defect ¹⁾	Convention ref. ²⁾	Action taken ³⁾	Additional comments	Class resp. ²⁾
①	6605	Radio Comms	NAUT. A. 1000	16	NAUT. A. 1000	
②	6605	NAUT. A. 1000		16	NAUT. A. 1000	
③	6601	NAUT. B. 1000		10	NAUT. B. 1000	
④	7505	ISM		17	ISM	
⑤	6630	LSA		16	LSA	

Name (duly authorised PSCO of reporting authority) SAM. N. W. FRISCH Signature 

**1) Masters, Shipowners and/or Operators are advised that detailed information on this inspection may be subject to publication (www.ppsc.gov.ie)
1) This inspection was not a full survey and deficiencies listed may not be exhaustive. In the event of a detention, it is recommended that a full survey is carried out and all deficiencies are rectified before an application for re-inspection is made.
2) To be complete in the event of a detention. (for non-convention ships -500 GT for reference only)
3) See reverse side of form B for full labels

APPENDIX 8.6

Appendix 8.6 Report Form B/1 of Port State Control Inspection Reverse side of Form B/1

List of possible deficiency action(s) taken:

A	Detained	Grounds for detention
B	Rectified	Deficiency rectified
C	Before departure	Rectify the deficiency before departure
D	At the next port	Rectify the deficiency at the next port (1)
E	Within 14 days	Rectify the deficiency within 14 days (1)
F	Agreed class condit..	As in the agreed class condition
G	Within 3 months	Rectify non conformity in three months (2)
H	Major NC	Rectify major non conformity before departure (3)
J	At agreed repair port	At an agreed repair port (4)
K	Temporary repair	Temporary repair to be carried out
L	Flag consulted	Flag State consulted
M	LOW issued	Letter of Warning issued
N	LOW withdrawn	Letter of Warning withdrawn
O	Operation stopped	Prohibition to continue an operation
P	Temporary substitute	Temporary substitution of equipment
Q	Other	Specify unusual circumstances (free text)

(1) never with a detainable deficiency

(2) only for ISM defective items and never with a detainable deficiency

(3) only for ISM defective items and always with a detainable deficiency

(4) only for detainable deficiency

Appendix 8.7(1) Lloyds Register



INTERIM CERTIFICATE
PROVISIONAL ISSUE

Page 1 of 1

Ship's Name: BRO TRAVELLER
LR/IMO Number: 8705321

Port of Survey: Dublin

Date of Build: 09/1988
Port of Registry: Gothenburg
Gross Tons: 7973

Certificate Number: DUB 500103

First Visit: 17/09/05

Last Visit: ~~17/09/05~~ 18/9/05

I have carried out the surveys listed below. All recommendations made by me have been dealt with to my satisfaction. I am recommending that class be maintained with new records as follows.

SURVEYS HELD	STATUS	NEW RECORD
HULL		
HDAM Hull Damage (Grounding)	COMPLETE	
	*** END ***	

MEMORANDA HULL TO BE IMPROVED

SHIP TO BE SPECIALLY EXAMINED IN DRY DOCK BY 05/2008 FOR POSSIBLE GROUNDING DAMAGE, FOLLOWING GROUNDING DUBLIN 09/2005.

END

The above recommendation is made subject to any outstanding conditions of class being dealt with as previously recommended.

Signed: S.W.Wade

Initials SWW
Dublin Office
Lloyd's Register EMEA

Surveyor(s) to Lloyd's Register EMEA
A member of the Lloyd's Register Group.

Date: 17/09/2005

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APPENDIX 8.7

Appendix 8.7(2) Lloyds Register

STATEMENT FOR INFORMATION

DUB 500103.

SHIP NAME: BRO TRAVELLER
LR NO : 8705321.

TO MASTER:

1) SEE INTERIM CERTIFICATE (PROVISIONAL ISSUE).

2) INSPECTIONS HELD:

- DIVERS ^{REPORTED} INSPECTION SHOWED BILGE STRAKE BETWEEN FRAMES APPROX. 140-148 STRBD SIDE SCRATCH MARKS / PAINT LOSS DOWN TO PRIMER COAT, NO STRUCTURAL DAMAGE FOUND.
- INTERNAL EXAMINATION OF NO 1 CENTRE & NO 2 STRBD D.B. L.B.T. FOUND SATISFACTORY. (FR 140-148)
- DIVERS REPORTED INSPECTION SHOWED NO FURTHER DAMAGE TO VESSEL, INCLUDING EXAMINATION OF RUDDER + PROPELLER.
- STEERING GEAR + CPP FUNCTIONAL TESTS FOUND SATISFACTORY.
- SOUNDINGS OF TANKS SHOWED NO CHANGE FOLLOWING THE GROUNDING INCIDENT.

END

Initials SWW
Dublin Office
Lloyd's Register/EMBA

18.9.05

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REGISTER GROUP PAPER 01/11/2001

Appendix 8.8 Brostrom Bridge Watch Conditions



Bridge Watch Conditions

W028

Valid from 2002-03-31
Version 1

Broström BRIDGE WATCH CONDITIONS STCW 95 B-VII/2 3-1/5.1							
Primary Conditions		Bridge Watch					
Open Waters:							
Clear weather, little or no traffic day time		I			BRIDGE WATCH I (BW I)		
Clear weather, little or no traffic night time		1A			This watch has only one OOW on the bridge.		
Clear weather, higher density traffic		II			OOW Conning		
Restricted visibility, little or no traffic		II			Dead Man Alarm on if fitted.		
Restricted visibility, higher density traffic		II or III			Duties are as outlined in the Bridge Manual.		
Restricted Waters (Limited Manoeuvring Room):							
Clear weather, little or no traffic		II					
Clear weather, higher density traffic		II or III					
Restricted visibility, little or no traffic		II					
Restricted visibility, higher density traffic		II or III					
Entering or Leaving Port:							
Clear weather, little or no traffic		II			BRIDGE WATCH IA (BW IA)		
Clear weather, higher density traffic		II or III			This watch has only one OOW on the bridge + one look-out.		
Restricted visibility, little or no traffic		II or III			OOW Conning		
Restricted visibility, higher density traffic		III			Duties are as outlined in the Bridge Manual		
At Any Time When the Following Conditions Exist:							
High navigational intensity plus collision avoidance		III					
At Anchor:							
		I or 1A					
BRIDGE WATCH II (BW II)				BRIDGE WATCH III (BW III)			
This watch requires two officers on the bridge. Though the senior officer usually is the Master, under special circumstances the Master may delegate authority to another officer. By doing so, the Master does not thereby delegate responsibility.				This watch requires two officers on the bridge. The senior officer is always the Master. The Master will take the con. This watch is the most critical and demanding and calls for the most rigorous attention to priorities.			
Conning Officer				Master Conning			
The Conning Officer is the watch co-ordinator and supervisor and shall ensure that the vessel's course and speed are regulated for safe navigation.				The Master is the watch co-ordinator and supervisor. The Master shall ensure that the vessel's course and speed are regulated for safe navigation. The Master must utilise the OOW on the bridge with maximum effectiveness and minimum confusion. Given the demanding conditions of this Bridge Watch, watch personnel must operate as a smoothly functioning team. The Master must manage the watch in a manner which optimises communications. The OOW must be alert and prepared to advise the Master quickly of any significant navigational or traffic developments.			
OOW primary duties shall be radar operation and collision avoidance, with additional communications and navigational responsibilities. Aside from other duties ordered by the Master, the OOW shall:				The Master shall assign the OOW as the Radar and Navigation Watch Officer.			
<ul style="list-style-type: none"> Acknowledge the Conning Officer's helm and engine orders, making sure they are carried out properly. Operate the engine order telegraph or throttle and watch for proper response. The RPM indicator shall be checked to ensure correct response to engine orders as well as to ensure radar plot calculation accuracy with respect to speed over the bottom. Be aware of the vessel's speed to ensure compliance with VTS and/or local regulations, and to ensure accuracy of rapid radar plotting and ARPA data. Co-ordinate all Bridge radio communications, and log them as required. Keep current radar or other navigation plots (using soundings when applicable) on the appropriate charts. Plot closing targets and/or others called for by the conning officer to obtain closest point of approach ("C.P.A."), time of C.P.A., and the course and speed of the targets. Data must be promptly and accurately reported to the Conning Officer who shall acknowledge receipt of the data. Properly maintain all Bridge logs and records. 				The OOW shall be responsible for all navigation and communication duties as outlined in Bridge Watch II (OOW primary duties). Particular attention must be paid to the vessel's plotted navigational progress, especially with regard to speed and possible position deviations from the planned track.			
		Con	Traffic / Comms	Navigation	Other Duties	Helm	Look-out
TASKS	Con ship	Radar & ARPA	Fix ship's position	Tend EOT, Monitor helm and engine, Keep logs, Make equip. tests/checks	Steer ship	Keep look-out	
	BW I	OOW			Look-out available		
	BW IA	OOW			Look-out on bridge		
	BW II	Master	OOW		Look-out on bridge		
BW III	Master	OOW			Helmman	Lookout	

Appendix 8.9 Brostrom Safety Circular 8/00 Bridge Watch on Arrival/Departure

	Broström Ship Management AB Safety & QA Department	
Written by: BE	Date: 2000-06-16	Page 1/1

Safety Circular no. 8/00

Bridge Watch on Arrival / Departure

On arrival at a port the bridge watch conditions as per the Bridge Manual, chapter 3.1, Appendix 1, are to be followed, regardless if there is a pilot onboard or not. However, the Officer on Watch may have to assist in the mooring procedures and if so, he should remain on the bridge to the very last moment until his presence is required at the mooring station.

The above means that the Officer on Watch must not leave the bridge to carry out any preparation work or preliminaries at the mooring station, he should leave the bridge only when he is required to take charge of the actual mooring of the vessel.

On departure from a port the contrary procedure is to be applied, i.e. the Officer on Watch should attend the bridge as soon as possible after the departure.

If there is no pilot onboard, the Master should all the time be assisted on the bridge by the Officer on Watch.



Björn Elmgren
Safety & QA Manager

Appendix 8.10 Brostrom Safety Circular 5/01 Compliance with Instructions
Bridge Manning

	Broström Ship Management AB Safety & QA Department	
Written by: BE	Date: 2001-03-09	Page 1/1

Safety Circular no. 5/01

Compliance with Instructions / Bridge Manning

As a consequence of a recent incident with one of our vessels we find it necessary to emphasise the importance of complying with company instructions.

The actual vessel was manoeuvring in port with only the Master and Pilot on the bridge. Mainly due to lack of attention on the dangerous situation arising from the vessel's drifting with the wind, the vessel hit a dolphin resulting in a hole in the hull.

Despite the company instructions on Bridge Watch Conditions in the Bridge Manual and the Safety Circular no. 8/00, the officer on watch (OOW) was allowed to leave the bridge well before the vessel approached the berth. The Master interpreted "the very last moment until his (OOW) presence is required at the mooring station" to be at any time the Master himself considered appropriate. Such an interpretation of instructions might be called lack of good seamanship, particularly in view of the lack of attention that could have been avoided with the OOW on the bridge.

The company instructions are intended to show how we work. If they contain something that is not applicable or otherwise difficult to comply with, it is the right as well as the duty to inform the company. After having discussed the matter the result may be that we amend the instructions. However, the current instructions are to be complied with to the best knowledge.

Björn Elmgren
Safety & QA Manager

Appendix 8.11 STCW A-VIII/2 part 3-1 Navigation with pilot on board

Section A-VIII/2 part 3-1

Navigation with pilot on board

49 Despite the duties and obligations of pilots, their presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. The master and the pilot shall exchange information regarding navigation procedures, local conditions and the ship's characteristics. The master and/or the officer in charge of the navigational watch shall co-operate closely with the pilot and maintain an accurate check on the ship's position and movement.

50 If in any doubt as to the pilot's actions or intentions, the officer in charge of the navigational watch shall seek clarification from the pilot and, if doubt still exists, shall notify the master immediately and take whatever action is necessary before the master arrives.

Ship at anchor

51 If the master considers it necessary, a continuous navigational watch shall be maintained at anchor. While at anchor, the officer in charge of the navigational watch shall:

- .1 determine and plot the ship's position on the appropriate chart as soon as practicable;
- .2 when circumstances permit, check at sufficiently frequent intervals whether the ship is remaining securely at anchor by taking bearings of fixed navigation marks or readily identifiable shore objects;
- .3 ensure that proper look-out is maintained;
- .4 ensure that inspection rounds of the ship are made periodically;
- .5 observe meteorological and tidal conditions and the state of the sea;
- .6 notify the master and undertake all necessary measures if the ship drags anchor;
- .7 ensure that the state of readiness of the main engines and other machinery is in accordance with the master's instructions;
- .8 if visibility deteriorates, notify the master;
- .9 ensure that the ship exhibits the appropriate lights and shapes and that appropriate sound signals are made in accordance with all applicable regulations; and
- .10 take measures to protect the environment from pollution by the ship and comply with applicable pollution regulations.

VIII

STCW
Code

A

Appendix 8.12(1) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

Resolution A.960(23)

*Adopted 5 December 2003
(Agenda item 17)*

**RECOMMENDATIONS ON TRAINING AND CERTIFICATION AND
ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS
OTHER THAN DEEP-SEA PILOTS**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECOGNIZING that maritime pilots play an important role in promoting maritime safety and protecting the marine environment,

BELIEVING that maintaining a proper working relationship between the pilot, the master and, as appropriate, the officer in charge of a navigational watch is important in ensuring the safety of shipping,

NOTING that, since each pilotage area needs highly specialized experience and local knowledge on the part of the pilot, IMO does not intend to become involved with either the certification or the licensing of pilots or with the systems of pilotage practised in various States,

RECOGNIZING ALSO the high standards of pilotage services already established in many States and the need for these standards to be maintained,

CONSIDERING that in those States that are developing pilotage services, the establishment of practical minimum training standards, certification requirements and operational procedures to provide effective co-ordination between pilots and ship personnel, taking due account of ship bridge procedures and ship equipment, would contribute to maritime safety,

HAVING CONSIDERED the recommendation made by the Maritime Safety Committee at its seventy-fifth session,

1. **ADOPTS:**

- (a) the Recommendation on Training and Certification of Maritime Pilots other than Deep-Sea Pilots set out in annex 1 to the present resolution;
- (b) the Recommendation on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots set out in annex 2 to the present resolution;

2. **URGES** Governments to give effect to these Recommendations as soon as possible;

3. **REQUESTS** the Maritime Safety Committee to keep the Recommendations under review and to amend them as necessary in the light of experience gained from their implementation;

4. **REVOKES** resolution A.485(XII).

Appendix 8.12(2) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

Annex 1

RECOMMENDATION ON TRAINING AND CERTIFICATION OF MARITIME PILOTS OTHER THAN DEEP-SEA PILOTS

1 SCOPE

1.1 It is recognized that pilotage requires specialised knowledge and experience of a specific area and that States with many diverse waterways and ports have found it appropriate to administer pilotage on a regional or local basis.

1.2 The maritime pilots referred to in this Recommendation do not include deep-sea pilots or shipmasters or crew who are certificated or licensed to carry out pilotage duties in particular areas.

1.3 Governments should encourage the establishment or maintenance of competent pilotage authorities to administer safe and efficient pilotage systems.

2 COMPETENT PILOTAGE AUTHORITY

2.1 Competent pilotage authority means either the national or regional Governments or local groups or organizations that by law or tradition, administer or provide a pilotage system. Governments should inform competent pilotage authorities of the provisions of this document and encourage their implementation.

2.2 The assessment of the experience, qualifications and suitability of an applicant for certification or licensing, as a pilot, is the responsibility of each competent pilotage authority.

2.3 The competent pilotage authority in co-operation with the national and local pilots' associations should:

- .1 establish the entry requirements and develop the standards for obtaining a certificate or licence in order to perform pilotage services within the area under its jurisdiction;
- .2 enforce the maintenance of developed standards;
- .3 specify whatever prerequisites, experience or examinations are necessary to ensure that applicants for certification or licensing as pilots are properly trained and qualified; and
- .4 arrange that reports on investigations of incidents involving pilotage are taken into account in maritime pilots' training programmes.

3 PILOTAGE CERTIFICATE OR LICENCE

Every pilot should hold an appropriate pilotage certificate or licence issued by the competent pilotage authority. In addition to stating the pilotage area for which it is issued, the certificate or licence should also state any requirements or local limitations that the competent pilotage authority may specify such as maximum size, draught or tonnage of vessels that the holder is qualified to pilot.

4 MEDICAL FITNESS

4.1 Each pilot should satisfy the competent pilotage authority that his or her medical fitness, particularly regarding eyesight, hearing and physical fitness meets the standards required for certification of masters and officers in charge of a navigational watch under the international Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended, or such other standards as the competent pilotage authority considers appropriate.

4.2 If a pilot has experienced a serious injury or illness, there should be a re-evaluation of his or her medical fitness prior to return to duty.

Resolution A.960(23) – 207

Appendix 8.12(3) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

5 TRAINING AND CERTIFICATION OR LICENSING STANDARDS

5.1 The competent pilotage authority is responsible for training and certification or licensing standards. The standards should be sufficient to enable pilots to carry out their duties safely and efficiently.

5.2 Standards for initial training should be designed to develop in the trainee pilot the skills and knowledge determined by the competent pilotage authority to be necessary for obtaining a pilot certificate or license. The training should include practical experience gained under the close supervision of experienced pilots. This practical experience gained on vessels under actual piloting conditions may be supplemented by simulation, both computer and manned model, classroom instruction, or other training methods.

5.3 Every pilot should be trained in bridge resource management with an emphasis on the exchange of information that is essential to a safe transit. This training should include a requirement for the pilot to assess particular situations and to conduct an exchange of information with the master and/or officer in charge of navigational watch. Maintaining an effective working relationship between the pilot and the bridge team in both routine and emergency conditions should be covered in training. Emergency conditions should include loss of steering, loss of propulsion, and failures of radar, vital systems and automation, in a narrow channel or fairway.

5.4 Initial and continuing training in the master-pilot information exchange should also cover:

- .1 regulatory requirements governing the exchange;
- .2 recognition of language, cultural, psychological and physiological impediments to effective communication and interaction and techniques for overcoming these impediments; and
- .3 best practices in the specific pilotage area.

5.5 Competent pilotage authorities should be encouraged to provide updating and refresher training conducted for certified or licensed pilots to ensure the continuation of their proficiency and updating of their knowledge, and could include the following:

- .1 courses to improve proficiency in the English language where necessary;
- .2 sessions to enhance the ability to communicate with local authorities and other vessels in the area;
- .3 meetings with local authorities and other responsible agencies to envisage emergency situations and contingency plans;
- .4 refresher or renewal courses in bridge resource management for pilots to facilitate communication and information exchange between the pilot and the master and to increase efficiency on the bridge.
- .5 simulation exercises, which may include radar training and emergency shiphandling procedures;
- .6 courses in shiphandling training centres using manned models;
- .7 seminars on new bridge equipment with special regard to navigation aids;
- .8 sessions to discuss relevant issues connected with the pilotage service including laws, rules and regulations particular to the pilotage area;
- .9 personal safety training;
- .10 techniques for personal survival at sea; and
- .11 emergency first aid, including cardio-pulmonary resuscitation (CPR) and hypothermia remediation.

Appendix 8.12(4) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

6 CONTINUED PROFICIENCY

6.1 In order to ensure the continued proficiency of pilots and updating of their knowledge, the competent pilotage authority should satisfy itself, at regular intervals not exceeding five years, that all pilots under its jurisdiction:

- .1 continue to possess recent navigational knowledge of the local area to which the certificate of licence applies;
- .2 continue to meet the medical fitness standards of paragraph 4 above; and
- .3 possess knowledge of the current international, national and local laws, regulations and other requirements and provisions relevant to the pilotage area and the pilots' duties.

6.2 Possession of knowledge required by subparagraphs 6.1.1 and 6.1.3 may be proved by an appropriate method such as personal service records, completion of continuing professional development courses or by an examination.

6.3 Where a pilot in cases of absence from duty, for whatever reason, is lacking recent experience in the pilotage area, the competent pilotage authority should satisfy itself that the pilot regains familiarity with the area on his or her return to duty.

7 SYLLABUS FOR PILOTAGE CERTIFICATION OR LICENSING

7.1 In the syllabus, area means the waters for which the applicant is to be certified or licensed. Each applicant for a pilot certificate or license should demonstrate that he or she has necessary knowledge of the following:

- .1 limits of local pilotage areas;
- .2 International Regulations for Preventing Collisions at Sea, 1972 as amended, and also such other national and local navigational safety and pollution-prevention rules as may apply in the area;
- .3 system of buoyage in the area;
- .4 characteristics of the lights and their angles of visibility and the fog signals, racons and radio beacons and other electronic aids in use in the area;
- .5 names, positions and characteristics of the light vessels, buoys, beacons, structures and other marks in the area;
- .6 names and characteristics of the channels, shoals, headlands and points in the area;
- .7 bridge and similar obstruction limitations including air draughts;
- .8 depths of water throughout the area, including tidal effects and similar factors;
- .9 general set, rate, rise and duration of the tides and use of the tide tables and real-time and current data systems, if available, for the area;
- .10 proper courses and distances in the area;
- .11 anchorages in the area;
- .12 shiphandling for piloting, anchoring, berthing and unberthing, manoeuvring with and without tugs, and emergency situations;
- .13 communications and availability of navigational information;
- .14 systems of radio navigational warning broadcasts in the area and the type of information likely to be included;
- .15 traffic separation schemes, vessel traffic services and similar vessel management systems in the area;
- .16 bridge equipment and navigational aids;

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Appendix 8.12(5) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

- .17 use of radar and other electronic devices; their limitations and capabilities as navigation and collision avoidance aids;
- .18 manoeuvring behaviour of the types of ships expected to be piloted and the limitations imposed by particular propulsion and steering systems;
- .19 factors affecting ship performance such as wind, current, tide, channel configuration, water depth, bottom, bank and ship interaction including squat;
- .20 use and limitation of various types of tugs;
- .21 the English language to a standard adequate to enable the pilot to express communications clearly;
- .22 IMO Standard Marine Communication Phrases;
- .23 IMO Code for the investigation of marine casualties and incidents;
- .24 Master–Pilot relationship, Pilot Card, operational procedures;
- .25 pollution prevention;
- .26 emergency and contingency plans for the area;
- .27 safe embarking and disembarking procedures; and
- .28 any other relevant knowledge considered necessary.

Annex 2

RECOMMENDATION ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS OTHER THAN DEEP-SEA PILOTS

1 GENERAL

Efficient pilotage depends, among other things, upon the effectiveness of the communications and information exchanges between the pilot, the master and the bridge personnel and upon the mutual understanding each has for the functions and duties of the other. Establishment of effective co-ordination between the pilot, the master and the bridge personnel, taking due account of the ship's systems and equipment available to the pilot, will aid a safe and expeditious passage.

2 DUTIES OF MASTER, BRIDGE OFFICERS AND PILOT

2.1 Despite the duties and obligations of a pilot, the pilot's presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. It is important that, upon the pilot boarding the ship and before the pilotage commences, the pilot, the master and the bridge personnel are aware of their respective roles in the safe passage of the ship.

2.2 The master, bridge officers and pilot share a responsibility for good communications and understanding of each other's role for the safe conduct of the vessel in pilotage waters.

2.3 Masters and bridge officers have a duty to support the pilot and to ensure that his/her actions are monitored at all times.

3 PILOT BOARDING POINT

3.1 The appropriate competent pilotage authority* should establish and promulgate the location of safe pilot embarkation and disembarkation points.

* "Competent pilotage authority" has the same meaning as in annex 1.

Appendix 8.12(6) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

3.2 The pilot boarding point should be at a sufficient distance from the commencement of the act of pilotage to allow safe boarding conditions.

3.3 The pilot boarding point should also be situated at a place allowing for sufficient time and sea room to meet the requirements of the master-pilot information exchange (see paragraphs 5.1 to 5.6).

4 PROCEDURES FOR REQUESTING PILOT

4.1 The appropriate competent pilotage authority should establish, promulgate and maintain procedures for requesting a pilot for an inbound or outbound ship, or for shifting a ship.

4.2 As human resources and technical means have to be planned well in advance, the operation of an efficient pilotage service requires information on the Estimated Time of Arrival (ETA) or Departure (ETD) to be furnished by the ship as early as possible with frequent updates where possible.

4.3 Communication by VHF or other dedicated means should be established as soon as possible to enable the master to confirm the ship's ETA and the Pilot Station to furnish relevant information regarding pilot boarding.

4.4 The initial ETA message to the Pilot Station should include all the information required by local regulations, including:

- .1 ship's name, call sign, ship's agent;
- .2 ship's characteristics: length, beam, draught, air draught if relevant, speed, thruster(s);
- .3 date and time expected at the pilot boarding point;
- .4 destination, berth (if required, side alongside); and
- .5 other relevant requirements and information.

5 MASTER-PILOT INFORMATION EXCHANGE

5.1 The master and the pilot should exchange information regarding navigational procedures, local conditions and rules and the ship's characteristics. This information exchange should be a continuous process that generally continues for the duration of the pilotage.

5.2 Each pilotage assignment should begin with an information exchange between the pilot and the master. The amount and subject matter of the information to be exchanged should be determined by the specific navigation demands of the pilotage operation. Additional information can be exchanged as the operation proceeds.

5.3 Each competent pilotage authority should develop a standard exchange of information practice, taking into account regulatory requirements and best practices in the pilotage area. Pilots should consider using an information card, form, checklist or other memory aid to ensure that essential exchange items are covered. If an information card or standard form is used by pilots locally regarding the anticipated passage, the layout of such a card or form should be easy to understand. The card or form should supplement and assist, not substitute for, the verbal information exchange.

5.4 This exchange of information should include at least:

- .1 presentation of a completed standard Pilot Card. In addition, information should be provided on rate of turn at different speeds, turning circles, stopping distances and, if available, other appropriate data;
- .2 general agreement on plans and procedures, including contingency plans, for the anticipated passage;
- .3 discussion of any special conditions such as weather, depth of water, tidal currents and marine traffic that may be expected during the passage;

Resolution A.960(23) – 211

Appendix 8.12(7) Recommendations on Training and Certification and on Operational Procedures for Maritime Pilots other than Deep-Sea Pilots.

- .4 discussion of any unusual ship-handling characteristics, machinery difficulties, navigational equipment problems or crew limitations that could affect the operation, handling or safe manoeuvring of the ship;
- .5 information on berthing arrangements; use, characteristics and number of tugs; mooring boats and other external facilities;
- .6 information on mooring arrangements; and
- .7 confirmation of the language to be used on the bridge and with external parties.

5.5 It should be clearly understood that any passage plan is a basic indication of preferred intention and both the pilot and the master should be prepared to depart from it when circumstances so dictate.

5.6 Pilots and competent pilotage authorities should be aware of the voyage planning responsibilities of masters under applicable IMO instruments*.

6 COMMUNICATIONS LANGUAGE

6.1 Pilots should be familiar with the IMO Standard Marine Communication Phrases and use them in appropriate situations during radiocommunications as well as during verbal exchanges on the bridge. This will enable the master and officer in charge of the navigational watch to better understand the communications and their intent.

6.2 Communications on board between the pilot and bridge watchkeeping personnel should be conducted in the English language or in a language other than English that is common to all those involved in the operation.

6.3 When a pilot is communicating to parties external to the ship, such as vessel traffic services, tugs or linesmen and the pilot is unable to communicate in the English language or a language that can be understood on the bridge, the pilot should, as soon as practicable, explain what was said to enable the bridge personnel to monitor any subsequent actions taken by those external parties.

7 REPORTING OF INCIDENTS AND ACCIDENTS

When performing pilotage duties, the pilot should report or cause to be reported to the appropriate authority, anything observed that may affect safety of navigation or pollution prevention. In particular, the pilot should report, as soon as practicable, any accident that may have occurred to the piloted ship and any irregularities with navigational lights, shapes and signals.

8 REFUSAL OF PILOTAGE SERVICES

The pilot should have the right to refuse pilotage when the ship to be piloted poses a danger to the safety of navigation or to the environment. Any such refusal, together with the reason, should be immediately reported to the appropriate authority for action as appropriate.

9 FITNESS FOR DUTY

Pilots should be adequately rested and mentally alert in order to provide undivided attention to pilotage duties for the duration of the passage.

* Refer to SOLAS regulation V/34 and resolution A.893(21) on Guidelines for voyage planning and STCW Code, Section A-VIII/2, part 2.

Appendix 8.13 Simplified Voyage Data Recorder

Simplified Voyage Data Recorder.

Introduction.

Simplified Voyage Data Recorder or S-VDR is a system that the International Maritime Organisation (IMO) has mandated for future carriage on the majority of large sea going vessels in excess of 3,000 gross tonnage. All international passenger ships are already fitted with VDR equipment. It is a system similar to the aviation "black box" recorder where if a vessel is involved in an accident or sinks, data can be retrieved to reconstruct the last 12 hours of the vessels voyage. It will allow investigators to review events leading up to an incident, using information retrieved from sunken vessels and will also be a tool in assisting the analysis of vessels operations in incidents where the vessel remains afloat.

Latest IMO S-VDR Carriage Requirements.

The International Maritime Organisation finally approved the mandatory requirement for the S-VDR system at MSC 79 in London December 2004.

The new rules stipulate that existing cargo ships on international voyages shall be fitted with an S-VDR as follows:

- "20,000 gross tonnage and upwards constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2006 but not later than 1 July 2009"
- "3,000 gross tonnage and upwards but less than 20,000 gross tonnage constructed before 1 July 2002, at the first scheduled dry-docking after 1 July 2007 but not later than 1 July 2010"
- "Administrations may exempt cargo ships from the application of the requirements when such ships will be taken permanently out of service within two years after the implementation date specified above.

Appendix 8.14(1) Dublin Port Note on Future Traffic Operations - 15.07.2002

DUBLIN PORT COMPANY



Note on Future Traffic Operations

15th July 2002

Version 2.4

Appendix 8.14(2) Dublin Port Note on Future Traffic Operations - 15.07.2002

Background:

Enda Connellan, DPC's Chief Executive, has expressed concern over maritime traffic congestion at the port. This concern has also been expressed by DPC's customers, in terms ranging from moderate concern to allegations of dangerous operation at times..

Analysis of traffic flows based on downloads of computer records from DPC , as well as other work, has shown that:

- Whilst the overall traffic volumes are modest, 55 to 60 movements per day, there is significant peaking, with planned peak volumes four times the average.
- At times, traffic in parts of the entrance channel and approaches has become uncomfortably crowded
- The "crowded" scenarios we have investigated have been the result of failure of certain ships to arrive or depart at the Estimated Time of Arrival or Departure, ETA or ETD, given by the ships agent or company
- Other "crowded" scenarios can occur if the harbour office allows arrival or departure times which conflict with other traffic. This occurs particularly when ETAs or ETDs are changed from "AM" or "PM" to an actual time just a few hours ahead
- Estimated times of departure are adhered to by some operators but not by others
- One key congestion point is the narrow channel between Buoy 4A and Buoy 10, where the Harbour Master, on safety grounds, does not allow large ships to pass one another
- Port Radio has a mixed role, part advisory, part control, at present
- Radio Telephony phraseology used by Port Radio is not always standardised

Appendix 8.14(3) Dublin Port Note on Future Traffic Operations - 15.07.2002

- The Pilot Letter, a planning document issued by the harbour office is of limited value, because:
 - The ETAs and ETDs are often sufficiently inaccurate as to be of very limited operational value
 - Some agents/operators do not give ETA or ETD information, using an AM or PM designation only. This is thoroughly unsatisfactory for planning purposes
- Some ships fail to notify DPC, either at the harbour office or Port Radio, when they know they will fail to meet ETD. On occasions, DPC staff make multiple phone calls, or even visit the ship to obtain information on the extent of delay. This is clearly unacceptable.
- The ETAs and ETDs given in the Pilot Letter, in the scenarios we have examined, would give smooth traffic flow, if adhered to. Disruptions are caused by ships arriving or departing at times considerably different from those given on the Pilot Letter.
- The times ETAs and ETDs on the pilot letter are obtained, often by substantial effort, by Harbour Office staff from DPC's customers. The responsibility for accuracy of these times, outside situations of Force Majeure, lie therefore with those customers whose times are inaccurate
- DPC sometimes compounds the situation on occasions by accommodating off-time ships, aiming to minimise disruption to the ships which are off-time. This laudable aim can lead either to uncomfortable congestion or to delay of ships which are on time.
- Some policies on traffic management operated by harbour office management encourage unplanned operations by customers; DPC operates in part a policy quoted as "First up Best Dressed", meaning that a ship arriving at its scheduled time can be delayed by a ship "Turning up", sometimes ten or more hours early, and being given access to port facilities in preference. This encourages unplanned operation and is not in the interest of the majority of customers
- DPC logs the estimated and actual times of arrival and departure of ships, but, up to now, has made relatively little use of this information to improve scheduling.
- No sanctions are employed against late or early arrivals or departures, and the Harbour Master's statutory authority is rarely, if ever, employed
- DPC requires only one hour notice of departure for use of pilots or tugs. This creates the impression that these services are available at one hour notice, and that such notice is acceptable for provision of an arrival or departure slot time

Appendix 8.14(4) Dublin Port Note on Future Traffic Operations - 15.07.2002

In summary, the operations of the Harbour Office can be characterised as dealing with partly planned traffic. DPC staff then need to act reactively as ships arrive, some at times planned, some unplanned. Though done with the best of intentions, this creates a stressful, potentially crowded situation, which operates in a manner sometimes unfair to those customers who are on time.

It should be pointed out that for low traffic volumes, a reactive ad hoc system as used by DPC can work well, but only when:

- Resource is not constrained, ie we have more resources than we need
- R/T conversations between ships one to one are sufficient to ensure safe passage, ie only two or three ships meet in an area at a time.

Now, at busy times, these conditions do not apply. The "record" for number of ships under simultaneous Port Radio advice/control, within the port boundary, is nineteen!!

Poor planning also impacts seriously on operation of both pilots and tugs.

The above examples illustrate that the current situation is unsatisfactory and cannot be allowed to continue.

The Way Forward:

All transport operations use limited resource most effectively and efficiently by planning its use, rather than reacting to demands as they arise. At those times when the resource is not fully utilised, it can be deployed to deal with unplanned or unplannable situations.

Terminology: For the purpose of the following discussion, the term "slot" will be used to describe the time at berth of any ship. Planning to traffic to the berth will be based on Estimated Time of Arrival, ETA or Departure, ETD.

There is currently potential confusion caused by the impression, often mistaken, that a "slot" represents a fixed regular arrival time for each RoRo ship. This "belief" exists, in spite of the fact that, at best, RoRo ships from Liverpool will have arrival times vary by an hour over a ten day cycle, driven by tide patterns at Liverpool

Appendix 8.14(5) Dublin Port Note on Future Traffic Operations - 15.07.2002

For DPC and traffic planning, one major constraint is the narrow channel between buoy 4A and Buoy 10. To plan and control traffic flows in this area, the following changes to our operations will need to occur:

1. Customers will be asked for ETA and ETD information as now, but will be told that the information received 24 hours before arrival will be used for planning purposes, and that this information will determine the traffic planned for the port.
2. All traffic will be assigned arrival and departure times.
3. No ship will be assigned a confirmed slot at a berth unless ETA and ETD times are provided.
4. If information is provided one week or more ahead, for example with AM, PM or To Be Advised data, customers will be thanked for the information, and told that we will provisionally allocate a berth for an unloading period. We will not be able to allocate access to and from that berth until ETA and ETD times are provided. This is because these times determine use of port resources: channels, pilots and tugs.
5. Ships, which are on time will not be delayed by ships that are early or late.
6. Subject, to 5, we will aim to facilitate traffic which runs on regular schedules.
7. Ship arrivals and departures, which are scheduled and planned will receive priority allocation of river and berth relative to unplanned ships. Failure to provide an accurate ETA or ETD will count as "unplanned".
8. We will **only** operate the "first up best dressed" policy, when two or more **unplanned** ships, ie ships for which we have no ETA or ETD, arrive in close time proximity. The first of the two unplanned arrivals at a Dublin Bay reporting point A/C will be given priority among the unplanned ships, subject to availability of river, berth, pilot and tugs, if required.
9. An unplanned arrival or departure will not be allowed to disrupt a planned arrival or departure. It follows that a berth allocated in advance, with an ETA and ETD, will not be handed to another ship arriving early or late.
10. Port Radio will operate in a control, rather than advisory capacity. This means that all traffic will **REQUIRE CLEARANCE** from Port Radio before carrying out any movement in the port area. The clearance will not in any way affect the responsibility of master/pilot for the safe navigation of the vessel. It only places a further condition on that navigation.

Appendix 8.14(6) Dublin Port Note on Future Traffic Operations - 15.07.2002

11. Standard radiotelephony phraseology must be adopted at Port Radio. (There are two principal reasons for this, accuracy of understanding when reception is variable, and the command of English by some foreign seamen.)
12. All ships in the port will be required to maintain a watch at all times, such that the ship can be contacted by Port Radio. This can be either a VHF watch, or the provision of a mobile phone contact number for an assigned responsible person on board ship. (This is not onerous since portable R/T sets, around the size of a mobile phone, are available. The aim is to allow communication if a ship appears to be delayed) This is to avoid situations where Port Radio or the Harbour Office have no information on ETD when a ship misses its departure time.

The aim of these new operating methods is to provide a planned service, rather than an ad hoc reactive service, to our customers, for their benefit.

This should be in the interests of the majority of our customers. RoRo traffic is regular and scheduled as is the overwhelming majority of LoLo traffic. Between January and March, 2002, 75% of visits were from only 30 ships.

We will always act fairly and reasonably, and aim to help any customer who fails to meet forecast ETA/ETD. However, unscheduled demands are often more expensive than planned resource use, and we will likely make a penalty charge. We will not delay ships who are on time to allow passage of early or latecomers.

If customers fail to meet their forecast ETA/ETD, DPC should know of this as soon as the Agent/Captain/Stevedore company knows, and the onus for providing this information is on the Agent, or a person designated by the agent. This will allow DPC to reschedule the vessel/berth in the most effective manner.

It is for the agent to decide whether, for example, a stevedore company should give DPC an update on departure times.

Principles of Fairness:

Ships which arrive/depart at their forecast ETA/ ETD should not be delayed by ships which are early or late

Subject to the above, DPC will aim to facilitate traffic, which runs to a schedule, over other traffic

DPC will not allow the "first up best dressed" principle to apply, save between two or more unplanned arrivals, and then subject to the first two principles

The Harbour Master has statutory responsibility for all ship movements within in the port, and will use that authority to ensure and enforce fairness

Appendix 8.14(7) Dublin Port Note on Future Traffic Operations - 15.07.2002

If ships fail to meet their ETA or ETD, DPC will aim to facilitate their entry/exit from the port at the earliest convenient safe slot.

Failure to follow the instructions of Port Radio, save in a force majeure situation, will be a serious matter and be subject to sanction.

Ships will be planned to have a one-mile separation between them. However operationally, ships will be expected to keep a minimum separation of one half mile, in good visibility and conditions, when moving in the same direction.

Planning:

DPC has developed a methodology for planning traffic. Initially, for planning purposes, this will be based on allocating the narrow part of the channel that lies between buoy 4A and buoy 10, in time slots of five minutes. In the plan, not more than one ship will be allowed in the Buoy 4A to Buoy 10 part of the channel in any one five minute period.

There are other areas of the port, which may cause constraints. However, the work done to date has shown that the narrow channel is one major traffic constraint. We may need to incorporate other constraints later.

For this arrangement, ETA s will need to be consistent. At present, RoRo traffic gives an ETA as the time tied up at a berth, whereas other traffic ETAs refer to the time of arrival at the Dublin Bay Buoy. All Departure ETDs refer to the time of leaving the berth. For consistency, ETAs in future will need to be stated to the Dublin Bay Buoy.

RoRo:

DPC will collect data from the RoRo customers at weekly intervals, when they generally produce their traffic plans. We here remind our customers that these plans must arrive on time. These are produced on different days for different companies:

For example:

Norse Merchant	Monday pm
P&O	Friday pm
Stena	Slot times are regular
Irish Ferries	Slot times are regular
Sea Containers (IoM)	Slot times are planned in advance for the season

Appendix 8.14(8) Dublin Port Note on Future Traffic Operations - 15.07.2002

LoLo:

LoLo generally run on programmed schedules and we hereby ask for these weekly, if we do not already receive them. We must emphasise the need for accuracy in ETA and ETD forecasts if delays are to be avoided. Part of this segment currently shows poor time discipline.

Others:

It is DPC's sense that the variable discipline exists in this segment.

Operational Issues and Penalty Charges

- Daily changes to these schedules caused by, eg, weather, missing a lock time, or waiting for cargo must be notified to us as soon as the companies themselves know by
 - Telephone or email to the harbour office between 9:00am and 5:00pm, Monday to Friday
 - Telephone/fax to port radio outside these hours
- Unless notified to the contrary three hours before ETA or ETD, a pilot/tug will be allocated to the ship and will aim to turn up for the ETA/ETD.
- If DPC is informed of time changes less than three hours before the planned ETA/ETD, or the ship fails to arrive within 15 minutes of ETA or depart within 15 minutes of ETD, the pilot/tug will not begin their service and the ship will need to be rebooked for pilotage/towage at the next available time.
- A penalty charge or penalty charges will be made if DPC is not informed before the three hour time limit of a change in ETA or ETD.
- If a ship wishes to bring forward an ETD, provided that the new ETD does not conflict with already planned traffic, DPC will supply a pilot/tug if one is available for the new ETD. Otherwise, DPC will provide a pilot/tug at the original ETD.
- The above timings apply to weekdays. At weekends, notice for tugs will be 4 hours.
- Ships, which miss their ETA ETD will be delayed until a safe opportunity exists to clear them for passage.

Appendix 8.14(9) Dublin Port Note on Future Traffic Operations - 15.07.2002

Fog:

When visibility is less than 0.5 nm (one half of a nautical mile) DPC will operate one-way traffic between the Dublin Bay Buoy and the berth. Priority will be given to incoming traffic in this situation.

Force Majeure:

Under Force Majeure conditions, the above rules will be modified. Among reasons for force majeure are:

- Maritime safety
- Unloading difficulties due to extreme weather
- Need to accommodate ships constrained by their draft to narrow tidal slots or a narrow weather window

Appendix 8.15(1) Dublin Port Company - Notice to Mariners, No. 10 of 2005

DUBLIN PORT COMPANY

NOTICE TO MARINERS

No. 10 of 2005

Standard Operating Procedures For Vessels
Entering into, Shifting within & Departing from
The Port of Dublin

Port Radio:

Port Radio operates as a "Traffic Organisation Service", and its main role is to locally manage the scheduling of all sailings, arrivals and shifts. Port Radio is no longer an "Advisory Service" but now controls the movement of all ship within the jurisdiction of "Dublin Port Company" as set out in the *1996, Harbours Act*. Port Radio is authorised to issue instructions to vessels. These instructions shall be result orientated only and shall not encroach upon the master's responsibility for safe navigation, or interfere with the traditional relationship that exists between the master and pilot. The details of execution for any such instruction, such as courses to be steered and engine movements to be at the discretion of the master or pilot on board the vessel.

"Port Radio control the space – Ships masters control their ships"

Notification Requirements.

1. A minimum of two hours notice is required for all ships arriving at the Port of Dublin.
2. A minimum of two hours notice is required for ships sailing/shifting and requiring a pilot. However, should a pilot be required at shorter notice and one is available, such a service can be provided.

Criteria for Prioritizing ship movements

Priority 1 : Ro-Ro vessels when operating on their slot times shall have absolute priority

Priority 2 : Any ship arriving / departing on its allocated time.

1 of 3

Appendix 8.15(2) Dublin Port Company - Notice to Mariners, No. 10 of 2005

Other Considerations :

- (a) tidal window / weather / work dependent
- (b) departing vessel if vessel awaiting that berth
- (c) inbound vessels over outbound

Exception : One exception only to these priorities. Maximum draft vessel arriving and needing to work on arrival, when at least 12 hours notice has been given to the effected Ro-Ro operators

Movements

All ships with or without a Pilot or PEC holder on board and port craft must first obtain permission from Port Radio prior to :

- 1. Approaching the harbour entrance and/or channel from seawards
- 2. Letting go and departing from a berth
- 3. Shifting within the Port

Conduct of ships within the Dublin Port Company Limits

Navigational Safety shall be the overriding consideration governing the movement of all vessels. In addition to those regulations, set out in the International Regulations for the Prevention of Collisions at Sea, the following shall also apply:

- 1) Vessels are prohibited from meeting or overtaking within the constrained section of the channel between buoys No's 5/6 and buoys No's 7/8. This does not apply to harbour tugs, pilot boats, various workboats and leisure craft unless instructed to the contrary by Port Radio.
- 2) Where two or more vessels propose to agree a particular manoeuvre, then such a manoeuvre shall not be carried out until it has been reported to and is cleared by Port Radio.
- 3) No vessel shall enter the channel/fairway, unless it has been confirmed by Port Radio that it may do so and that the intended berth is clear or expected to be clear.
- 4) All communications between ships relating to movements, manoeuvring, berthing or unberthing, shall take place on VHF Channel 12 only and shall be in the English language only. Instructions received from Port Radio, in relation to any confusion, ambiguity or the procedure of such communications, shall be followed immediately.
- 5) Traffic contra-flow is prohibited in circumstances where the visibility is reduced to less than 0.5 nautical miles, anywhere within the buoyed channel.

Appendix 8.15(3) Dublin Port Company - Notice to Mariners, No. 10 of 2005

- 6) All vessels including all port craft, must report in to Port Radio at the designated reporting points.
- 7) Gas tankers when navigating in the channel shall not to proceed against traffic moving in the opposite direction. At least a half-mile separation between vessels shall be maintained both ahead and astern of gas carriers when proceeding in the same direction.

Notwithstanding anything contained in the above, exceptions to these rules may be made by the Harbour Master.

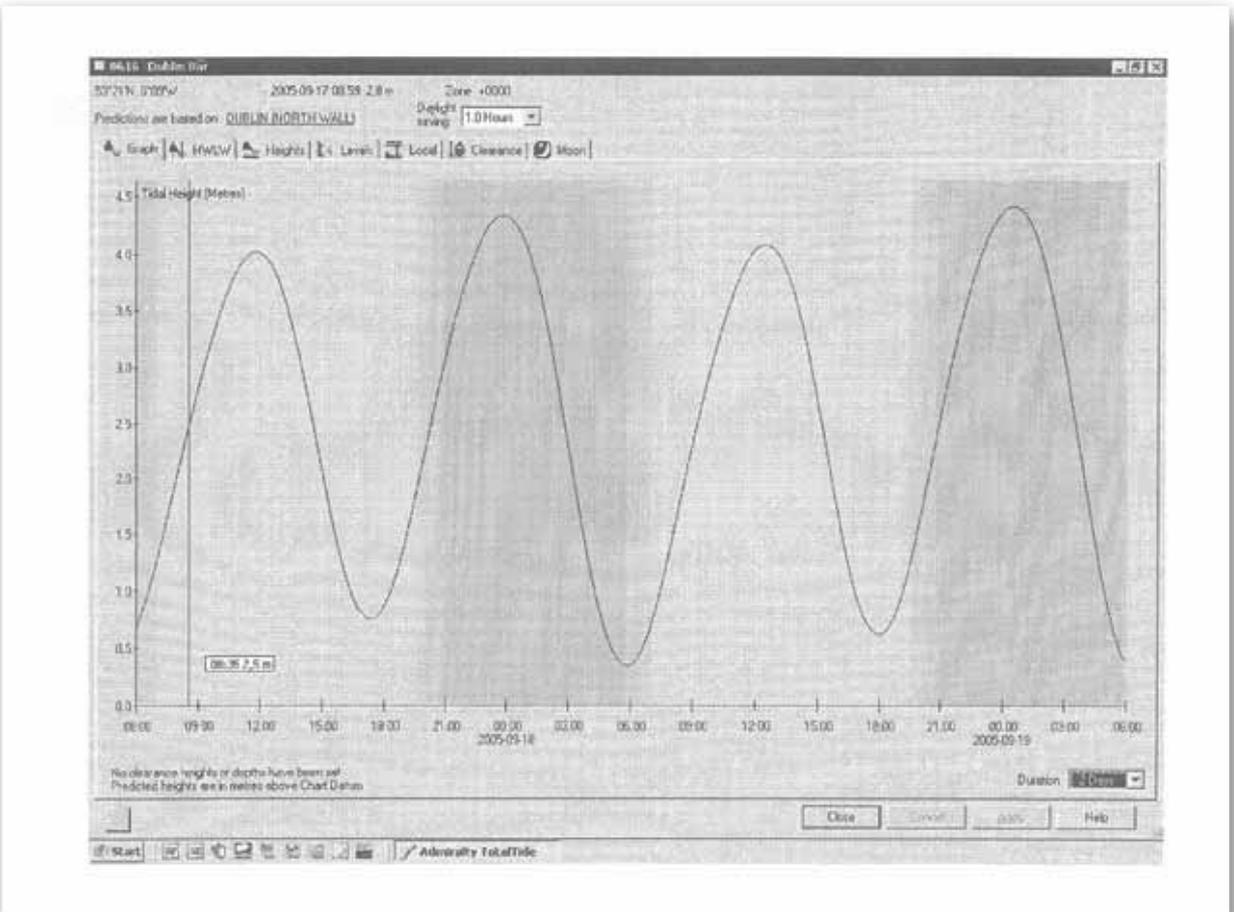
CAPTAIN E.P. CONNELLAN
HARBOUR MASTER

1st January 2005

Appendix 8.16 Predicted heights and times of High and Low Water at Dublin.

0616 Dublin Bar
53°21'N, 6°09'W Ireland den 17 september 2005 -0100
Data Area 1-4. Europe, Northern Waters and Mediterranean Version 5

2005-09-17			2005-09-18			2005-09-19			2005-09-20		
	Time	Height	○	Time	Height		Time	Height		Time	Height
High	11:50	4,0 m	High	12:29	4,1 m	High	00:28	4,4 m	High	01:06	4,4 m
	23:49	4,3 m					13:06	4,1 m		13:43	4,0 m
Low	05:08	0,5 m	Low	05:49	0,3 m	Low	06:28	0,3 m	Low	07:08	0,4 m
	17:21	0,8 m		17:59	0,6 m		18:37	0,6 m		19:17	0,6 m
2005-09-21			2005-09-22			2005-09-23					
	Time	Height									
High	01:47	4,3 m	High	02:31	4,1 m	High	03:18	3,9 m			
	14:22	3,9 m		15:03	3,8 m		15:50	3,7 m			
Low	07:47	0,5 m	Low	08:30	0,8 m	Low	09:16	1,0 m			
	19:59	0,7 m		20:46	0,9 m		21:38	1,1 m			



GLOSSARY

ARPA	Automatic Radar Plotting Aid.
Admiralty Charts (AC)	Hydrographic and approved maps of areas in different scales that are used for navigational purposes and corrected to date by the Weekly Notices to mariners.
ALRS	Admiralty List of Radio Signals
Bridge Team	The watch keeping officers, ratings and the master.
Cable	One tenth of a nautical mile or 608 feet.
Certificate of Competency	Appropriate certificates issued under STCW 78/95 as amended to state that an officer has been found competent to perform operations and management functions appropriate to his/her level.
Chart Datum (CD)	CD is defined as the level below which soundings are given on Admiralty charts and for Dublin this is approximately the level of lowest astronomical tide.
Convention Certificates	These are the international mandatory certificates that are issued by an Administration or by a Recognised Organisation on behalf of the Administration.
Conn	The person giving orders for the navigation control of the vessel.
CPP	Controlled Pitch Propeller.
Cross Index Range (CIR)	The distance between the course to make good line and a parallel line drawn from a suitable reference point on a chart is known as the Cross Index Range (CIR).
Cross Track Error (XTE)	The measured Variance Distance on either side of a track line that is permissible to deviate and still comply with the passage plan.
ECDIS	Electronic Chart Display and Information System.
Dublin Port Company	A privately owned company with the principal (DPC) shareholder being the State.
Dublin Port	A principal commercial and industrial port in the State. It is equipped with all modern cargo handling facilities for break bulk, Lo-Lo, Ro-Ro and bulk liquid cargoes. It is also the Irish terminus for vehicle and passenger ferries and

	highspeed craft and maintains regular services to UK, continental Europe, S. Europe and Mediterranean ports.
GPS	A satellite navigation system owned and operated by US Department of Defence.
Helmsman	Usually a watch keeping rating who is available to steer the ship when automatic steering is dispensed with. The rating is usually qualified through training and experience in accordance with STCW 78/95 Section A- II/4.
IMO	International Maritime Organisation. A UN body with responsibility for maritime affairs.
ISM Code	International Safety Management Code for the Safe operation of Ships and Pollution Prevention. It differs from an ISO QA standard insofar as the ISO is to assure quality of product and service whereas the ISM primary purpose is to ensure safety at sea and protection of the environment and thereby provides evidence of fitness to operate a ship(s).
Lookout	A rating qualified in accordance with STCW Section A-II/4 and should be on the bridge as part of the team to support the OOW except possibly during clear weather, daytime and little or no traffic.
Master (Captain)	Generally the person appointed to have overall command and responsibility for the operation and navigation of a ship and often referred to as the captain.
Master Pilot Exchange (MPX)	This is a two- way formal exchange of information. It should give the Bridge Team the understanding of the pilot's intent and the pilot an understanding of the Bridge Team.
Parallel Indexing	The running of a parallel index line provides real-time information on the ship's lateral position relative to the planned track. These lines may be used to monitor the ships position and is a method of assessing the vessel's progress continuously and immediately without having to resort to laying off visual bearing or satellite positions on the chart with the associated delay. PI, as with any other single position fixing system, should be used in conjunction with other aids such as the echo sounder.
P&I Association	Protection (or Protecting) and Indemnity Association (often referred to the P&I Club). An organisation which administers the mutual insuring of liability risks, faced by ship owners, for and on behalf of its members the insured ship owner.

GLOSSARY

PEC	Holder of a pilot exemption certificate. Issued under examination to qualifying masters and officers who regularly trade to Dublin on certain types of ships.
Pilot	Is employed by DPC and a warrant has been issued pursuant to section 56 (10(a) of the Harbours Acts 1996 and 2000. Usually the pilot is regarded as the servant to the master and is there for his/her local knowledge of the pilotage area and in many cases and particularly in Dublin for his/her ship handling expertise when berthing. A typical entry in the Deck Log of a ship might be “Ship course and speed to master’s orders and pilots advice” (TMOPA). The pilot is a person who aids or supports the master and may give directions for the movement of a ship through congested waters and has a broad knowledge of facilities and hazards in the area and experience in ship handling. It is compulsory for certain categories of ships to have a warranted pilot on board in Dublin. “Bro Traveller” was such a vessel that required a warranted pilot on board.
RNW	Radio Navigation Warning
Resolutions	The IMO Assembly Resolutions referred to in the text of the Report concern agreement on technical matters, which have been deliberated by subsidiary bodies and represents a collective view on an internationally agreed position.
Squat	The loss of under-keel clearance as the ship moves at forward speed compared with when it is stationary. This is due to interaction affects with the sides of adjacent channel and sides of moving ship.
TSS	Traffic Separation Scheme
Voyage Planning	Passage Plan/Voyage Plan. A detailed planning of the whole voyage or passage from berth to berth, including those areas necessitating the presence of a pilot; execution of the plan; and the monitoring of the progress of the vessel in the implementation of the plan. This is a requirement under SOLAS Chapter V Regulation 34 taking account of the guidelines and recommendations in Resolution A.893 (21).
VTS	Vessel Traffic Service. Refer to IMO Resolution A.857 (20). Similar to Air Traffic Control - an observation station on a coastline or in a river or port mainly using radar, radar and controls traffic movement in that space.

10. LIST OF CORRESPONDENCE RECEIVED

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Mr. Brian Byrne, VTS Operator	69
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Calafort Átha Cliath

29/06/2007.

Ms. Bridie Cullinane,
Secretary,
Marine Casualty Investigation Board,
Leeson Lane,
Dublin 2.



DUBLIN PORT CO

Dublin Port Company
Port Centre, Alexandra Road, Dublin 1
Telephone (353 1) 887 6000, 855 0888
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Re: Draft Report into "Bro Traveller" incident.

Dear Ms. Cullinane.

Thank you for the opportunity to comment on the draft report resulting from the investigation into the "Bro Traveller" incident which occurred in the approach channel to Dublin Port on 17th September 2005. This response also contains comments from Capt. Dignan, our Harbour Master.

Firstly, let me point out that Dublin Port Company regards any incident of this nature with the utmost concern and would share the MCIB's objective of ensuring that this type of incident does not recur. I welcome the recommendations in the Report which, I feel, will be very helpful in achieving this objective.

Before commenting on some specific points in the Report, I would like to make two general observations.

Firstly, the Report relies heavily on references to IMO Resolution A.960(23) and has noted failure to comply with this Resolution in many instances. However, the Report has not criticised the failure of the responsible authority to disseminate information in relation to this standard to the industry who rely on that authority for such information. It is noted that, in the recommendations of the Report, this matter is addressed for the future. However, it should also be noted that, almost two years after this incident, this information has not yet been issued by the MSD to the industry. I would point out that the Harbour Master is already implementing the requirements of the Resolution.

Secondly, the Report has not noted that, prior to the completion of the investigation, Dublin Port Company had already conducted their own internal investigation and had already implemented measures to ensure a regular eyesight check for pilots.



Directors: J. Burke (Chairman)
P. Bowles, C. Bruce, F. Connelley (Managing), B. Daly, T. Fennell,
S. Humphreys, T. Hynes, B. W. Kerr, J. Lacey, S. Martin, J. Sullivan,
Secretary: M. Sheehan

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I would now like to comment on a number of specific areas of the Report and I propose to address them by reference to section and paragraph numbers.

Para. 3.2 (iii).

It should be noted that the vessel, under the command of the master, was passing No.1 buoy at the time the pilot reached the bridge. The report seems to imply that the proximity of the vessel to No.1 buoy was as a result of the pilot's actions which is incorrect.

Para. 4.2

The first paragraph states that the master and pilot had different views on how to re-float the vessel and then devotes space to explain the master's logic without any reference to the pilot's reasoning on the issue.

This paragraph makes reference to Irish Coast Guard being contacted via Dublin Port Radio. The Report should note that the master of the vessel is required to contact the Coast Guard directly as required by International Law.

Para. 6.3

This paragraph contains a number of suggestions that the Master Pilot Exchange (MPX) had not been completed and goes on to suggest various reasons why this might have occurred. However, in Para. 3.2 (iii) it clearly states that "The Master Pilot Exchange was completed".

Section 6.7. Dublin Port Company Marine Operations.

This section appears to be very general in nature and includes comment and implied criticism on a number of issues having no bearing, whatsoever, on the "Bro Traveller" incident. Furthermore, I note the comment that "some pilots expressed their views" on a number of issues. I am not aware that the management of Dublin Port Company was given an opportunity to express their views on these issues and this might have resulted in a more balanced and fair outcome. I request that this section be removed as it has no relevance to the incident.

Para. (iii) c). The conclusion at the end of this paragraph is totally inaccurate and the background was explained to the investigator conducting the investigation. It is correct to state that problems were encountered in this area on the initial introduction of this new system. However, this matter was quickly addressed and was not an issue at the time of the incident. Consequently, it is incorrect to suggest that "more active control" was needed by VTS operators as this deficiency had already been addressed and a proper working relationship existed between pilots and VTS operators at the time of this incident.

Para. 6.7 (iii) (e).

VTS did not broadcast to "all stations" because it was not necessary to do so. VTS did ensure that any vessels passing the area of the grounding (the only vessels likely to be effected) were fully informed. Furthermore, VTS did impose "operational restrictions" by instructing passing vessels to pass at slow speed.

Appendix 1 and 2.

The titles on Appendix 1 and 2 namely, "Admiralty Chart 1447 "Bro Traveller", would seem to imply that these were copies of the actual charts on the vessel showing the various plots as entered by the bridge team. It must be understood that these are re-constructions by the investigator of his findings.

Thank you, again, for the opportunity to comment on the draft report and I can assure you that Dublin Port Company will make every effort to prevent a recurrence of such an incident.

Yours sincerely,



E.P.C. Connellan.
Chief Executive Officer.

MCIB RESPONSE

The MCIB points out that in Recommendation No. 7.3, it has recommended that the Maritime Safety Directorate disseminate relevant IMO Resolutions. However it is incumbent upon major Port companies to inform themselves of best International Practices.

The MCIB notes that Dublin Port Company had instigated eye tests and has amended the report accordingly.

Paragraph 3.2 (iii) Noted.

Paragraph 4.2 Noted.

Paragraph 6.3 Noted, the report has been amended accordingly.

Paragraph 6.7 The Board notes this section and would point out that Dublin Port Company had the opportunity to express their views in their commentary and failed to do so.

Paragraph (iii) c The Board notes this and recognises that Dublin Port Company had taken corrective action, and has amended the report accordingly.

Paragraph 6.7 (iii) (e) Noted.

Appendix 1 and 2 Noted.

29th June 2007

John G. O'Donnell, B.L.
Chairman
Marine Casualty Investigation Board
Leeson lane
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**Draft Report of the investigation into an incident involving the grounding of the
Oil Tanker "Bro Traveller" on 17th September 2005**



Dear Sir,

Please be advised that all comments and observations made by me, in relation to the above MCIB Investigation, have resulted to consultation and combined effort, been included in the response signed by Mr. Enda Connellan, Chief Executive Officer.

Yours Sincerely,



Capt. David T. Dignam
Harbour Master



Directors: J. Burke (Chairman)
P. Bourke, C. Byrne, E. Connellan (Managing), B. Daly, T. Ennis,
E. Humphreys, T. Hurley, B. W. Keen, J. Kinsey, S. Moran, T. Stafford,
Secretary: M. Sheary

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THE MCIB NOTES THE ABOVE

MCIB RESPONSE

The MCIB notes the contents of this letter.

28th June 2007



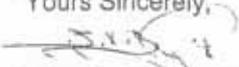
Brian A. Byrne
VTS Operator
Dublin Port Company

Mr. John G. O'Donnell, B. L.
Chairman
Marine Casualty Investigation Board
Leeson Lane
Dublin 2

Comments & Observations on Draft MCIB Report
Re "Grounding of Tanker "Bro Traveller" on 17th September 2005"

- A. The standard of communication in accordance with I.M.O. Standard Marine Communication Phrasing, may not have been used in accordance with the manual, but both Pilot and myself understood each other perfectly.
- B. Dublin Port Company continues to ensure all V.T.S. operators are trained to the highest standards. At present there are 10 operators with V-103-1 and three with V-103-2, myself included. Reluctance by some V.T.S. operators issuing directions to warranted Pilots in the past may have occurred, however procedures were put in place D.P.C. N.T.M. No. 14 of 2003 states that V.T.S. controls the space. There was never any reluctance by me to issue directions to warranted pilots nor was there any indication of such during this incident.
- C. Before any such manoeuvre is carried out V.T.S. would have expected a request to carry out such a manoeuvre from the ships involved.
- D. V.T.S. did not make an all stations broadcast as there were no other vessels moving within the port. The "Stena Adventurer" contacted V.T.S. to confirm his departure time and prior to giving the vessel clearance to sail I ordered him to pass the "Bro Traveller" at slow speed. V.T.S. then informed the pilot on board the "Bro Traveller" of the "Stena Adventurer's" departure time who agreed that the vessel should pass at slow speed.
- E. At 07:37 I observed that "Bro Traveller" had come to a stop. The V.T.S. radar was on 10m range, which is normal in good visibility plus the fact that there was a warranted pilot on board. On this range it is not immediately obvious when a vessel is slightly out to the channel. In reduced visibility, and at other times when I have concerns, I would have gone to a lower range.

Yours Sincerely,


Brian A. Byrne
V.T.S. Operator

MCIB RESPONSE

The MCIB notes the contents of this letter.

