MARINE ACCIDENT INVESTIGATION BRANCH

Summary of Investigations No 2/94

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This summary contains facts which have been determined up to the time of issue. This information is published to inform the shipping industry and the public of the general circumstances of accidents and must necessarily be regarded as tentative and subject to alteration or correction if additional evidence becomes available.

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INTRODUCTION

A reader of the Summary of Investigations, involved in safety management training, telephoned the office. He made the observation that on reading the Summaries, or at least some of them, he has the impression that we only look at the incidents in a superficial way. He considered that we tend to blame the person who had the accident and leave it at that without looking further down the causation tree to find out the root cause of the accident. This is an interesting observation and raises two points which need addressing.

The first point is that we are concerned if people think our investigations are superficial because this implies they are not thorough enough. This, I believe, is not so because we fully realise the importance of determining not only the immediate cause of an accident, but also the basic factors behind the immediate cause. As an example, the immediate cause of a collision in fog could be incorrect interpretation of the radar information, but this might have resulted from, for example, lack of training, distraction or fatigue. It would be wrong to think that every accident has both immediate and basic causes - sometimes things really are as simple as they seem - or that it is possible to uncover the basic ones. Sometimes they are so obscure they defy detection. However, the basic or root causes will always be in the mind of the Inspector when he carries out his investigation.

The second point raised by this observation is the matter of blame. The fundamental purpose of our investigations is to determine the circumstances and the causes of accidents with the aim of improving safety of life at sea and the avoidance of accidents in the future. This is set out in the Accident Investigation Regulations in Regulation 4 which goes on to say that it is not the purpose of our investigations to apportion liability, nor, except so far as is necessary to achieve the fundamental purpose, to apportion blame. In practice, in almost all cases it is impossible to determine the causes of an accident without considering the question of blame, and this of course brings us back to the matter of basic factors, because the fault behind the cause may very well lie with someone, or some organisation, somewhat removed in both distance and time from the accident.

It is disappointing if our summaries can give the impression that accidents are not fully investigated and that we are too willing to apportion blame. It must be remembered, though, that that is what they are - summaries of our investigations. When a report of an investigation is condensed to only a couple of pages, and in some cases less than that, it is not always possible to include all the findings of the Inspector, certain aspects may have to be sacrificed. What is important though is to include the safety lessons to be learnt and we hope that is what we are doing.

This introduction is not meant to discourage readers from giving us feedback, in fact just the opposite. It is only by receiving feedback that we can judge whether this publication is achieving its main objective of getting across the safety message to those on board the ships, those who manage and operate them from ashore and all who have an interest in safety at sea.

Chief Inspector of Marine Accidents
August 1994

INDEX

1. GROUNDING OF OIL TANKER AFTER WINDLASS FAILURE

Narrative

An oil tanker of 50,000 gross registered tonnage arrived in ballast at her intended port of loading. The vessel was initially anchored approximately 2 miles from the coast within port limits. She was scheduled to load in 5 days time. During the following morning, the Master decided to shift the vessel to a position approximately 2.5 miles from the coast where she was re-anchored using the port anchor and 6 shackles of cable. The prevailing wind was offshore Force 2.

During the following night, the wind veered and increased to Force 8. The port anchor cable was slackened to 8 shackles and, later, the starboard anchor and 4 shackles of cable were let go in order to take some weight off the port anchor cable. By morning, the wind was gusting to Force 10 which caused the vessel to roll and pitch heavily. The port anchor cable was slackened to 11 shackles in order to reduce the chance of dragging. The Master then decided to weigh both anchors and proceed to sea. The starboard anchor was hove up and secured. The vessel then commenced weighing the port anchor. The main engine was on Dead Slow Ahead. With 6 shackles of cable still in the water, the port windlass hydraulic motor exploded. The brake was then applied to the port anchor cable and the starboard anchor and 4 shackles of cable were let go.

With the brake hard on, the port anchor cable pulled out until the bitter end bracket in the chain locker broke and the port anchor and 14 shackles of cable were lost overboard. The starboard anchor cable was then slackened to 10 shackles. The vessel was now approximately 2 miles from the coast.

During the day, the ship's engineers effected a repair to by-pass the damaged port windlass hydraulic motor in order that the starboard motor could be used. Despite use of the main engine, the vessel dragged her anchor a distance of 0.7 mile. On completion of the repair, the Master decided to weigh the starboard anchor and proceed to sea. However, heaving was stopped when a severe leakage from the starboard windlass hydraulic motor was discovered. The starboard anchor cable was then slackened back to 10 shackles.

The starboard windlass hydraulic motor casing was found to be cracked. The weather improved over the next few days during which time the windlass hydraulic motors were removed in preparation for fitting replacements.

The wind then veered and strengthened to Force 8 - 9, gusting Force 11, which caused the vessel to drag her anchor again. Although the main engine was on Full Ahead, the vessel continued to move astern towards a lee shore. The Master called the Port Authority by radio and requested tug assistance. Although 2 tugs were instructed to assist, they were forced to return to port by the severe weather conditions.

An attempt was made to pull out the starboard anchor cable and to break the securing bracket in the chain locker by running the main engine Full Astern. The attempt was unsuccessful and the vessel eventually grounded on the lee shore.

Observations

1. The anchorage is a recognised waiting area. However, its use is not recommended during periods of onshore winds.

2. The weather conditions encountered by the vessel had been forecast.

3. Two RNLI lifeboats attended the scene. One of the lifeboats capsized twice in succession from which she quickly recovered. However, one of her crew members was swept overboard but he was subsequently recovered from the water by helicopter.

4. Nine non-essential crew members were evacuated from the vessel by rescue helicopter.

5. No attempt had been made to withdraw the starboard anchor cable retaining pin from the bitter end in the chain locker.

Comment

1. On the morning following her arrival, it would have been prudent for the vessel to have proceeded to sea until the forecast adverse weather conditions had passed rather than to have re-anchored.

2. The use of increased main engine speed to reduce strain on the anchor cables might have prevented damage to the port windlass hydraulic motor and the subsequent loss of the port anchor and cable.

3. The Master's intention of slipping the starboard anchor cable and proceeding to sea if the prevailing weather conditions deteriorated was reasonable although it would have been prudent to have withdrawn the pin from the bitter end in advance.

4. In view of the wind forecasts and the fact that the vessel had already dragged her anchor, it would have been wise to have slipped the starboard anchor and to have proceeded to sea well in advance of the vessel dragging her anchor again. The delay in attempting to do so allowed insufficient time for assistance to be rendered when the situation became critical.

5. The RNLI lifeboat crews demonstrated their bravery in standing by the vessel in the prevailing weather conditions. However, after the vessel grounded and became unapproachable from the sea, they were being exposed to danger for no purpose.

2. PANIC ACTION LEADS TO LOSS OF SHIP

Narrative

A 95 metre 1,739 gross registered tonnage cargo ship anchored off a small Scottish east coast harbour. The chosen anchorage was 3.5 cables east of the north breakwater of the harbour and the port anchor was used, with 5 shackles of cable in 23 metres of water. The weather conditions were moderate and the vessel, which was in ballast, was expected to remain at anchor for 3 days.

During the following day the weather conditions deteriorated and by evening it was blowing a Force 8 south-easterly gale, with heavy rain and poor visibility. The vessel was pitching, occasionally heavily, and shipping frequent water across the deck. The engines had been put on stand-by.

Later in the evening it was noticed that the position of the vessel had moved half a cable downwind, but the Master thought that this was due to the anchor cable having become taut. About an hour later it was concluded that the anchor was indeed dragging and the anchor party was sent forward to weigh it so that the vessel could ride out the weather further to seaward.

The vessel was by this time rapidly closing the shore and ahead power was used on the engine to take some of the weight off the cable. After 1.5 shackles had been heaved in, the stress in the cable proved to be too much for the windlass. The Third Officer, who was in charge forward, looked over the side and saw that the cable was leading directly aft.

The weight in the cable increased further and it started to slip over the jaws of the gypsy. The Master thought that the anchor had become foul. The shore was very close and he put the engine to full ahead, to try to part the cable. A short while later the vessel landed heavily on an outcrop of rocks just to the north of the harbour.

Observations

1. The duty harbour controller had seen that the vessel was dragging and made unsuccessful attempts to contact her by VHF.

2. Fortunately the crew of 22 were lifted off the vessel safely by rescue helicopters. Although there was some pollution, it was broken up and dispersed by the adverse weather; the remaining bunker and other oil was later pumped ashore by salvors. The vessel was high and dry at low water and it was not possible to salvage her. The wreck was eventually cut up and removed.

Comment

1. Dragging on to a lee shore is one of the most common marine accidents. In this, as in most other such cases, obvious warning signs were not heeded and by the time action was taken it was too late to avert the stranding. A VHF radio watch was not kept; if it had been, the early warning from the harbour controller that the ship was dragging her anchor would have been received.

2. However, the circumstances of this stranding were rather unusual. In the haste to heave in the cable, too much engine power was used and the vessel overrode the anchor. The Master was evidently unaware of this. In the desperate attempt to part the cable, the vessel turned right round on the anchor and drove in a north-westerly direction towards the shore, assisted by the wind and seas and dredging the anchor astern of her. The anchor then snagged on outlying rocks and the vessel turned again to port and grounded broadside to the shore, heading south.

3. The Third Officer should have frequently looked over the side as the cable was being weighed, so that the bridge could be kept informed as to how it was leading and how much weight was on it. The Master should have made sure that he was given this information.

Guidance on keeping an anchor watch is published in Merchant Shipping Notice No M.1102.

3. FATAL ACCIDENT WHILST OPENING HATCH COVERS

Narrative

A 1975 built, 499 gross registered tonnage single hold mini bulk cargo carrier, had completed her discharge and the holds were cleaned and washed. The vessel was trimmed by the stern and the hatch covers were closed for the night but rigged for opening in the morning. The ship was fitted with MacGregor single pull hatch covers, one section opening forward and the other aft. Each section comprised 7 separate panels linked together with side chains and running on eccentric wheels. On opening, each section is pulled to the end of the hatch coaming, mounts the stowage rails, and rotates about a central wheel into the vertical stowage position.

At about 0530 hours the following day, the Chief Officer and 2 crewmen prepared to open the hatch covers ready for loading. One crewman went forward to operate the forecastle winch whilst the Chief Officer remained on the port side aft to watch the aft hatch opening. The preventer rope stopping the hatch rolling aft was slackened off, the winch operated and the aft hatch covers started to move. After moving aft a few feet they jammed, No 7 cover failing to rotate into the vertical position. The winch was stopped and the deckhand joined the Chief Officer on the main deck. The cause of the jamming was a projecting wedge preventing the first or No 7 cover rotating into the vertical position. The Chief Officer, despite cautionary advice from the deckhand, climbed on top of the hatch cover and knocked the wedge clear. This immediately released No 7 cover causing it to swing into the vertical position and pull No 6 cover aft.

With the preventer rope not having been re-secured, the aft hatch covers continued to roll aft under the influence of the vessel's trim and the momentum of the tilting covers. The Chief Officer was thrown between covers Nos 6 and 7 and crushed, with fatal consequences, by the remaining covers swinging into the stowed position.

Observations

The Chief Officer was new to the vessel and although it is understood that he had had previous experience with mechanical hatch covers, he had not sailed with this particular type. Despite this earlier experience and advice from the crew member as to the correct way of releasing the jammed cover, he embarked on a dangerous course of action before considering all aspects of the problem.

Comment

1. The function of a preventer or check wire is to prevent the hatch covers moving inadvertently and to act as a brake and control the speed of movement when they are moving under their own momentum. It should have been standard practice for the preventer wire to be made secure before any attempt was made to free the jam. This is particularly important when the winch is stopped, and the winch operator leaves the controls. With a vessel trimmed by the stern, any freeing of the obstruction immediately allows the hatch covers to roll aft and go into the stowed position. Once moving they are virtually impossible to stop.

2. This totally avoidable fatal accident can only re-emphasise the need for ALL sea-going staff to "think safety" and to be continually aware of the potential dangers that can exist in typical "every day" type of operations. Chapter 18 of "The Code of Safe Working Practices for Merchant Seamen 1991" specifically mentions the need to secure the check wire to prevent premature rolling when the tracking is not horizontal and also warns that no-one should climb on to any hatch cover unless it is properly secured.

4. CARGO SHIFT CAUSES VESSEL TO BE BEACHED

Narrative

A 8,940 gross registered tonnage cargo ship had loaded a part-cargo, mainly of steel, in a European port and was bound for a UK port to complete loading. Whilst lying-off in heavy weather awaiting clearance to enter, she listed and water was found in No 4 hold. Hull damage caused by shifting cargo was suspected; a MayDay was sent, non-essential crew were taken off by helicopter, a pilot boarded, several vessels stood by to assist if needed and the ship was beached. It was discovered that cargo had shifted, in particular steel coils in No 4 hold, one of which had pierced a side ballast tank. It was water from this tank which had flooded the hold; the hull was intact. (See photographs A and B). After re-floating, the ship berthed as intended. The damage was repaired, the cargo which had shifted was re-stowed and secured and further cargo loaded after which the vessel sailed. No injuries or pollution occurred.

Observations

1. The loading and securing of the steel coils was poorly carried out.

2. The flooding of No 4 hold and the starboard list were caused by a shifting of the coils, one of which penetrated No 4 port side tank allowing over 600 tonnes of water from that tank to flood into the hold causing a starboard transfer of water and a starboard list of about 12°.

3. Ship's officers did not initially sound around all tanks and spaces but stopped when they came to the water in No 4 hold. No 4 side tank was not sounded therefore it was not suspected that its contents were leaking into No 4 hold.

Comment

1. Stowage and securing of the steel coils in the loading port was plainly of a very poor standard. Steel and especially steel coils need a careful stow, and particularly so when there are large void spaces in the hold and there is little over-stowing, as was the case here.

2. The 1992 IMO Code of Safe Practice for Cargo Stowage and Securing provides recommendations on the safe stowage and securing of coiled sheet steel in Annex 6.

3. The actions taken by the pilot and the emergency services with regard to the beaching and rescue of personnel from the vessel were carried out professionally and efficiently.

Photograph A

Poorly secured coils in flooded hold

Photograph B

Steel coil penetrating tank bulkhead

5. OVER-PRESSURISATION OF CARGO TANK DURING BALLASTING OPERATIONS OF A VLCC

Narrative

The vessel concerned was a 280,491 tonne deadweight very large crude carrier and the accident occurred while the vessel was berthed at Immingham Terminal and during ballasting of No 4 centre cargo tank. Although the vessel is installed with a segregated ballast system, segregated ballast alone was insufficient to prevent the maximum distance from the water-line to the cargo deck manifold, as required by the Terminal discharge facilities, being exceeded. In addition therefore it was necessary to load ballast into No 4 centre cargo tank.

During ballasting of the cargo tank, this and two adjacent tanks ruptured. Fortunately there was no pollution, fire or injuries, and no flammable or toxic gases detected on deck. However, damage to the vessel was significant requiring a long stay in dry-dock for extensive repairs. The rupture was caused by over-pressurisation of No 4 centre tank. (See figure for a diagrammatic arrangement of the cargo tank ventilation and inert gas systems). During ballasting the cargo tank vent isolating valve was shut leaving only the small orifice of the pressure vacuum valve (breather valve) for the tank to allow gases, displaced in the tank by incoming ballast, to freely discharge into the vent system.

Observations

Because of the circumstances of the closure of the cargo tank vent isolating valve, together with non-realisation by crew members that over-pressurisation of the tank was taking place, rupture of the tank was inevitable. No reason has been given as to why the isolating valve was shut, but a number of operational factors indicate human error as a probable cause.

Comment

1. The vessel has 14 cargo tanks and 8 permanently segregated water ballast tanks. The engine-room, accommodation and bridge are aft with the pump room immediately forward of the accommodation block. The inert gas, venting and cargo systems complied fully with SOLAS Convention requirements and were in a well maintained condition. The cargo/ballast and machinery control installations and the venting/inert gas systems are operated from the bridge console. However, a number of system valves on the venting/inert gas arrangement, including the cargo tank vent isolating valves and their mandatory locking devices, are manually operated locally on deck. This is a typical arrangement where the cargo officer of the watch operates the remote control of the cargo and ballast operation from the bridge console, but is dependent on a person on deck to open, close and lock the vent valves and make timely reports to the bridge of their current status.

Safe ballast and cargo movement is therefore dependent on a mixture of centralised remote control and local control of valve operation, a situation which compounds the risk of human error; incorrect operation of crucial valves in the system was a causative factor in this accident. If control and status indication of the cargo tank vent isolating valves was consistent with the remote control design of the rest of the system, the risk of inappropriate closure of these isolating valves would be reduced. There is clearly a need to review the utilisation of remote and local control of cargo and ballasting systems. Further, mandatory locking arrangements on the valves should be installed so that unauthorised operation is prevented by any means other than the correct key.

2. The investigation highlighted the need for consideration to be given to the design of tank venting systems, so that pressure relief devices fitted to prevent over-pressurisation of cargo and ballast tanks cannot be isolated from individual tanks. Closure of the vent isolating valve rendered safe pressure relief of No 4 centre tank impossible. This situation was identical to that found on the MOBIL PETREL[1] when this vessel suffered a similar incident in November 1989. The need to install a pressure relief device direct to the tank without an intermediate isolating valve is, in engineering terms, analogous to that of a boiler. A cargo and ballast tank, like a boiler, is a pressure vessel. A boiler however has its safety valve attached direct to the shell. The fitting of an isolating valve between the safety valve and shell is unacceptable.

   Pressure relief devices in vent outlets for loading, discharging and ballasting are designed on the basis of the maximum designed loading rate multiplied by a factor of 1.25. However during cargo and ballasting operations cargo pumping rates may erroneously be increased and the maximum loading rate exceeded, therefore despite installation of pressure relief devices over-pressurisation of the cargo tank is still a possibility. For this reason it is mandatory that the Master is provided with information regarding the maximum permissible loading rate for each cargo tank[2].

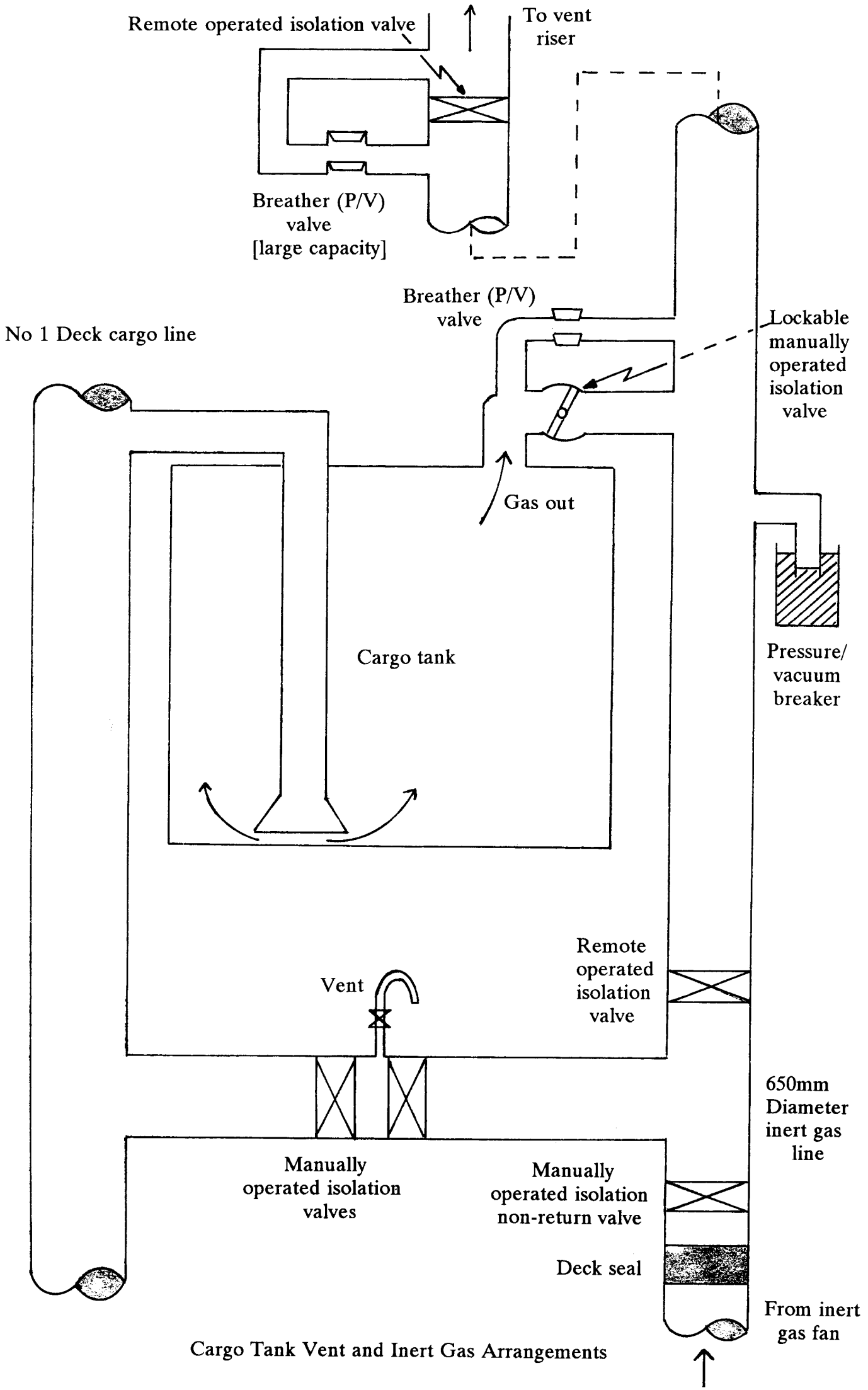
3. The findings in the investigation of this accident highlighted the need for continuous monitoring of cargo tank pressure. This need was recognised as a result of the MOBIL PETREL investigation, when recommendations were made which included a proposal to fit mandatory pressure sensor measuring alarms to inform the cargo control station that cargo and ballast tank pressures are approaching safe design limits. In both cases early warning of impending over-pressurisation of the cargo tank would have prevented the accident. The proposal has been submitted for consideration to the Maritime Safety Committee of IMO. Use of pressure sensors and the requirement of not being able to isolate the pressure relief arrangement should be compulsory and not deemed an either/or option.

4. Because of operational requirements the vessel needed to ballast cargo tanks. MARPOL 73/78, Consolidated Edition 1991, Regulation 4 requires that ballast water should only be carried in cargo tanks in exceptional cases. These exceptional cases refer to tankers required to pass under a low bridge, or when local regulations require specific draught for safe navigation. These categories do not appear to match the reason for ballasting No 4 cargo tank of this vessel. This operation was required to ensure that cargo could be safely discharged ashore by achieving the correct air draught. Ballasting of the tank was therefore done for operational reasons and not for safe navigation or safe passage under bridges. The regulation appears to be ambiguous and in need of clarification.

5. The vessel over-pressurised and ruptured cargo tanks during a ballasting operation. The published MAIB report on the MOBIL PETREL accident indicated that over-pressurisation of cargo tanks in tankers occurs frequently. Over-pressurisation of a cargo tank was a possible cause of the explosion and fire on the Cypriot registered tanker HAVEN in April 1992, resulting in the loss of 5 lives, sinking of the vessel and serious pollution. It was fortunate that MOBIL PETREL and the accident at the Immingham Oil Terminal did not suffer a similar fate with the added consequential catastrophic impact on the respective terminals.

[1] Report on the Investigation into the Over-Pressurisation of a Cargo Tank on the Oil Tanker MOBIL PETREL at Fawley Oil Terminal on 7 November 1989.

[2] SOLAS Consolidated Edition 1992, Chapter 11-2 Part D.



Cargo Tank Vent and Inert Gas Arrangements

6. STAND-BY SAFETY VESSEL PUTS OFFSHORE INSTALLATION AT RISK

Narrative

A 59 metre stand-by safety vessel (SBSV) was on duty off an installation in a North Sea gas field. She had twin variable pitch propellers and a bow thruster. The vessel was on "close" stand-by, because scaffolders were working on one of the installation's legs. Shortly before noon the SBSV was stood down from the "close" stand-by and told to revert to normal duty.

At noon, the vessel was about 300 metres south-west of the installation. She was stopped and heading about north-east. The weather was good with a Force 5 north-westerly wind. The tidal stream was setting south-easterly at about 0.3 knots but would shortly turn to a west-north-westerly direction.

A barge was secured stern to the south-east face of the installation. It was moored by 10 anchor wires, 3 each from the starboard bow and quarter and 2 each from the port bow and quarter (see figure).

The watchkeeper on the SBSV assumed that she would drift to the south-east under the influence of wind and tide and thence away from the installation. However, at about 1230 hours he noticed that the SBSV was in fact close to the barge. He applied starboard helm and 20% ahead pitch to the port propeller, anticipating that his vessel would then turn away from the installation.

This action was not enough and, unappreciated by the watchkeeper, the SBSV moved ahead, turning only very slowly to starboard, for another 15 minutes until she fouled 2 of the barge's anchor wires. The propellers were stopped and the bow thruster started, to push the bow to starboard and away from the barge, but the stern remained caught on the after of the 2 wires. To clear the vessel, this wire was slackened from the barge and the SBSV then had to be manoeuvred astern.

The bow thruster then stalled. The vessel could not be extricated by the use of the main engines alone and she landed alongside the barge. This caused extensive crushing damage to the SBSV's rescue craft, which was in the turned out position on the port side. After the bow thruster was re-started the SBSV cleared the installation without further damage. She had to be relieved by another SBSV and return to port for underwater inspection and a replacement rescue boat.

Observations

1. The watchkeeper was given drug and alcohol tests, the results of which were negative.

2. The south-east going tidal stream was weakening and did not have the anticipated effect. The tide may have turned earlier than predicted, due to recent gales in the area.

3. The vessel may have made headway through the water prior to the action at 1230 hours because the pitch of the propellers had been left in a very slight ahead setting. Pitch controls rarely set the blades at precisely zero pitch.

4. Fortunately the SBSV escaped propeller damage because they were the Kort nozzle type.

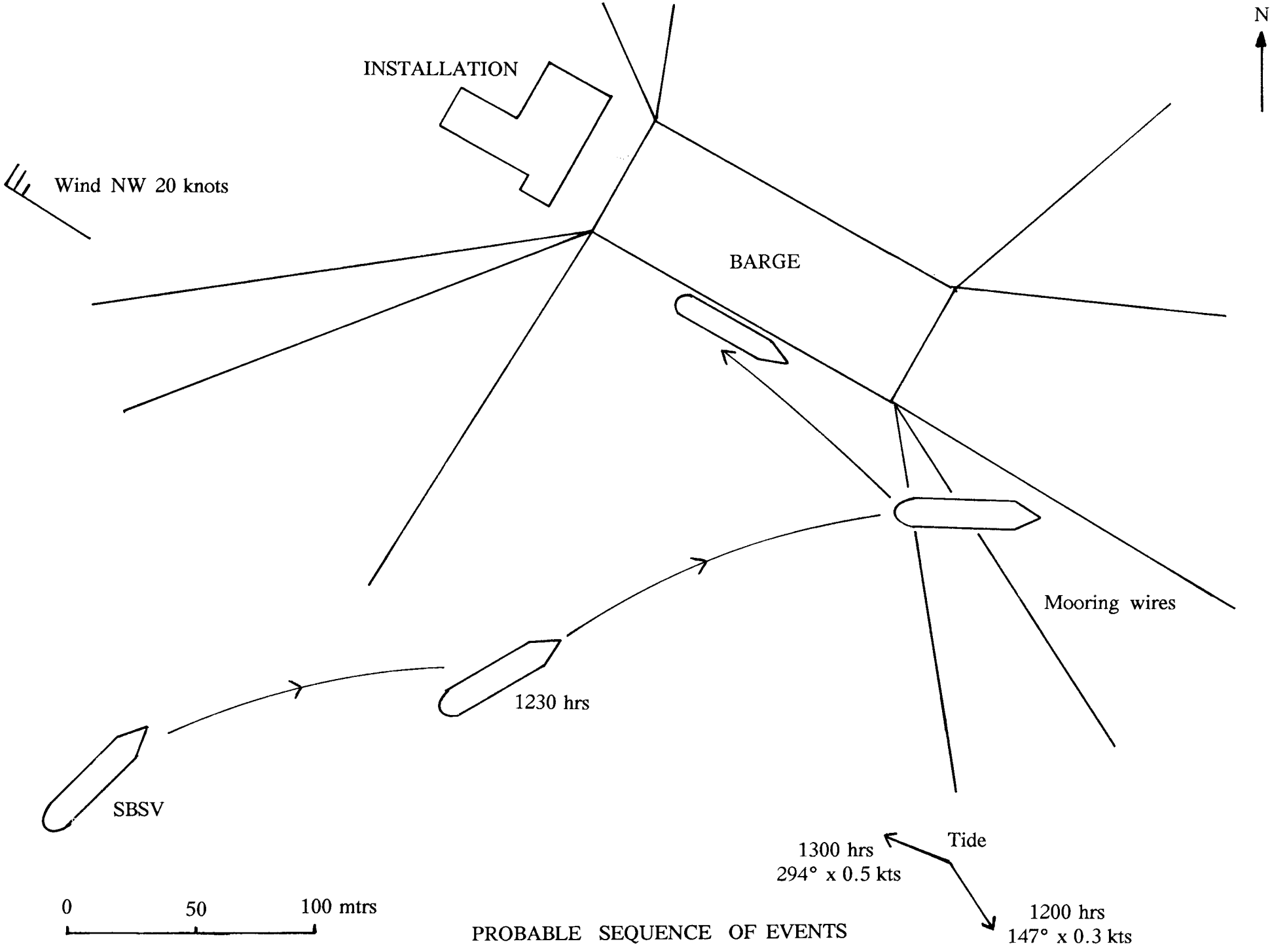
5. The bow thruster failed due to a drop in lubricating oil pressure when it was clutched in. This caused the low oil pressure cut out to activate.

Comment

1. This accident happened because the watchkeeper was not keeping a proper lookout and paying attention to what was happening around him. Fatigue was not a factor because he had just taken over the watch, after 6 hours below.

2. The field operators were so concerned by the circumstances of this accident that they now require two persons to be on watch at all times when an SBSV is on "close" stand-by duty. When the vessel ceases to be on "close" duty, it is now required to move away from the installation and continue its stand-by outside the 500 metre safety zone.

3. Stand-by safety duty is sometimes monotonous work, but SBSVs carry out a vital task and a high level of vigilance is needed, particularly when they are close to the installation. Masters and bridge watchkeeping officers must always bear in mind that their vessels are there to protect the people working on the installations, not put their lives in jeopardy.



PROBABLE SEQUENCE OF EVENTS

7. TWO FIRES INVOLVING LUBRICATING OIL FILTER INSTALLATION

Work on a lubricating oil filter installation was responsible for causing 2 separate fires on board an offshore supply vessel.

Fire 1

Narrative

As a greaser was in the process of removing a lubricating oil filter from the starboard main engine installation, oil sprayed from the filter onto the exhaust manifold and immediately ignited. The engine was then stopped but this caused the stand-by lubricating oil pump to start automatically and to continue feeding the fire. The vessel was then blacked out in order to remove totally any source of fuel to the fire and the engine room was evacuated and shut down in preparation for CO_2 flooding. Prior to the release of CO_2, the fire was found to be extinguished.

Observations

1. The greaser had attempted to remove a lubricating oil filter which was in use.

2. Upon inspection, the lubricating oil filter changeover handle was found to be operating correctly.

3. Portable fire extinguishers were unable to extinguish the fire.

4. The effectiveness of well-maintained fire flaps was clearly demonstrated in that once the engine room was shut down, the fire rapidly ran out of oxygen without necessitating the use of CO_2 flooding.

5. The management company has since issued the following instructions:

    5.1 Prior to releasing the filter housing securing nuts, the bleed screw should be backed off in order to ensure that the housing is isolated and no longer under pressure.

    5.2 A greaser should not undertake this task unsupervised.

Fire 2

Narrative

In an attempt to prevent a recurrence of the previous incident, a quadrant plate was to be fitted on top of each of the lubricating oil filter installations which would then ensure that only the filter which was not in use could be removed.

While the vessel was alongside an oil field platform, the Second Engineer proceeded to remove an indicator plate from the top of the port main engine lubricating oil filter installation in preparation for fitting the quadrant plate.

On removal of the indicator plate, the cock plug spindle was projected out by pressure contained within the lubricating oil filter assembly. A jet of lubricating oil then followed which hit the air trunking above and deflected onto the turbo blower and exhaust casing causing it to ignite.

The fire was subsequently extinguished using the fixed CO_2 smothering system.

Observations

1. The design of the cock plug included a securing screw. On fitting this after the accident it was noted that it protruded approximately 10mm which made it impossible to fit the lubricating oil filter changeover handle. The starboard main engine unit was found to be countersunk in way of the securing screw whereas the port main engine unit was not. It is apparent that the port main engine unit had been defective from new and that, prior to the accident, the securing screw had never been fitted.

2. The management company has since issued the following instructions:

    2.1 Non-routine work on lubricating oil filter installations should be carried out only with the main engine stopped.

    2.2 No work of any kind should be carried out on main engines or on running auxiliary engines while the vessel is within the 500 metre zone of an offshore installation.

3. Consideration is being given by the company to fitting a means for deflecting lubricating oil away from hot surfaces in the event of an inadvertent escape.

Comment

1. The actions since taken by the management company will contribute to preventing similar incidents.

2. Merchant Shipping Notice No M.1456 provides advice on the prevention of fuel, lubricating and hydraulic oil fires in the machinery spaces of merchant ships and fishing vessels. It specifically recommends that lubricating oil installations should be effectively screened and that oil filter changeover cocks and their safety devices should be designed and maintained so as to ensure that the working filter cannot be opened up inadvertently.

8. INADVERTENT RELEASE OF CO_2

Narrative

While a vessel was alongside in port, two contracted fire protection engineers were on board in order to complete their servicing of the fixed CO_2 fire extinguishing system for the engine room. An inadvertent release of CO_2 from one of the two pilot cylinders caused a row of 9 cylinders to automatically discharge into the manifold. The CO_2 was contained within the manifold due to the sector valve being in the shut position. After taking appropriate precautions, the CO_2 was dumped into the engine room by remotely opening the sector valve. The ventilation fans then successfully removed the CO_2 from the engine room space prior to re-entry.

Observations

1. The vessel was nearly 30 years old.

2. The cylinders were banked in two rows. The remote cutter valve lever operating cable for the rear row of 9 cylinders had been re-connected. The front row of cylinders and the safety stop valve had not yet been connected.

3. The safety stop valve was probably in the open position (although one of the two engineers reported that he saw the stop valve operate when the pilot cylinder discharged).

4. The sector valve for the engine room space was in the shut position.

5. The pilot cylinder cutter valve levers were set at an angle which was contrary to that indicated in the manufacturer's instruction book and to that of the remaining cylinder levers. They have since been correctly set.

Comment

1 The cause of the release was probably an inadvertent action of one of the fire protection engineers (although both engineers stated that they were not working on the system at the time of release).

2. The angle of the pilot cylinder cutter valve levers may have influenced the engineers into falsely thinking that the position of each lever permitted greater movement of the lever before the cutter valve would be able to penetrate the disc. The engineers were complacent in that they did not question the differing lever position.

3. The volume of CO_2 contained within the manifold would have been significantly reduced had the safety stop valve been in the shut position in addition to the sector valve since the rear row of cylinders then would not have been released.

4. The provision of a manual means for dumping CO_2 directly from the manifold to atmosphere would have eliminated the necessity to discharge the charged manifold into the engine room. However, if a manual valve was fitted for this purpose, there would be no guarantee that it would not leak and thus discharge CO_2 to atmosphere, instead of to the engine room, during an intended release. In this regard, the inconvenient but careful discharge of CO_2 into the engine room is considered to be a preferable option.

9. STAND-BY SAFETY VESSEL COLLIDES WITH TOW AND SINKS

Narrative

A 42 metre stand-by safety vessel (SBSV) was on a daytime passage from Lowestoft to an offshore installation in the Sole Pit Field, in the southern North Sea. It was fine and clear with a slight to moderate sea and low swell. The SBSV was making a speed of about 11 knots and steering a north-westerly course past Haisborough Sand, which was on her starboard hand. After passing the North Haisborough buoy it was intended to turn to a northerly course towards the Field.

A 37 metre tug was towing a concrete cooling water pipe of about 100 metres in length from the River Tees to Sizewell, Suffolk. The pipe was almost submerged, but each end of it was fitted with a temporary mast extending to about 7 metres above the water. The length of the towline was about 420 metres. A diamond shape was displayed on the tug and on each of the masts on the tow, which were also fitted with radar reflectors. The tug was steering a south-easterly course at about 6 knots and approaching the North Haisborough buoy on her port hand. It was displaying ball-diamond-ball shapes in a vertical line, in addition to the towing shape.

The Master of the SBSV, who was in charge of the watch, heard on VHF Channel 16 two calls to "the small red fishing boat approaching from the south". He looked at the radar and noticed the echo of a vessel ahead and to port. He then saw it visually and took it to be a supply vessel showing a starboard aspect and apparently crossing clear to starboard. He assumed that the VHF calls must have been intended for some other vessel.

In due course the two vessels started to pass, starboard to starboard, about 2 miles to the west of the North Haisborough buoy. The SBSV commenced a slow turn to starboard, to her new northerly course. By the time she was steadied on the new course, the other vessel was right ahead and still clearing to starboard. Shortly afterwards the crew on the SBSV felt a violent impact. The Master looked over the port side of the bridge and saw what appeared to him to be a submarine.

The SBSV had been extensively holed in way of the machinery and accommodation spaces and rapidly flooded. Fortunately all the crew had time to inflate one of the liferafts and abandon the vessel; they were later rescued without injury by another vessel and an RAF rescue helicopter. The SBSV later sank.

Observations

1. The SBSV, which was originally a side trawler, had a red painted hull. The VHF calls were intended for her and were from the tug (which had been taken for a supply vessel) to give a warning against passing too close or crossing the towline. The tug also made warning sound signals, as prescribed in Rule 34(d) of the International Regulations for Preventing Collisions at Sea.

2. The tug was displaying the correct shapes for a vessel with a tow exceeding 200 metres in length and restricted in her ability to manoeuvre. The tow was also displaying the correct shapes, for an inconspicuous and partly submerged object as prescribed in Rule 24(g) of the Collision Regulations. The masts fitted to it had been painted in a highly visible colour.

Comment

1. A tug can easily be taken for an offshore supply vessel, since many of them serve a dual role. However, this collision might have been avoided if the bridge watch on board the SBSV had looked for possible day signals on the other vessel and kept a proper all-round lookout. If they had done so, they would not have failed to see the shapes shown by the tug and her tow, since the visibility and sea conditions were good. Rule 5 of the Collision Regulations places a clear and unambiguous obligation on all vessels to maintain a proper lookout by sight, hearing and all available means. By Rule 2 a vessel is not exonerated from the consequences of any neglect of any precaution which may be required by the ordinary practice of seamen; the ordinary practice of seamen includes the use of bridge binoculars, if necessary, to look for day signals which might possibly be shown by an approaching vessel.

2. The Master of the SBSV should have given greater consideration to the VHF calls and not considered them to have been intended for some other vessel, when they adequately described his own vessel. However, the tug should have made its messages more clear; in a case such as this, this is best done by giving the approximate position of the ship the call is intended for. It cannot be stressed too strongly that without such a reference a VHF call is just a disembodied voice. In addition, the tug should have made a navigational warning broadcast to all vessels giving her position, description and the nature of the tow.

10. UNDUE RELIANCE PLACED UPON VTS RADIO COMMUNICATION

Narrative

A 8,579 gross registered tonnage passenger/ro-ro cargo ferry was proceeding seawards along the starboard side of a narrow waterway. The waterway was under VTS (Vessel Traffic Service) coverage and was divided into a number of areas in each of which vessels were required to monitor a specific VHF radio channel. It was night time, with good visibility.

The ferry was approaching the transition line between two adjacent areas and advised VTS that she was changing to the required VHF channel for the next area.

Four tugs were observed close ahead of the ferry; 2 on each bow. The tugs were proceeding slowly in the same direction as the ferry and were awaiting the arrival of an inward bound VLCC. In order to give more clearance to the tug which was nearest to starboard, the ferry altered course to port and, by VHF radio, requested VTS to advise the tug to give more room. The tug then also altered course to port. The ferry sounded a single prolonged blast and put her propeller to zero pitch. However, this failed to prevent a glancing collision.

Observations

1. The ferry relied upon VTS to advise the tug to give more room. However, the ferry was using a VHF channel which was not appropriate for the area and this was not being monitored by the tug. It appears that VTS did not relay the ferry's request.

2. The ferry considered that she properly took action to keep out of the way as required by Rule 13 of the Collision Regulations.

Comment

1. The collision was caused by the tug altering course to port at a critical stage of the ferry's overtaking manoeuvre. In this regard, it is apparent that the tug was not keeping a proper lookout astern.

2. It is probable that the differing VHF radio channels being monitored contributed to the ferry's request for action not being passed to the tug.

3. Rule 9(c)(i) of the Collision Regulations applies in a narrow channel or fairway when overtaking can take place only if the vessel to be overtaken has to take action to permit safe passing. The ferry required the tug to take action to permit safe passing and should, therefore, have sounded the appropriate signals prescribed in Rule 34(c)(i).

4. When the ferry became doubtful as to the intentions of the tug, she should have immediately sounded at least 5 short and rapid blasts on her whistle, rather than a single prolonged blast, in accordance with Rule 34(d) of the Collision Regulations.

5. This case is an example of established seamanlike practices (ie proper lookout and the use of sound signals) being ignored in favour of reliance placed upon VTS radio communication.

11. PASSENGERS INJURED IN RIVER COLLISION

Narrative

A 27 metre river craft with 30 passengers on board (A) cast off from a landing stage to proceed upstream, pass under a bridge adjacent to the landing stage, then turn to port and cross to the other side of the river towards a destination on the opposite bank (see figure).

A 20 metre river craft with 24 passengers on board (B) was on passage upriver and approaching the same bridge. Seeing that the other craft was manoeuvring off the landing stage and towards the bridge, she turned to port to pass under the No 3 arch, to give (A) more room.

The bridge had four navigable arches. It was early evening with clear daylight visibility and each craft was making about 6 knots. (A) passed under No 1 arch, nearest her side of the river, and having cleared it started her turn to port to head across to the other side. As she approached the upstream side of No 3 arch, (B) appeared from beneath it and there was a collision.

(B) struck the other craft on her port side, almost end on, and three passengers on her foredeck were injured by the impact.

Observations

1. Fortunately none of the injuries was serious and the damage to both craft was above the waterline.

2. (A) had not noticed the approaching (B) as (A) left the landing stage, neither was (B) noticed as (A) turned to port on the upstream side of the bridge - although (B) would by this time have been partially obscured by the pillar supports of the bridge.

3. Although (B) had seen (A) leaving the landing stage and was aware that she was going upstream, she was not aware that (A) intended to cross to the other side of the river.

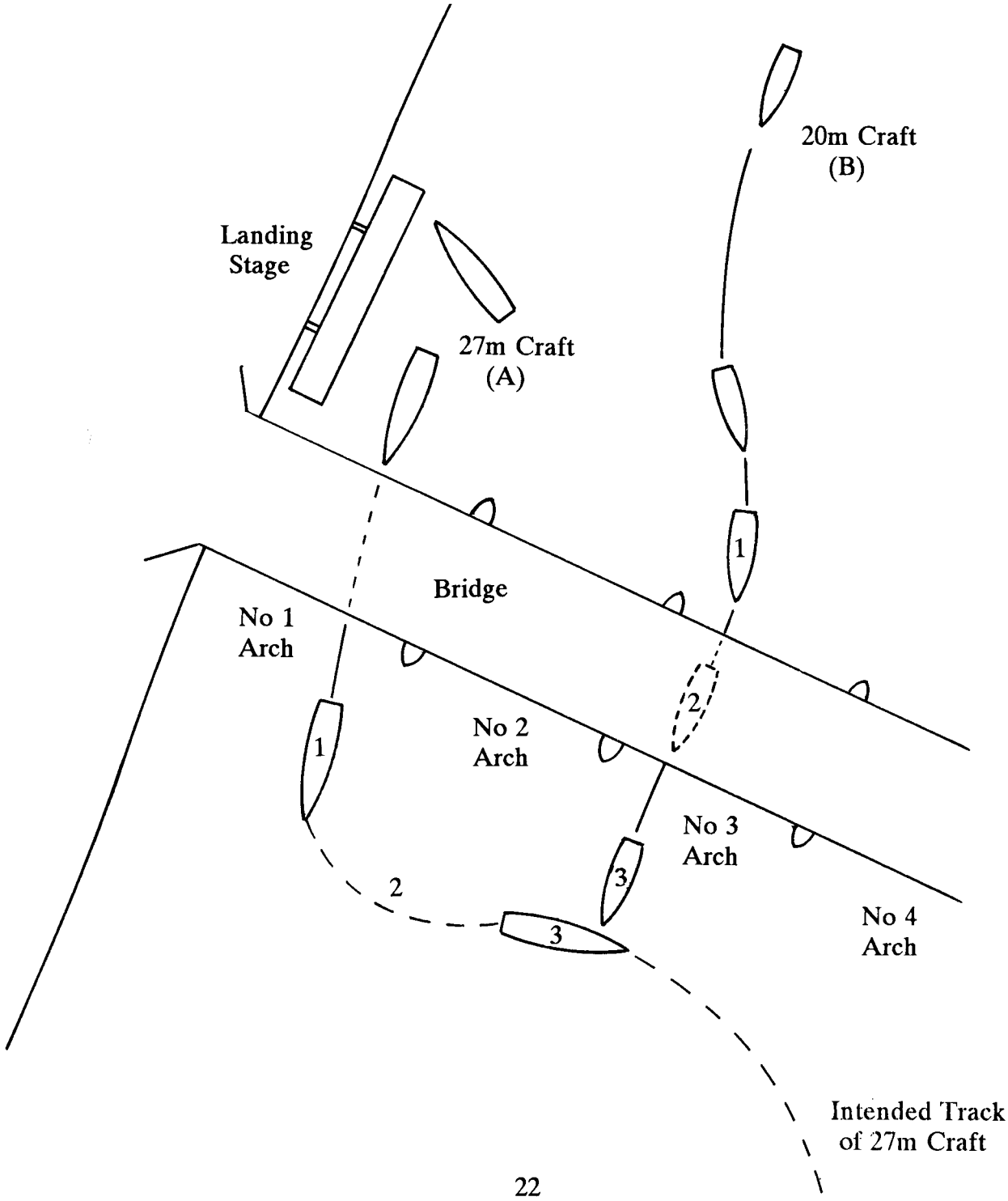
4. Neither craft made any sound signals.

Comment

1. The river bye-laws, which incorporate the International Regulations for Preventing Collisions at Sea, state that a vessel is not to cross a fairway so as to obstruct another vessel proceeding along the fairway.

2. Rule 5 of the Collision Regulations requires that every vessel shall at all times maintain a proper lookout. Rule 9(f) requires that any vessel nearing an area of a fairway where other vessels may be obscured by an intervening obstruction "shall navigate with particular alertness and caution and shall sound the appropriate signal prescribed in Rule 34(e)". The prescribed sound signal is a single prolonged blast. Rule 34(e) also prescribes that this sound signal shall be answered with the same signal by any approaching vessel that may be within hearing distance behind the intervening obstruction.

3. If these requirements had been followed it is likely that this collision would have been avoided. It is very fortunate indeed that neither craft was holed.



12. COLLISION IN FOG

Narrative

A 26 metre stern trawler was towing her gear. Another fishing vessel of 28 metres was proceeding on passage on a nearly reciprocal course. Both vessels were equipped with operational radar and were exhibiting appropriate navigation lights. It was dark and there was fog with visibility less than one mile. The wind was about Force 3, with a slight sea and swell.

Each vessel observed the radar echo of the other vessel on the starboard bow at a range of approximately 5 miles and assumed that the other vessel would cross clear ahead. The radar echo of the vessel on passage subsequently merged with radar clutter at a range of approximately 2 miles. As the vessels continued to approach each other, the radar echo of the trawler entered a blind sector on the radar display of the other vessel.

The watchkeeper of each vessel then saw the lights of the other ahead at close range. Although both of them then took avoiding action, it failed to prevent a collision. Fortunately, there were no injuries to personnel and no resultant water ingress to either vessel.

Observations

1. The trawler was not making the appropriate sound signal for restricted visibility.

2. After observing the radar echo of each other on the starboard bow, it is apparent that one or both vessels subsequently altered course to starboard.

3. Although a close-quarters situation was developing, the watchkeeper of each vessel assumed that the other vessel would cross clear ahead and took no avoiding action until immediately prior to the collision.

4. The vessel on passage was proceeding at 8 knots. Although her watchkeeper applied full astern propulsion immediately on sighting the trawler, the vessel could not be stopped in time to prevent the collision.

Comment

1. The watchkeepers of both vessels incorrectly assumed, on the basis of scanty radar information, that a risk of collision did not exist. This was a contravention of Rule 7 of the Collision Regulations.

2. Rule 19 applies to ALL vessels in restricted visibility. In compliance with this Rule, both vessels were required to take avoiding action as soon as it became evident that a close-quarters situation was developing.

3. The vessel on passage was proceeding at an unsafe speed such that she could not be stopped within a distance appropriate to the prevailing condition of restricted visibility. This was another contravention of Rule 19.

4. It is apparent that neither vessel was maintaining a proper radar watch. Merchant Shipping Notice No M.1020, entitled Keeping a Safe Navigational Watch on board Fishing Vessels, reminds watchkeepers to make the most effective use of all navigational equipment at their disposal and to comply at all times with the provisions on the use of radar contained in the Collision Regulations.

13. MAJOR INJURY CAUSED BY REVOLVING PROPELLER SHAFT

Narrative

A repair had been effected to an engine room bilge pump on board a fishing vessel. The pump was designed to start automatically upon activation of a float switch, located immediately below the propeller shaft.

In order to check that the pump was now operating correctly, 2 crew members lifted the floor plates in the vicinity of the pump in order to gain access to the float switch. One of them then attempted to activate the switch with his foot. In doing so, he slipped and made contact with the revolving propeller shaft. The other crew member alerted the Skipper, who then took the propeller out of gear.

The Skipper proceeded towards port and informed the Coastguard. A paramedic was airlifted to the vessel and, upon arrival in port, the injured crew member was transferred immediately to hospital with a major leg injury.

Observations

1. The bilge pump was routinely tested by the engineer on each occasion the vessel departed a port of call. The normal procedure undertaken to activate the pump was to apply water to the immediate area of the float switch by means of buckets or an available hose. However, the regular engineer was absent from the vessel on this occasion.

2. By removing the engine room floor plates, the crew members effectively removed part of the guarding arrangement for the revolving propeller shaft. The following is an extract from the "Recommended Code of Safety for Fishermen":

   "6.1.4 Fencing or guards for dangerous parts of machinery should not normally be removed while the plant is running. If they have to be removed they should be replaced as soon as practicable, and in any case before the machinery is put into operation."

Comment

1. The immediate cause of the accident was that the injured crew member placed himself in close proximity to the revolving propeller shaft after effectively removing part of its guarding arrangement. His action was not in accordance with either the normal bilge pump test procedure on board or with the advice provided by the Department of Transport in the "Recommended Code of Safety for Fishermen".

2. Means for testing the bilge pump without necessitating the removal of the floor plates were available and should have been used. Alternatively, the propeller should have been taken out of gear prior to removing the floor plates and not re-engaged until the bilge pump had been satisfactorily tested and the floor plates had been returned to their normal position.

14. COLLISION BETWEEN GILL NETTER AND GAS CARRIER

Narrative

This collision happened off the south-western coast of England. A gill netter of 11.53 metres registered length was proceeding in an easterly direction towards an intended start position for shooting her nets. She was displaying the navigation lights for a vessel engaged in fishing, other than trawling, when making way through the water. She was also exhibiting an all-round flashing orange light, located immediately above the all-round red light. The Skipper was on watch alone in the wheelhouse. A radar was operating on the 3-mile range scale in relative motion and the vessel was being steered by autopilot. The crew were working inside an illuminated shelter, located immediately aft of the wheelhouse.

A gas carrier of 78,915 gross registered tonnage was proceeding in ballast on a course of 035 ° (T) at a speed of about 12 knots. The Bridge was manned by the Master, the Chief Officer, a helmsman and a lookout. Two radars were operating in ARPA (Automatic Radar Plotting Aid) mode and the vessel was exhibiting the navigation lights for a power-driven vessel under way. Both the Master and the Chief Officer saw the flashing orange light and a white light of the gill netter on their port bow and interpreted them to be those of a fishing vessel crossing from port to starboard.

After the gill netter had crossed ahead of the gas carrier, the Skipper noticed on his starboard side a green light and some illuminated portholes of what he assumed to be a merchant vessel with a broad starboard aspect. On arrival at the intended start position for shooting, the gill netter was turned around and the autopilot was set to steer a westerly course. The engine speed was reduced and the crew commenced shooting nets. The Skipper noticed a radar echo to port, which he assumed to be that of a vessel he had seen earlier. He attempted to identify the navigation lights of the other vessel but was unable to do so.

While the Chief Officer was plotting the position of the gas carrier on the chart, the Master noticed that the fishing vessel was now showing a red sidelight. He realised that she had turned around and was now at close range and on a collision course. He ordered port helm but this action failed to prevent the bow of the fishing vessel colliding with the starboard side of the gas carrier as the latter vessel crossed ahead. When the vessels came clear of one another, it did not appear to the Master that the fishing vessel was in any need of assistance.

After the collision, one of the crew members of the fishing vessel climbed to the top of the deckhouse to reach the stowed inflatable liferaft, which was on top of the wheelhouse. He cut the securing lashing and then carried the liferaft aft and down onto the main deck as a precautionary measure. The Skipper advised the Coastguard of the collision and told them that he did not require assistance. The bilge pump was able to cope with the small resultant ingress of water forward and the vessel proceeded safely to port.

The Master subsequently informed the Coastguard that his was the other vessel involved in the collision.

Observations

1. The wind was southerly Force 3 and the range of visibility was excellent. The traffic density was light.

2. Nobody was injured.

3. The all-round flashing orange light was intended to indicate that the gill netter was working static gear and that other vessels should avoid the area in order to prevent the gear becoming fouled.

4. The ability of the Skipper to identify the navigation lights of the gas carrier was impaired by the shelter deck lighting being reflected in the wheelhouse windows.

5. Although the Master would normally have wished to alter course to starboard, he appreciated that the manoeuvrability of his vessel was such that an alteration of course to starboard at such close range would not have prevented a collision.

6. In order to manually remove the liferaft from its stowage cradle, the crew member initially attempted to unscrew the securing shackle, without success. He then cut the securing lashing with a knife.

7. Following the collision, the Master was initially more concerned with communicating with his agent rather than with either the fishing vessel or the Coastguard.

Comment

1. The immediate cause of the collision was that both vessels failed to maintain a proper lookout.

2. Before turning onto the westerly course, the Skipper failed to properly determine if a risk of collision would exist with respect to the gas carrier.

3. Although the lights exhibited by the gill netter were interpreted by the gas carrier to be those of a fishing vessel, it is possible that the all-round flashing orange light could have been taken to be that of a power-driven air cushion vessel, or a submarine. Rule 36 of the Collision Regulations makes provision for vessels to exhibit light signals to attract attention but it specifically states that the use of high intensity intermittent or revolving lights, such as strobe lights, is to be avoided.

4. Rule 20(b) of the Collision Regulations requires that non-prescribed lights, such as the shelter deck illumination on the gill netter, should be sufficiently screened or of such a nature so as not to interfere with the keeping of a proper lookout.

5. The inflatable liferaft was not secured in accordance with the advice and guidance provided in Merchant Shipping Notice No M.1400. It is vitally important that a liferaft can be manually or automatically released immediately when required.

6. The Master did not comply with his obligation to render assistance to the fishing vessel. He should have immediately established communication or stopped his vessel until it had been confirmed that his assistance was not required.

15. HAZARDS OF FISHING NEAR TRAFFIC LANES

Case 1

Narrative

A 23 metre potter with a crew of 6 was hauling crab pots in the English Channel at about midday. She was stopped in the water on a southerly heading, the sea was almost calm and there was fog with visibility at about 150 metres. Two radars were in use, on the 1.5 and 6 mile ranges, respectively.

The echo of a ship approaching from the east appeared at the edge of the 6 mile range display. It seemed to be closing with some speed, but the Skipper assumed that the ship would alter course to keep out of the way and the pot hauling continued. After the echo had closed to a range of 3 miles, the Skipper decided to stop the hauling and watch its relative bearing, to see if the ship was altering course to keep out of the way. By the time the ship had closed to a range of 1.5 miles, the Skipper concluded that the ship was indeed still on a collision course and had taken no action. The ship closed to one mile. The crew were ordered to cut away the gear and the engine was put ahead and the helm hard over to starboard to try to run with the ship, since it was not known whether or not the ship would take last minute action and, if she did, which way she would turn. Before this manoeuvre could be completed the ship appeared out of the fog on the port quarter. Her bulbous bow struck the fishing vessel, heeling her violently to starboard and almost causing a capsize. As the potter recovered from the heel, the ship scraped along her port side and was then lost from view in the fog.

The ship hove to and the two vessels communicated. Fortunately there were no injuries to the fishermen and no serious damage had been caused to their vessel. They continued fishing after confirming to the ship and to Coastguard that assistance was not required.

Observations

The potter had been fishing 6 miles east of the west-bound lane of the Casquets Traffic Separation Scheme (see chart extract). The ship, which was making a speed of 20 knots, was on a course to transit the lane. She had apparently failed to detect the potter on her radar.

Case 2

Narrative

An 11 metre potter with a crew of 4 was hauling pots about 2 miles south-west of Wolf Rock, off Land's End, heading east-south-easterly at minimum speed, steered by automatic pilot. It was about midday. The sea was slight and the weather was fine, with visibility at about 1.5 miles. The radar was operational, set to the 1.5 mile range.

As the hauling continued, the Skipper, who was in the wheelhouse, heard a sound like the wash of a vessel. He turned round and saw the bows of a cargo ship which had approached from astern and was very close. He just had time to shout a warning to the rest of the crew before the ship hit the potter on her port side. One of the fishermen jumped into the sea to avoid injury. The ship scraped along the port side of the potter and continued on her course.

Observations

1. The ship did not subsequently stop or offer assistance. Fortunately the fisherman who jumped overboard was recovered without injury, but the whole crew were badly shaken by the event. There was extensive damage to the potter, but it was all above the waterline and she safely returned to port.

2. The potter, which was displaying an appropriate shape, had been fishing near the southern end of the Land's End Traffic Separation Scheme (see chart extract). The ship (which was identified) was leaving the lane and bound for an English Channel port. She had apparently failed to detect the potter, either visually or by radar.

Comment

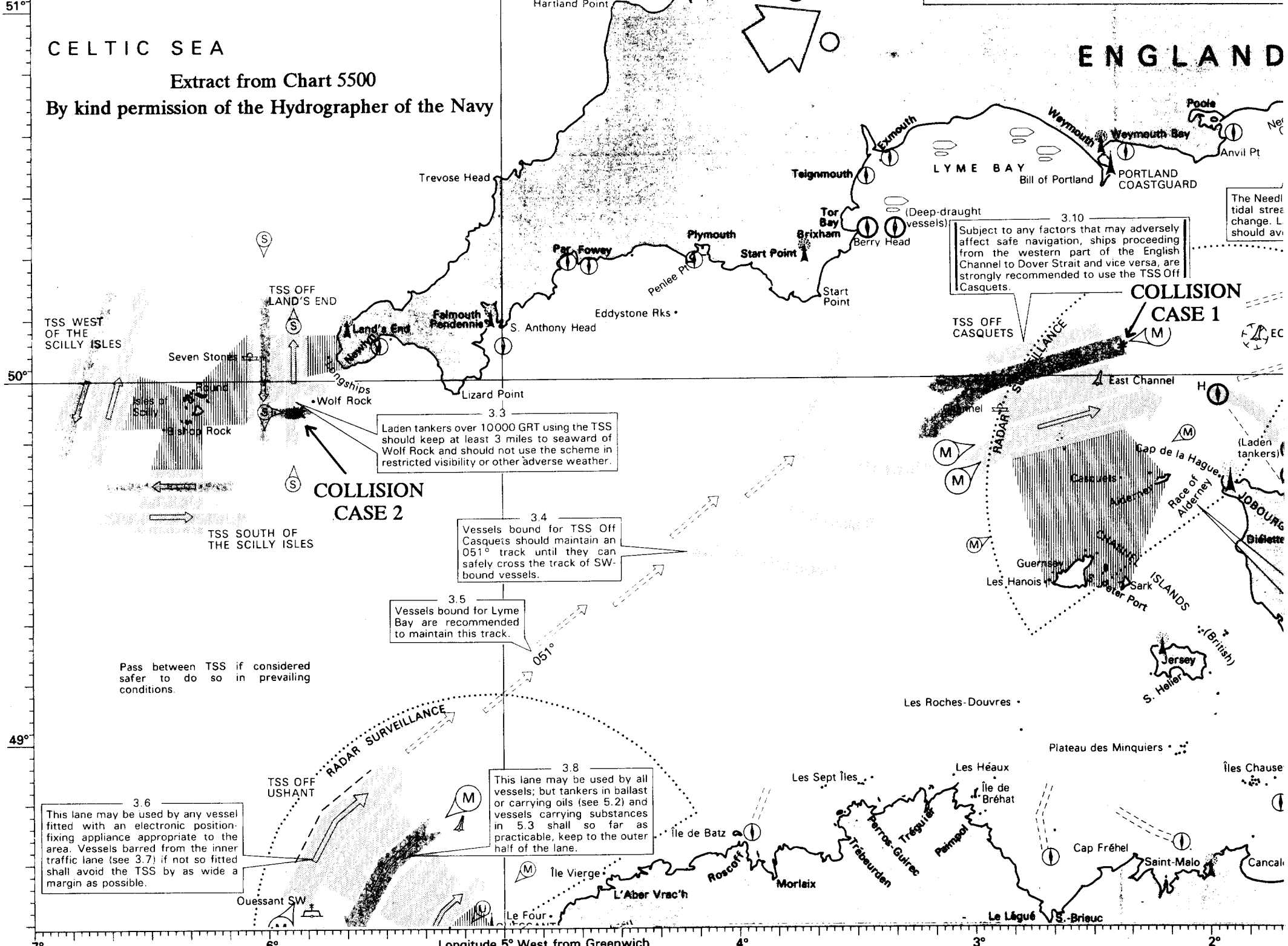
1. It is plain that in both these cases the merchant ship involved was keeping a seriously inadequate watch, and in Case 1 was going at a grossly excessive speed. However, it is also evident that in the fishing vessels, in Case 1, the Skipper - although maintaining a radar watch - failed to take action required by the Collision Regulations (see Comment 5); and in Case 2, the watch kept by the fishing vessel was just as bad as that of the ship.

2. In 1991 there was a serious collision in fog close to the western end of the Strait of Dover Traffic Separation Scheme. The cargo vessel ZULFIKAR, which had just cleared the Traffic Scheme, collided with the fishing vessel WILHELMINA J, which was trawling for scallops. WILHELMINA J foundered with the loss of all 6 of her crew. The Inspector's Inquiry into this accident found that the main cause of the collision was a failure by ZULFIKAR, and a possible failure by WILHELMINA J, to keep a proper radar watch. Despite the concern aroused by the accident and the publication of the Chief Inspector's Report, there have been several further incidents of collisions or near-collisions between ships and fishing vessels in the vicinity of Traffic Schemes, including the two cases described here. It seems that the lessons from the WILHELMINA J accident have not been fully taken on board, either by ships or by fishing vessels.

3. In the International Regulations for Preventing Collisions at Sea, Rule 10(f) takes account of the dangers of collisions near Traffic Schemes and puts a clear obligation on any vessel navigating in such an area to do so with particular caution. Plainly, this is particularly important in poor visibility.

4. There is nothing in the Collision Regulations to prohibit fishing near the end of a Traffic Lane but the practice is clearly hazardous, not only in fog but also in the sort of indifferent visibility which is so common around the UK coast. The need for a vigilant radar watch, with long-range scanning, is vital in all vessels in such conditions but especially apparent when, as in a vessel fishing, manoeuvrability is hampered.

5. Rule 19(d) says that in restricted visibility, a vessel which detects another by radar alone shall determine if a close-quarter situation is developing and, if so, shall take avoiding action in ample time. This applies to ALL vessels; the privilege given to vessels engaged in fishing in clear weather does not apply when vessels are not in sight of each other.


CELTIC SEA
Extract from Chart 5500
By kind permission of the Hydrographer of the Navy
ENGLAND
51°
50°
49°
Hartland Point
Trevose Head
Lizard Point
S. Anthony Head
Eddystone Rks
Penlee Pt
Start Point
Start Point
Berry Head
Brixham
Tor Bay
(Deep-draught vessels)
Plymouth
Par
Fowey
Falmouth
Pendennis
Land's End
Newlyn
Seven Stones
Isles of Scilly
Bishop Rock
Wolf Rock
Bishop Rock
Longships
TSS WEST OF THE SCILLY ISLES
TSS OFF LAND'S END
TSS SOUTH OF THE SCILLY ISLES
TSS OFF CASQUETS
TSS OFF USHANT
RADAR SURVEILLANCE
COLLISION CASE 1
COLLISION CASE 2
3.3
Laden tankers over 10000 GRT using the TSS should keep at least 3 miles to seaward of Wolf Rock and should not use the scheme in restricted visibility or other adverse weather.
3.4
Vessels bound for TSS Off Casquets should maintain an 051° track until they can safely cross the track of SW-bound vessels.
3.5
Vessels bound for Lyme Bay are recommended to maintain this track.
3.6
This lane may be used by any vessel fitted with an electronic position-fixing appliance appropriate to the area. Vessels barred from the inner traffic lane (see 3.7) if not so fitted shall avoid the TSS by as wide a margin as possible.
3.8
This lane may be used by all vessels; but tankers in ballast or carrying oils (see 5.2) and vessels carrying substances in 5.3 shall so far as practicable, keep to the outer half of the lane.
3.10
Subject to any factors that may adversely affect safe navigation, ships proceeding from the western part of the English Channel to Dover Strait and vice versa, are strongly recommended to use the TSS Off Casquets.
Pass between TSS if considered safer to do so in prevailing conditions.
051°
LYME BAY
Exmouth
Teignmouth
Weymouth
Weymouth Bay
Poole
Anvil Pt
Bill of Portland
PORTLAND COASTGUARD
East Channel
Cap de la Hague
Casquets
Alderney
Race of Alderney
(Laden tankers)
Guernsey
Les Hanois
Sark
Jersey
(British)
ISLANDS
Les Roches-Douvres
Plateau des Minquiers
Îles Chausey
Les Sept Îles
Les Héaux
Île de Bréhat
Île de Batz
Île Vierge
Roscoff
Morlaix
L'Aber Vrac'h
Perros-Guirec
Trébeurden
Tréguier
Paimpol
Cap Fréhel
Saint-Malo
Le Légué
S.-Brieuc
Ouessant SW
Le Four
Longitude 5° West from Greenwich
6°
4°
3°
2°

16. MAN SWEPT OVERBOARD BY LARGE WAVE

Narrative

This incident concerned a 34 metre stern trawler, having a crew of 16, which had a working deck divided into two areas by a low gantry running athwartships. The gantry was about 1.8 metres from the stern and about 1.5 metres above the deck. There was thus a large working area forward of the gantry and a small area aft. Rather unusually the vessel had no stern ramp or stern gate, the stern being completely open for about 1.8 metres either side of the vessel's centreline with no bulwarks or guard rails. The working area aft of the gantry thus had the gantry at its forward end, bulwarks each side and an open unguarded stern.

The vessel was operating in poor weather conditions in the northern North Sea. The nets had just been recovered and the belly of the net was found to be damaged. The crew commenced a net mending operation with several men working forward of the gantry and 2 men aft. During this operation, an unexpectedly large wave swept over the deck. The men in the forward area were knocked to the deck, one man in the aft area was pushed onto a piece of deck machinery and the other man at the aft end was swept through the open stern into the sea.

All attempts to recover the man from the sea failed.

Observations

This vessel had operated for some period of time with a completely open stern; it was also normal practice for men to work in the area aft of the gantry whilst at sea. The favourable sea keeping characteristics of the vessel generally kept the working deck dry and reasonably stable.

Comment

There are requirements, within The Fishing Vessel (Safety Provisions) Rules 1975, for there to be protection for the crew against the dangers of falling overboard through openings in bulwarks. Obviously such openings need to be clear whenever a net is being shot or hauled. However, at all other times gates, chains, bars or other suitable devices should be kept in place for the safety of the crew.

17. SMALL FISHING VESSEL IS PULLED UNDER BY WINCH

Narrative

An 8 metre fishing vessel with a crew of one was twin scallop dredging. Weather conditions were good. Winds were north-easterly Force 2 and the sea was calm with a 0.5 - 1.0 metre swell running. Visibility was excellent.

The port dredges became fast on an underwater obstruction. The Skipper advised the Coastguard of his predicament. He then began to "jiggle" the port warp in order to free the dredges. (Jiggling involves hauling in on the warp attached to the snagged dredges and then letting go suddenly - this is repeated until the dredges come free. Obviously the vessel will heel to a certain extent as the warp is hauled in.)

Unfortunately the winch did not respond when, at the end of one of the "hauling in" operations, the Skipper tried to release the tension on the warp. The winch continued to haul in on the warp. This caused the vessel to be pulled down by the stern and heel more and more to port. As the vessel moved in the swell she suddenly heeled further. This caused some bags to slide across the deck and knock the Skipper over the side.

At the same time the liferaft fell off the top of the wheelhouse into the water. The liferaft inflation system was not activated by this relatively small movement, but with some difficulty the Skipper, now in the water alongside the liferaft canister, managed to trigger the inflation process.

The vessel remained floating bow up for some minutes before sinking. The Skipper climbed into the liferaft, deployed the sea anchor and set off flares. The flares were seen from the shore and he was rescued by the local lifeboat.

Observations

1. The cause of the failure of the hydraulically powered winch is not known.

2. Although the Skipper was not wearing a life-jacket at the time his oilskins did have closed cell foam buoyancy.

3. The Skipper had attended a Basic Sea Survival course.

Comment

1. Great care should be taken in matching the pulling power of a trawl winch to the stability of the vessel on which it is to be installed to ensure that the vessel cannot simply pull itself under.

2. There is no mandatory requirement for fishing vessels of less than 12 metres in length to carry liferafts, although it is strongly recommended that they should do so by the Department of Transport. The Skipper of this vessel owes his life to the fact that he was carrying one.

18. INJURY CAUSED BY INCORRECT OPERATION OF EQUIPMENT ON BOARD A FISHING VESSEL

Narrative

A 36 metre stern trawler was in the process of shooting its gear. The Skipper was at the net winch controls at the aft end of the wheelhouse, the Mate was on the working deck supervising and the remainder of the deck crew were on the working deck but outboard of the fore and aft safety rails and coamings. During this operation a problem with the gear required that the starboard side gear be stoppered off. A stopper chain was kept secured to the deck for this purpose, but on this occasion it proved to be too short to reach the starboard net chain. The starboard gilson wire was therefore passed from its block on the aft gantry, under the starboard safety rail and hooked onto the starboard net chain by the Mate (see figure).

The starboard gilson winch then heaved the starboard net chain towards the safety rail and within reach of the stopper chain. The load taken by the gilson wire effectively reduced the load on the net winch causing it to haul in slightly. The combined effect of the movements of the gilson wire and the net chain caused the Mate to become trapped in the rapidly diminishing space between the net chain and the safety rail, injuring his leg. Before the gilson wire could be slacked back it failed, allowing the net chain to move away from the safety rail and the Mate's leg was freed.

Observations

1. This type of operation had been performed many times before on this vessel; wear patterns on the under sides of the safety rails, caused by rubbing of the loaded gilson wires, being clear evidence of this.

2. The only person inboard of the port and starboard safety rails was the Mate, all others were outside of the net handling area.

3. The net winch had no mechanical brake fitted; any change of load on its drum would have caused it to move.

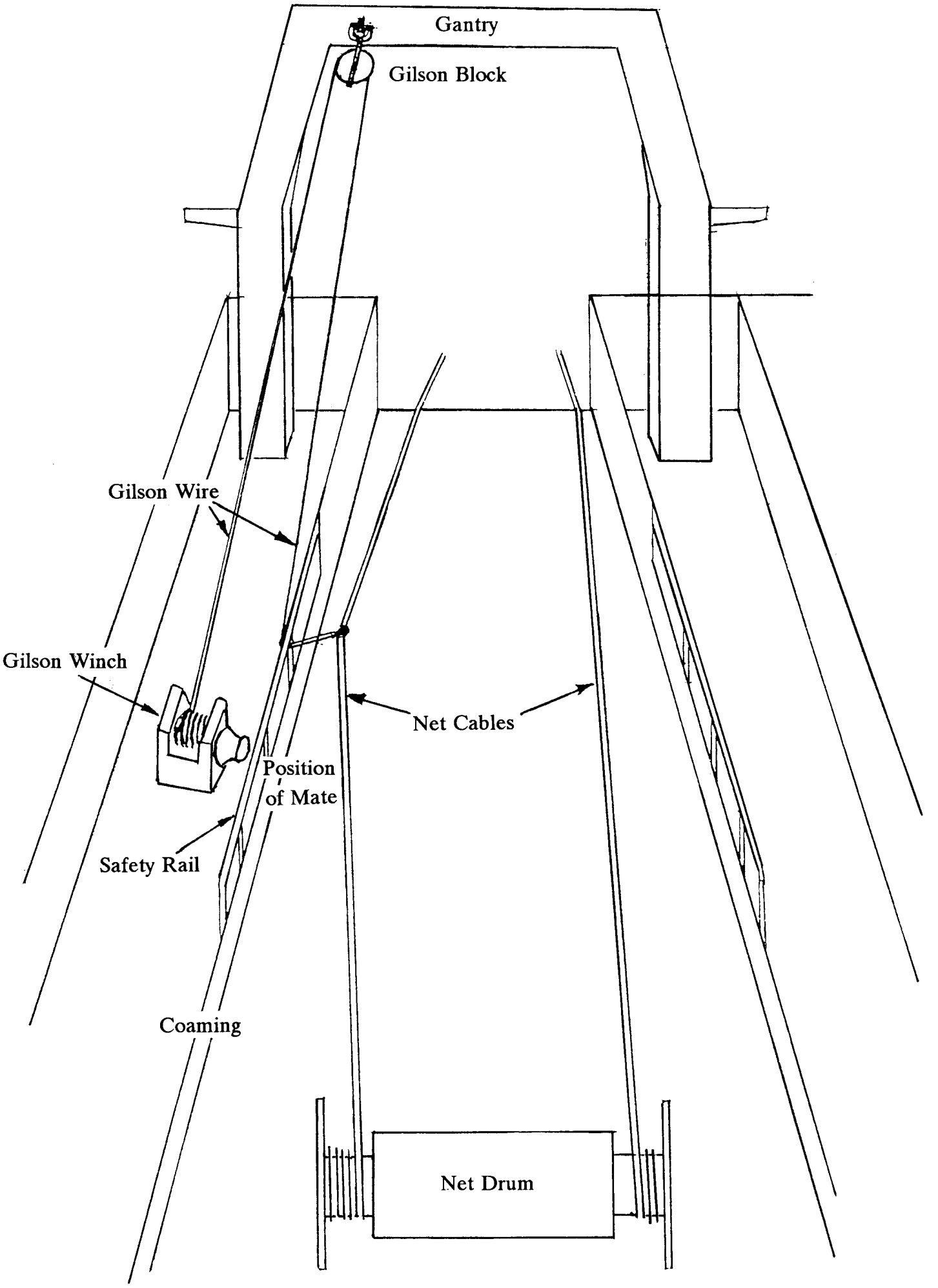
4. Both the net winch and the gilson winch were in simultaneous operation on the net chain.

Comment

1. The gilson and net winches were, by being coupled, operated in such a fashion as to act in opposition, so causing an overload and hence failure of the gilson wire.

2. The safety rails were being used as part of a loaded system without having been tested or designed as load bearing components.

3. Causing the gilson wire to rub on the under surface of the safety rail, rather than using a block, risked a significant reduction in the working life of the wire due to abrasion and bending.



GILSON/NET WINCH ARRANGEMENT

19. ANY MEANS OF ACCESS MUST BE SAFE

Narrative

A 68 metre freezer trawler went alongside a berth in the early evening to load stores and fish packaging. She was expected to complete the loading and sail in the early hours of the following morning. An aluminium safety ladder was used for shore access; it was 8 metres long and fitted with rigid side rails. The head of the ladder was placed over the top side-rail of the vessel and lashed to it with rope. A set of wooden steps were placed on the deck under the head of the ladder. Between the vessel and the quay were 2 vertical piles fitted with fenders, the after one was in way of the ladder. (See photographs 1 - 3). The Skipper and other crew members who were not required for the loading went ashore.

The Skipper returned about 3 hours later with 3 guests, 2 gentlemen and a lady. The ladder was about 20° - 25° above the horizontal. The first guest walked up the ladder and stepped down to the deck. He was to be followed by the lady, the Skipper and then the lady's husband. As the lady reached the head of the ladder and was about to step off it, the head of the ladder on the right hand side became detached from the vessel's side-rail. Both she and the Skipper, who was halfway up the ladder, fell to the piling beneath. Almost simultaneously the whole ladder fell on to the quay and over the piling.

The lady fell a further 4 to 5 metres into the water, having already suffered major injuries. The Skipper, who was able to cling to the top of the pile, had suffered a broken left arm, broken ribs and extensive bruising. The lady's husband had fallen from the lower end of the ladder to the quay, so he escaped with relatively minor injuries. One of the deckhands saw the accident happen. He immediately jumped on to the quay, took off his outer clothing and then jumped into the water. He managed to turn the lady face up and swim with her to the quayside ladder. She was lifted to the quay with the help of other crew members and a power hoist. An ambulance arrived very promptly but, in spite of intensive efforts to resuscitate her, the lady was found to be dead.

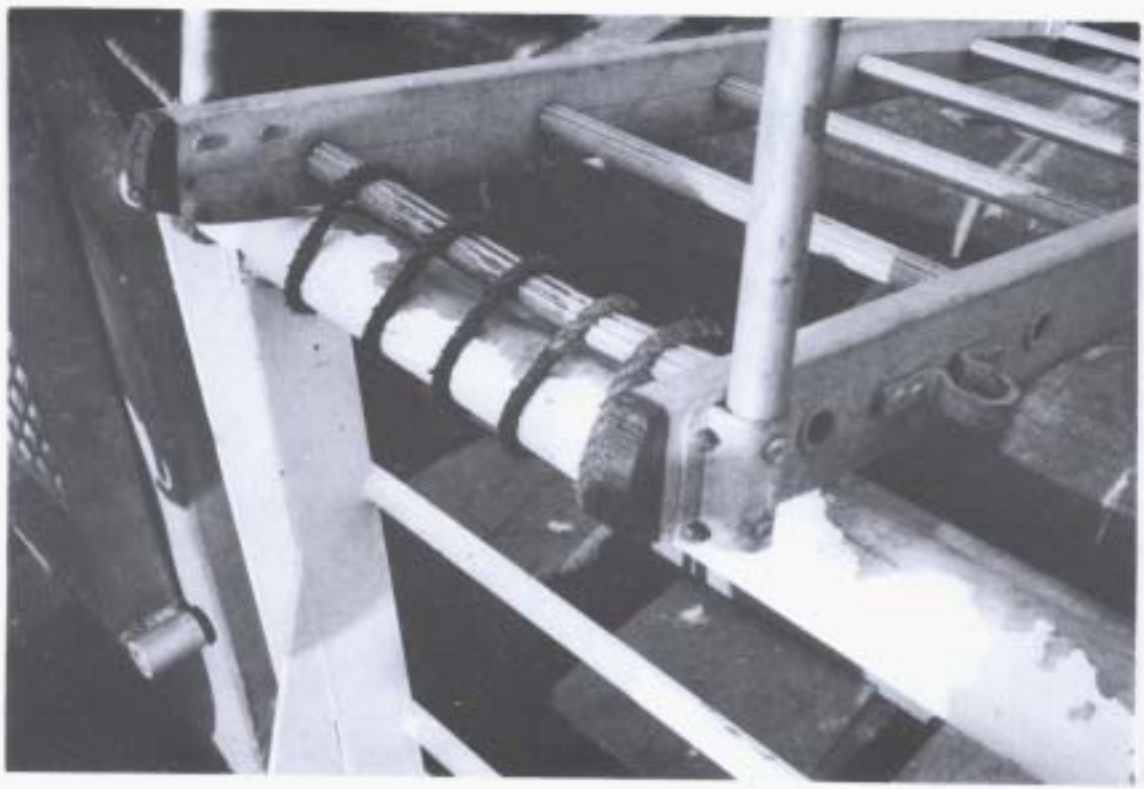
Observations

1. The trawler had her own gangway, but it was not used because the leg support under the top platform might have fouled the top of the pile below it at low water.

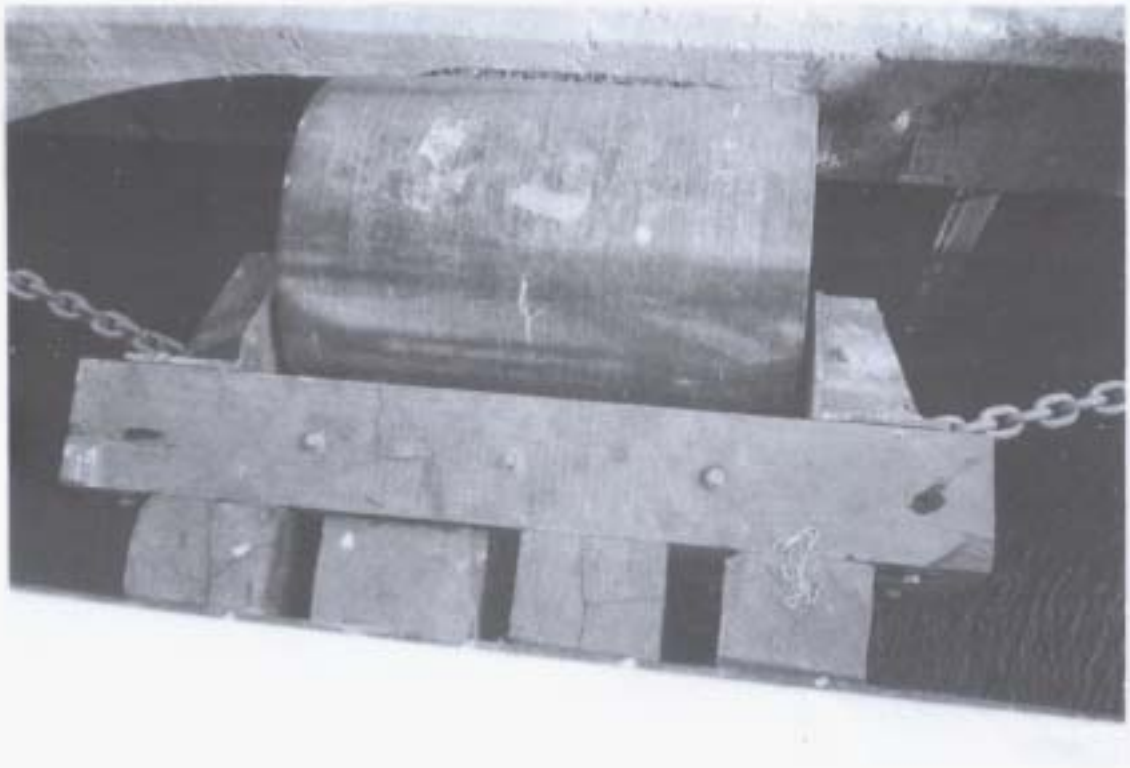
2. The ladder belonged to the harbour authority. It was usually used for access to small vessels when the deck level was below the level of the quay.

3. The lashing at the head of the ladder had become insecure. This probably happened when the tide was falling and the foot of the ladder became caught in one of the crane tracks on the quay, stressing the lashing. (See photograph 4).

Photograph 1
Aluminium Safety Ladder



Photograph 2
Ladder lashed to the side rails of the vessel



Photograph 3
Quay pile with fender

Photograph 4
Damaged foot of the ladder

4. The 18 year old deckhand who tried to save the lady's life was commended for his prompt action.

Comment

1. The work which was going on at the time of the accident was a fish loading process as defined in "The Loading and Unloading of Fishing Vessels Regulations", which were made under the Health and Safety at Work Act. Under those regulations, there is an obligation to provide and properly maintain a safe means of access.

2. In the booklet "Fishermen and Safety", published by the Department of Transport, there is a section devoted to "Gangways and Access". The advice therein includes the following:

   "The gangway or ladder should be firmly secured. It should be adjusted from time to time to allow for the rise and fall of the tide. Underneath it a safety net should be spread out, tied to the quay and the ship, so that it can catch and hold at least two men."

   If that advice had been followed, it is probable that this tragic accident would not have happened.

3. Open rung ladders are often left lying on quaysides after vessels sail. This perhaps encourages crews of arriving vessels, particularly small ships and fishing vessels, to use them in preference to turning out and rigging their own ship's gangways. This practice should be discouraged and in any case open rung ladders should only be used when it is not reasonably practicable to provide a gangway, accommodation ladder or other safer means of access.

20. FIRST AID SAVES LIFE OF FISHERMAN

Narrative

A 9.8 metre Cygnus 27 crabber with a crew of 4 was hauling pots in the Sound of Tiree, off the west coast of Scotland. The wind was north-easterly Force 6 and there was a rough steep sea with a short swell. The fleet of about 80 pots was being hauled over a lead block suspended outboard from a davit arm and thence inboard to the warping drum of a powered line hauler. The Skipper was operating the hauler.

When most of the pots had been stacked on the after deck with about 17 still to be hauled, the Skipper suffered a heavy blow to his head from the lead block. He was knocked unconscious and fell against either the bulwark or the baiting table, which caused him further injury. Nobody actually saw the accident. The Mate went to the Skipper's assistance, realised he had lost consciousness and cleared his air passage so that his breathing would not be restricted. While giving this first aid he told the other 2 crew members to cut the remaining pots free, call Coastguard for immediate medical assistance and head the boat back to port. The Skipper was transferred to a rescue helicopter and flown directly to a hospital in Glasgow.

Observations

1. The Skipper had suffered a serious head injury and had to be moved to the neurosurgical unit of the hospital. Fortunately he eventually recovered but could remember nothing of the accident.

2. The steel open-jawed lead block was suspended about 250mm outboard of the side of the boat and about 1.4 metres above deck level. It was shackled to the head of the A-section davit and the inboard limit of its swing was to a point just outboard of the side. The block was therefore at head height of any person leaning over the side. The boat was rolling at the time.

Comment

1. It is probable that the quick action taken by the Mate saved the Skipper's life. This highlights the value of Fishermen's Safety Training, which includes basic first aid. All new entrants to the fishing industry and all serving fishermen born on or after 1 March 1954 must have undertaken this training. Full details are published in Merchant Shipping Notice No M.1367.

2. There are dangers in working with creel hauling gear near head height, particularly in confined areas of the deck. Guidance on safe practices when hauling pots is included in the Department of Transport publication "Fishermen and Safety". This advises keeping close to the controls when operating a pot hauler, so that it can be stopped quickly when a fouled rope is seen. An added benefit is that the operator would be standing inboard and clear of a swinging lead block. There is also general advice on the use of winches and haulers in the "Recommended Code of Safety for Fishermen", another Department publication.

APPENDIX A

INVESTIGATIONS COMMENCED IN THE PERIOD 01/04/94 - 31/07/94

DATE OF ACCIDENT	NAME OF VESSEL	TYPE OF VESSEL	FLAG	SIZE	TYPE OF ACCIDENT
14/01/94	SARAH THINNESEN	Fishing Vessel	UK	21.98m	Accident to Personnel
16/01/94	SUNBEAM	Fishing Vessel	UK	45.76m	Stranding
01/02/94	PARAGON	Fishing Vessel	UK	30.21m	Foundering
06/02/94	DAVID JOHN	Fishing Vessel	UK	23.90m	Accident to Personnel
01/03/94	ST THOMAS/ SOLAR	Fishing Vessel Gen Cargo-Multi Deck	UK Antigua	32.56m 999.00 grt	Collision
03/04/94	TYNESIDER	Tug	UK	164.00 grt	Grounding
08/04/94	RETURN OF MARCO POLO	Small Comm Sailing	Cayman Is	171.00 grt	Contact
09/04/94	BARGE MB 101	Misc Non-Trading	Panama	4,570.00 grt	Accident to Personnel
13/04/94	HAWESWATER/ CAP FRIO	Misc Non-Trading Reefer	UK Bahamas	1,469.00 grt 9,755.00 grt	Collision
14/04/94	MALCOLM MILLER	Small Comm Sailing	UK	219.16 grt	Accident to Personnel
17/05/94	HALTON	Fishing Vessel	UK	19.05m	Grounding
18/05/94	ST HELENA	Gen Cargo/Passenger	UK	6,767.00 grt	Hazardous Incidents
24/05/94	HIGHLAND QUEEN	Fishing Vessel	UK	15.64m	Accident to Personnel
29/05/94	SIOUX	Fishing Vessel	UK	9.95m	Foundering
01/06/94	GIRL MANDY	Fishing Vessel	UK	9.96m	Capsizing
01/06/94	M & J T	Fishing Vessel	UK	10.35m	Accident to Personnel
02/06/94	BALTIC STONE/ HARINGVLIET	Gen Cargo-Multi Deck Fishing Vessel	Bahamas UK	5,689.00 grt 28.65m	Collision
10/06/94	EILEAN MO GRAIDH	Gen Cargo-Single Deck	UK	424.00 grt	Machinery
10/06/94	CHANNEL DRAGON	Oil Tanker	Bahamas	51,972.00 grt	Grounding
11/06/94	JUNE STARFISH	Pleasure Craft	UK	9.43m	Foundering
14/06/04	WASH PRINCESS	Fishing Vessel	UK	11.70m	Capsizing
22/06/94	ADONIS	Fishing Vessel	UK	23.93m	Fire
23/06/94	SILVER HARVEST	Fishing Vessel	UK	28.99m	Accident to Personnel
27/06/94	DARTMOUTH FERRY	Other	UK	50.60 grt	Foundering
07/07/94	FLOREAT	Fishing Vessel	UK	15.82m	Accident to Personnel
08/07/94	PRIDE OF LE HAVRE	Ro-Ro Passenger	UK	14,760 grt	Dangerous Occurrence
08/07/94	PRIDE OF PORTSMOUTH	Ro-Ro Passenger	UK	33,336.00 grt	Dangerous Occurrence
10/07/94	NICKELLYN	Fishing Vessel	UK	20.03m	Foundering
10/07/94	UNITAS H	Gen Cargo-Single Deck	Germany	2,184.00 grt	Accident to Personnel
13/07/94	UNITED TIGER	Oil Tanker	Sweden	7,613.00 grt	Fire