

# Standard Safety

The Standard



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## Introduction

In this issue of *Standard Safety*, we are privileged to have collaborated with the Belfast Pilots to produce guidance on the rigging of pilot ladders. The correct and safe rigging of pilot ladders is not only a matter of safety for pilots but also for boarding surveyors, crew members and port officials. We supply useful information sheets to promote the correct rigging of pilot ladders.

We report on the findings of the club's Member Risk Reviews. We have, in general, been encouraged with our findings, which have shown that most members use many of the techniques of a modern safety management system. However, there have been a number of surprising findings, particularly in the segments outside of the tanker/gas and offshore markets. These companies certainly have the certification indicating their compliance with ISM but are surprisingly not carrying out certain management practices that in the tanker industry, for example, would be considered normal practice. Some of these findings, it could be argued, are possibly contrary to compliance of the ISM Code. (Hence, the comment later that Flag States are not applying the ISM Code consistently).

The sample size is relatively small and so cannot be taken as an indicator of the whole industry; however, it provides an interesting snapshot.

The Standard Club has good-quality members and consequently good-quality ships are entered into the club. This quality is monitored by the rigorous loss prevention survey and Member Risk Review programme; however, the fact that large and small claims still keep occurring in significant numbers is objective evidence that there is more that can be improved. The continued rate of claims from all ship segments indicates that the ISM Code is not being implemented as effectively as it should be.

From various Member Risk Reviews and condition surveys, we have noticed that there are some companies, albeit few in number, that do not carry out main engine fuel oil analysis.

We highlight disturbing evidence that there are still ships operating whose officers and crew have little appreciation of the dangers associated with tank entry. It is quite extraordinary that seafarers in the 21st century are not aware of the considerable personal danger present

when entering an enclosed space. We would urge all members immediately to ensure that their safety management system includes robust tank and enclosed space entry procedures consistent with good industry practice.

Again, we put the spotlight on a technical aspect; the failure of controllable pitch propellers (CPP). There have been a number of incidents causing considerable damage as a result of the failure of the CPP units and/or the fact that the watchkeepers do not know what the CPP default position is and do not know what to do when there is a CPP failure.

In the Surveyor's notes section, we outline that unlagged hot exhausts present a considerable risk of fire. We continue to see ships with poorly lagged main engines, and generator exhausts and turbo charger inlets and outlets. Not having the exhausts properly lagged is contrary to the SOLAS requirements. The risk of an engine room fire is substantial. It also shows a failed safety management system. It is an important matter to ensure that hot exhausts are lagged.

As part of the Surveyor's notes, we also highlight what we consider to be good housekeeping. We present some photos that show how not carrying out good housekeeping can present a considerable risk to the ship, passengers, cargo and crew. This is also a sign of a failed Safety Management System, a ship and company failure, and also a failure of Class and Flag State.

## In this issue

- PILOT LADDER SAFETY
- MEMBER RISK REVIEWS
- CONTROLLABLE PITCH PROPELLER FAILURES
- SURVEYOR'S NOTES

## Pilot Ladder Safety



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The club, in association with Belfast Pilots Ltd under the guidance of Captain Brian Wilson, has produced this article to outline the necessity of rigging a pilot ladder correctly. The incorrect rigging of a pilot ladder can result in severe injury and the penalties in certain jurisdictions may lead to considerable fines and/or imprisonment.

The club has seen a number of claims recently, including some that have resulted in fatalities, because the pilot ladder was not rigged correctly and/or the right equipment was not available nearby when a person fell into the water.

Together, we have created information sheets to highlight the dangers associated with the transfer of personnel by pilot ladders. The information sheets are designed to highlight common flaws and poor practices that have been witnessed in the normal course of working as harbour pilots, and it is hoped that these will be used as a guide to the correct way of rigging a pilot ladder, in an effort to prevent accidents and incidents related to the transfer of personnel at sea.



### Capt Brian Wilson – Belfast Pilots

In 1993, at the age of 32, Captain Brian Wilson became a pilot in the Port of Belfast. He joined the UKMPA (United Kingdom Marine Pilots Association) Technical & Training Committee in 2000 and took over, as Chairman, in 2008. During this time, he drafted the review of the 'Code of practice for the boarding and landing of pilots' and is highly involved in pilot training standards both in the UK and Europe. He is part of the UK delegation at IMO on pilot transfers, and worked at IMO and Nav 55 on the reviews of SOLAS V/23 & A889. Captain Wilson has participated in seminars on personnel transfer for BP/Castrol Technical Managers and other interested bodies for the last three years, and is considered an expert in this field. Any questions or enquiries may be directed to him at: [enquiries@belfastpilots.com](mailto:enquiries@belfastpilots.com) or training seminar details can be viewed on: [www.belfastpilots.com](http://www.belfastpilots.com).



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There is a rising toll of accidents worldwide resulting in injury and death to pilots, boarding officials, superintendents, surveyors, joining crew and spouses, bunker personnel and stevedores; often this will be when the ship is at anchor, but it could also be alongside when the ship, for whatever reason, is being boarded on the outboard side. In 2009, there were serious incidents involving pilots in Turkey, France and Ireland. The intention of this article, and the associated information sheets, is to highlight poor practice and to show the dangers involved when those tasked with rigging ladder access fail to follow proper procedures and best practice.

### Ship's crew

The rigging of any pilot ladder is the responsibility of the ship's staff and a responsible officer should oversee the rigging of the pilot ladder. This may be delegated to an experienced seaman, but the final responsibility should be with the duty officer. The company is responsible for training the crew to make them proficient in rigging the pilot ladder, and such operations should be treated with great importance.

### Rigging the ladder

#### Always:

- ensure that the ladder is properly made fast (tied up) with a system that has equal, if not more, strength than the ropes used in the ladder construction. Always ensure the ladder is made fast to an appropriate ring bolt/cleat or sturdy part of the ship and that the tie ropes are free from chafe
- place the ladder in an area where the hull provides a smooth perpendicular surface that ensures the ladder rests flat against the ship's side at all times. Failure to do so will result in the pilot climbing an angled ladder with his feet inside the line of his body, thereby placing his upper body weight mostly on his arms
- have a responsible officer at the ladder to oversee the operation and maintain communications with the bridge should there be an incident
- ensure that the correct equipment is available at the rail where the ladder is affixed. If appropriate, hand stanchions and steps to the main deck should be provided. Stanchions must be secured and not free to easily move. Transferring from ladder to ship is one of the most dangerous points of the process. Steps will avoid pilots jumping down to the main deck, thereby avoiding potential injury. Ensure that the final access to the ship is safe and clear of obstructions

- at night, place the ladder in a well-illuminated area. Angle the lighting to highlight the climb without blinding either the pilot boat approaching the ladder or the pilot when climbing
- check the height required above the water with the pilots. Place the ladder at the correct height above the water level that is equal with the freeboard of the pilot boat. If it is too long it may become trapped by the pilot launch, resulting in crushing damage to the ladder. If the pilot is climbing and the ladder is trapped, it may result in the swell causing the full weight of the boat to pull down on the ladder
- if in doubt, refer to the IMO/IMPA (International Marine Pilots Association) graphic poster highlighting the correct procedures, which should be sited on the bridge of every ship

#### Never:

- use the ladder spreaders jammed between the ship's rails to affix the ladder
- use your feet to jam the ladder into position. The weight of any pilot will displace the ladder and cause injury to all the parties involved
- use a pilot ladder that has damaged steps, spreaders, ropes that are chafed, damaged or showing wear
- allow an inexperienced person to rig the pilot ladder

#### Avoid:

- making the ladder too short. Pilots, generally, are not young men and an apparently small leg stretch can lead to pulled muscles and associated hernia problems
- rigging the ladder on or near to shipside outfalls. A pilot boat deck awash or a ladder amidst a rush of overflow is an unsafe climb. Make sure adjacent scuppers are plugged, if necessary
- rigging the ladder too close to the ship's stern or focs'le. This makes it difficult and dangerous for the pilot boat to manoeuvre as it may collide with the flare of the hull or get too close to the ship's propeller

If using the pilot ladder in tandem with an accommodation ladder, always ensure that:

- the pilot ladder is easily accessible to the accommodation ladder
- the accommodation ladder is properly rigged, allowing the person to move from the pilot ladder to the accommodation platform safely and vice versa
- the accommodation ladder platform is at the correct angle, properly supported, free of obstructions and non-slip
- the accommodation ladder rails or hand ropes are properly secured and tight
- the accommodation ladder is properly rigged with secure stanchions, is clean, and the hand ropes or rails are oil-free
- the accommodation ladder is rigidly secured to the ship's hull

## Case study 1

A ship was receiving a number of officials whilst at anchor. The weather was good but a moderate swell was running. The ship had a freeboard of about eight metres. A pilot ladder was rigged but the officials refused to climb the pilot ladder, insisting that the accommodation ladder was lowered. The ship was not rigged to use a pilot ladder in conjunction with the accommodation ladder. As the launch approached the ship, the launch driver managed to get the launch beneath the accommodation ladder platform and one of the officials was fatally crushed on the launch. Pilot ladders are generally safer to use, particularly in swell conditions. Ships with high freeboards should consider using a pilot ladder with an accommodation ladder. There often is commercial pressure on pilots, surveyors, officials and/or joining or leaving crew to embark or disembark via a pilot ladder. The master should not allow the boarding to take place if he considers it dangerous in the prevailing conditions. Pilots are experienced but often other personnel are not so experienced and aware of the potential dangers.

Never allow a person to climb a pilot ladder without a suitable lifejacket, except in emergencies.

## Pilot ladder construction

It is now more common to have ladders constructed ashore and supplied directly to the ship after being made to a specified length. However, crew members should be aware that some ladders constructed ashore may not always comply with the SOLAS requirements (Chapter 5 Resolution A889/21). Manufactured pilot ladders supplied can be of varying quality and some may fall below standards. Crew members should remain vigilant and a responsible officer should inspect the ladder when it is delivered on board.

If the pilot ladder is being made on board, you should be aware of the following points:

- it should be made by an experienced seaman and checked by a responsible officer
- it should use the correct diameter and type of rope
- seizings to hold the steps in place should be made from a natural fibre similar to the main ropes. This ensures a sympathetic bond between the materials, avoiding chaffing and any corrosive reactions, as well as being cheap and simple to replace. Avoid electrical cable ties, bulldog clips, heavy duty tape and other such shortcuts
- ensure that the spaces between the steps are equidistant. An irregular climb makes it difficult for the pilot to judge his next step, especially on the descent

CONTINUED OVER





**DO NOT STOW LADDERS ON OPEN DECKS**

- ensure that the steps are level and horizontal. Angled steps lead to slipping and misplaced footing
- ensure that spreaders are rigged at the appropriate stages. Spreaders stop ladders twisting and thereby increase the likelihood of the ladder remaining flush against the ship's side
- keep the ladder stowed out of sunlight. Stow it off the deck and away from corrosive substances. Inspect the ladder regularly and replace as necessary. Inspections should include opening the rope splice to view the internal state of the material

## **Climbing the ladder – boarding or disembarking the ship**

### **Remember the following:**

- always have both hands free to hold onto the ladder
- always board or disembark with an approved life jacket with a light
- always wear good non-slip boots or shoes
- do not carry heavy bags or other items that impede a safe boarding
- ensure that the ship has provided the best possible lee for boarding
- always ensure that the ladder is well lit at night
- during the climb, always maintain a three-point contact with the ladder
- climb the ladder at a sensible pace
- do not be pressurised to board or leave the ladder until you are comfortable with the situation; weather, sea state and swell, ship's speed, ship's rolling and launch movement must be considered. Always refuse to climb if you see or feel something is amiss

Boarding and leaving a ship from a pilot ladder or accommodation ladder is one of the most dangerous activities carried out on a ship. Doing it at night in poor weather requires the person to be alert, fit and fully aware of the dangers. The master should be prepared to forbid the boarding of personnel if it is considered too dangerous in the prevailing conditions. Pilots are trained and have the experience, but many other personnel are not.

## **Case study 2**

As a ship was embarking a pilot when entering a major Chinese port, one of the lines supporting a ladder rung parted and the pilot fell into the sea. The pilot was rescued and taken to hospital. As a result, the ship was fined and detained by the authorities for several days. The ship was delayed and missed the next employment lay day. In different circumstances or weather, the pilot could have been severely injured or worse. The pilot ladder was inspected by the authorities and the following was found:

- the ropes between two steps were broken
- the rope near another step was parted
- the ladder was stored out on the open deck

Routine maintenance inspections of pilot ladders should be a part of the ship's planned maintenance system. Pilot ladders must be stored in an appropriate dry space. Do not store ladders on an open deck where the elements can degrade the ropes.

Pilot ladders with damaged ropes and/or ladder steps or spreaders must not be used. Damaged pilot ladders must be replaced. Do not use a damaged pilot ladder.



**BROKEN LINES BETWEEN STEPS**



**TOP PART OF THE LADDER DAMAGED**



**BROKEN LINES NEAR STEPS**

## Member Risk Reviews



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It has been a year since the club launched the Member Risk Review (MRR), which superseded the Minimum Operating Standards (MOS). A full explanation of the MRR is available on the club's website at: [www.standard-club.com](http://www.standard-club.com).

In short, it is a management review of the member's safety management system (SMS), a requirement for all new members. It ensures that the SMS is of a standard acceptable to the club. This therefore provides for an equitable standard throughout the club, preserving the mutuality for all members, a way for the club to get to know the member better and an opportunity for feedback to the club.

Since December 2008, the Safety and Loss Department has performed 35 MRRs. These have ranged from large operators with hundreds of ships to smaller companies with only a handful of ships and it has included owners of passenger ships, dry ships, gas ships, drilling and offshore operators.

### Member Risk Review findings

#### Management and leadership:

- in 40% of companies, there was no effective use of Key Performance Indicators (KPIs). We would urge members to use KPIs to measure their safety performance so that they are able to set improvement goals
- in 30% of companies, there was ineffective transmission of best practice and/or lessons learnt, i.e. there was no system of fleet notices, or equivalent, advising the fleet of an incident and attempting to prevent it from happening again. It is necessary for all companies to learn from past experience and improve their way of working as a result
- in 20% of companies, internal ISM audits were thought to be ineffective. This means that audits were being carried out, but the content of the audit did not reflect the true situation. The audits were being carried out as an act of compliance, "yes we do audits and so can prove that we comply with the code". Through the use of the MRRs and the condition survey programme, there is evidence that some Flag States and/or classification societies do not apply the ISM Code standards in an equitable manner. Condition survey findings, such as non-existent procedures for tank entry or hot engine exhausts not lagged, engine rooms found dirty with oil, or passage plans not being complied with, are proof that the ISM Code has not been understood or implemented in a consistent manner, even within the same Flag or Class society

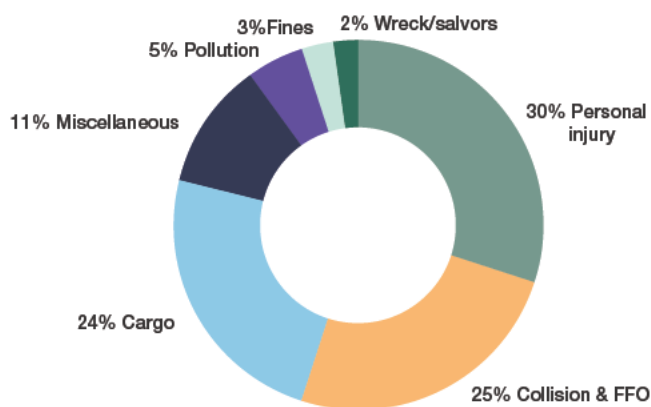
#### Shore-based personnel:

- in 40% of companies, there was inadequate identification of the training needs for shore personnel. In fact, a significant number did not have a person responsible for identifying the training needs of the shore staff. The experience and motivation of ship and shore staff is a major issue within the industry. In order to maintain the level of expertise within an organisation, resources need to be focused on the training of all staff

#### Shipboard personnel:

- 20% of companies did not carry out random drug and alcohol tests
- 30% of companies did not have an effective system in place to identify the training needs of the seafarers
- 30% of companies did not have an effective method of monitoring the Standards of Training, Certification and Watchmanship (STCW) working hours. Fatigue is an issue and occasionally is raised in condition surveys. On some ships in certain trades (mainly short sea trades), it is evident that the number of personnel on board would make it difficult to comply with the STCW working hours requirements. Members with ships on these trades should be aware that fatigue is often cited as a contributory cause in incidents and accidents

#### Value of claims by risk type (2000-2008)



#### Technical maintenance:

- 8% of companies did not carry out bunker fuel oil analysis. Although not a statutory requirement, not carrying out fuel oil analysis presents a high risk of engine damage

#### Navigational safety:

- 40% of companies did not carry out navigational audits. Our last *Standard Safety* publication focused on navigational issues, and it is apparent that this high-risk activity is not being adequately monitored. Accurate navigational audits are a major loss prevention tool and all companies should consider using them
- 50% of companies did not carry out bridge team management/bridge resource management (BTM/BRM) training
- no Electronic Chart Display Information System (ECDIS) training was given in over 20% of companies. ECDIS is going to be a mandatory requirement, and companies should consider increasing their training in this area. Any company using electric chart systems, even if it is not an approved system, should have their navigational watchkeepers trained in ECDIS
- no formal ship-handling or anchoring training was undertaken in 45% of companies. The fixed and floating objects (FFO) claims that the club sees, where wharves, berths and terminals are damaged, are considerable, both in terms of costs and number. The lack of training given to masters in ship-handling and the lack of effective monitoring of the pilot is a probable underlying cause to many of these incidents

#### Management of change:

- 40% of companies did not have management of change procedures. All companies had some form of familiarisation procedure on joining a new ship, but a significant number did not address the management of change issue. What, for example, is the company procedure when taking over a new ship? What risk assessment is done? Who is responsible for looking at the risks when taking over a new ship for the company? The management of change is a useful tool in assessing the risks when major changes occur to a plan or an operation

#### Accident investigation:

- 20% of companies had ineffective accident investigation procedures
- 30% of companies did no near-miss reporting or analysis

The ISM code requires companies to learn from their mistakes. These mistakes should be recorded as 'near misses' and accidents. If these are not collected and recorded – not for the purposes of attributing blame, but to learn from – there is little hope that the company will learn from its mistakes. Collect and analyse the information, report it (to management and the workforce) and put plans into effect to prevent such accidents from happening.

#### Safety management:

- 40% of companies had no effective risk assessment procedures
- 20% of companies were ineffective in their analysis of audits and inspections. They were not learning from the findings of the audits carried out

Risk assessment is a major safety tool in preventing accidents from happening. Use this in addition to permits to work and the risks of an accident happening in the workplace are minimised. Once it is introduced and becomes second nature, its benefits quickly become apparent.

#### Loss prevention:

The fact that a significant minority of companies still do not effectively use the following techniques indicates that there is still a lot of scope for improvement in trying to reduce incidents, accidents and claims:

- KPIs
- near miss reporting
- accident analysis
- risk assessments
- management of change techniques
- navigational audits

Many companies are not taking the proactive route in preventing accidents.

All of the above techniques are commonly applied in the tanker industry, not because ISM demands it, but because the industry and society require it. It is time for the other sectors, the bulk, general cargo, container and passenger ferry operators, to consider these good management practices.



## Controllable pitch propeller failures



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The club has experienced a number of claims concerning the failure of Controllable Pitch Propellers (CPP). These usually involve damage to a berth or a collision, but there have been incidents where the CPP failure has resulted in injury to personnel both ashore and on board.

On recent ship surveys, we have asked masters, chief engineers and watchkeepers if they are aware of the default position of the CPP when all control is lost due to, for example, a power or hydraulic failure. Very few of those asked knew what the default position is and no ship had a notice posted advising watchkeepers of the default position.

It is important for the master, watchkeepers and engineers to know what the default position is. This should be included in the initial onboard familiarisation of a ship when a new officer joins. It should be a part of the ship's preparation to have a trained response for a possible CPP failure; what are you going to do if the CPP fails? This knowledge should be available to all watchkeepers on board.

A CPP system covers the complete range of a ship's manoeuvring demands, including full ahead, dead slow, stop and astern, merely by controlling the propeller blade pitch.

Most ships that require a high degree of manoeuvrability are fitted with a controllable pitch propeller system. Although a CPP has a higher degree of flexibility for the manoeuvring of a ship, its design, manufacture, installation, and operation are more complex than a conventional fixed pitch propeller. It is due to the complexity of the CPP operation and control that failures may occur, and these potential failures must be taken into account by the ship's crew.

### Brief description of a CPP

A CPP control system comprises the main hydraulic system controlled by either a pneumatic or electrical signal. This may be solenoid valves with electrical connections for the hydraulics operation and air cylinders for pneumatic actuation. The hydraulic system changes the pitch of the propeller depending upon the command given. CPPs are far more responsive than the normal stop/start engine movements on 'conventional' fixed pitch propeller ships.

### Failure of a CPP system

The question that should be asked with respect to a CPP system is, what is the failure default position of the blade pitch if the control signal is lost? This could occur from an air, electrical or hydraulic failure, caused, for example, by a generator failure or blackout.

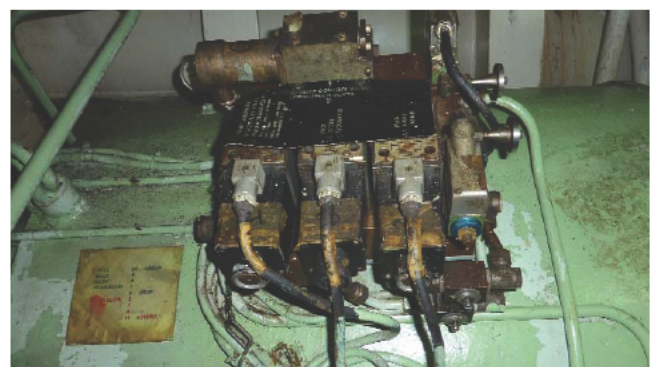
There are some systems in operation where, if the control signal is lost, the failure default position is either full ahead, full astern or remaining in its current position. The risk to the ship and the surrounding environment is therefore obvious if the failure takes place during a manoeuvring operation. A number of CPP failures have occurred when the ship was manoeuvring off the berth; the CPP reverts to a default position (ahead, astern or in the last known position) or defaults possibly to zero pitch.

Ideally, a CPP failure position would be zero blade pitch (no thrust). However, all systems are at risk if, for example, a solenoid valve sticks in either the ahead or astern position during critical operations.

The ship's master and officers should always be aware of the failure position of the CPP system in use on board, and notices to this effect should be clearly displayed.

#### Suggested routine checks of a CPP system:

- check all electrical connections are tight (solenoid valve plugs)
- ensure no air or hydraulic oil leakages are evident (loose control piping)
- test emergency manoeuvring system prior to port entry/departure
- consider renewing system solenoid valves every docking to ensure that they do not become worn and thus possibly stick during operation (see Figure 1, CPP solenoid valves)
- keep system oil clean (filtration and oil analysis)
- ensure ship's crew are well rehearsed in procedures in the event of a CPP failure during critical operations
- ensure that alarms are activated on the bridge consol and engine room consol when there are electrical/hydraulic CPP failures, alerting officers to the fact that there is a failure



**CPP SOLENOID VALVES – OFTEN A CAUSE OF FAILURE**

A good maintenance and inspection regime for the CPP system can prevent a system failure and help to avert a potentially serious incident.

## Surveyor's notes



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The club carries out approximately 300 ship condition surveys each year, and occasionally during these surveys, we still see practices and procedures that never fail to astonish.

We highlight issues concerning tank entry, good housekeeping, fire and electrical safety, all of which are fundamental to maintaining a safe environment on board a ship.

### 1. Tank entry

Recently, on two separate occasions on different ships, our surveyors found, when asked to inspect a ballast tank, that there was no tank entry procedure followed. It is very difficult to understand how management would allow their personnel to enter a tank without any tank entry procedures being adhered to. This is failure of management ashore and on board the ship. It is a failure of corporate responsibility at the highest level in not ensuring that the safety of the personnel working for the company are working in a safe environment. It indicates that the ISM Code has not been implemented correctly and that the Flag State has failed in its duties when it issued the Safety Management Certificate.

### Tank entry - case study

A passenger ferry docked in a European port and the surveyor asked to inspect a ballast tank. A tank was opened up without a tank entry permit and the officer in charge produced a H<sub>2</sub>S (hydrogen sulphide) meter, which he duly waved over the tank access; he did not understand that this was not the correct meter to use.

Additionally, the H<sub>2</sub>S meter had not been calibrated. There was no O<sub>2</sub> meter on board.



PORTABLE HAND HELD O<sub>2</sub> METRE

A H<sub>2</sub>S meter is not suitable for ballast tank entry. A calibrated oxygen meter must be used.

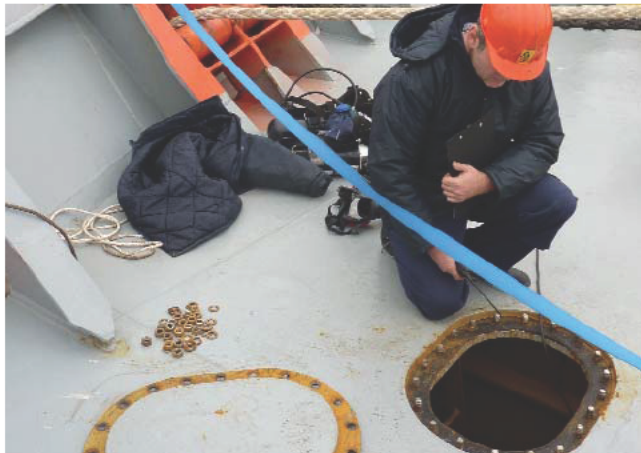
When questioned, the captain went to his cabin and produced a meter still in its box. It was pointed out to the master that this meter was in fact a carbon monoxide meter and not an O<sub>2</sub> meter. It was therefore not appropriate for a water ballast tank entry. In order to carry out a safe ballast tank entry: the atmosphere should always be ventilated and tested for oxygen before entry.

Every company must have rigorous permit to work systems in place that include tank entry. The risks of not having proper tank entry procedures are well documented and result in the death of many seafarers each year.

Tank entry guidance can easily be found on the Internet if companies do not have an existing tank entry procedure:

- Recommendations for Entering Enclosed Spaces aboard ships. IMO Res/864 (20 7/11/1997)
- UK MCA Code of Safe Working Practices for Merchant Seamen





CHAIN LOCKER ACCESS



BALLAST TANK

### Tank entry case studies available on the internet:

The UK Marine Accident Investigation Branch – MAIB  
<http://www.maib.gov.uk>

The MAIB has highlighted, through the issue of a number of recent reports, incidents in which there were fatalities due to incorrect tank or enclosed space entry procedures being followed. It is recommended that these reports are accessed and evaluated to improve members' tank entry procedures.

MAIB Safety Bulletin – Enclosed Space:  
[http://www.maib.gov.uk/cms\\_resources.cfm?file=/SB2-08.pdf](http://www.maib.gov.uk/cms_resources.cfm?file=/SB2-08.pdf)

Saga Rose: One seafarer died  
[http://www.maib.gov.uk/cms\\_resources.cfm?file=/Saga-Rose.pdf](http://www.maib.gov.uk/cms_resources.cfm?file=/Saga-Rose.pdf)

Viking Islay: Three seafarers died  
[http://www.maib.gov.uk/cms\\_resources.cfm?file=/Viking\\_Islay.pdf](http://www.maib.gov.uk/cms_resources.cfm?file=/Viking_Islay.pdf)

Sava Lake: This ship was at sea and two seamen died when accessing the cargo holds.  
[http://www.maib.gov.uk/cms\\_resources.cfm?file=/Sava%20Lake.pdf](http://www.maib.gov.uk/cms_resources.cfm?file=/Sava%20Lake.pdf)

Make sure your company has rigorous tank entry procedures. Tank entry procedures should include:

- permits to work – tank entry permit
- thorough ventilation of space
- atmosphere testing before tank entry and regularly testing throughout tank entry
- space secured for entry
- rescue equipment available, including breathing apparatus equipment
- responsible person in charge
- adequate lighting
- personal protective equipment used
- adequate communication

Does your ship have a calibrated O<sub>2</sub> meter suitable for testing the atmosphere in an enclosed space? If not, it should be supplied immediately. O<sub>2</sub> and other meters should be regularly calibrated. Meters should be easy to use and clear instructions in their use should be available. The use of personal O<sub>2</sub> meters is recommended.

If work, other than routine inspections are taking place in a tank then other precautions are necessary, including:

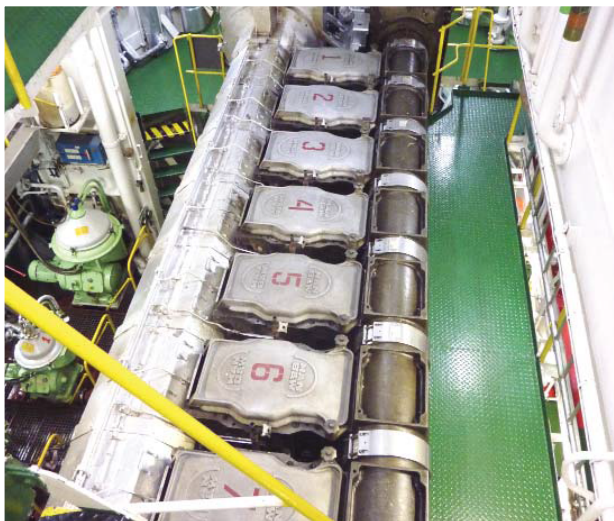
- risk assessments
- hot work permits (if appropriate)
- testing for other gases

## 2. Housekeeping

The one factor that probably contributes more to safety than any other issue is the one of 'good housekeeping'. A clean and tidy ship immediately indicates a ship where a good culture exists, where the people on board show professionalism and pride in their place of work and their 'home', and where the ship's management and staff are working together to reduce the risk of accidents and incidents. These photos show the best and the not so good examples as seen by our surveyors.

The engine room is a space where good housekeeping often fails, particularly when the machinery is leaking oil and water, the space is difficult to keep clean and sometimes resources are restricted.

The picture below is from an 18 year old built general cargo ship on a busy trading schedule, with a normal complement of crew. The condition of the engine room is as clean as if new.



Compare this to a ferry of the same age – main engine oily and not being kept clean.



The ship with a dirty engine room indicates that there is a risk of fire, pollution and personal injury. It also indicates that the management does not consider these issues to be a high priority; it indicates that the maintenance is not being done as it should be.

### Good housekeeping

This is what a 16-year-old generator should look like. Keep your equipment well maintained so the risk of machinery failure, blackouts or fires are reduced. Poor generator maintenance has been the cause of major incidents including, fire, groundings, collisions, cargo loss claims, personnel injury and even total loss.





### 3. Fire-fighting equipment

Look after your fire-fighting equipment; you never know when you may need it.



Poorly maintained equipment.



A ship with poorly maintained fire-fighting equipment indicates amongst other things that the safety management system is not working.

This is a fire water spray nozzle that is over-painted and unlikely to operate as designed. Not only should Class and Flag pick up on these types of defects, but the company and ship's personnel should ensure that these types of defects are rectified immediately.

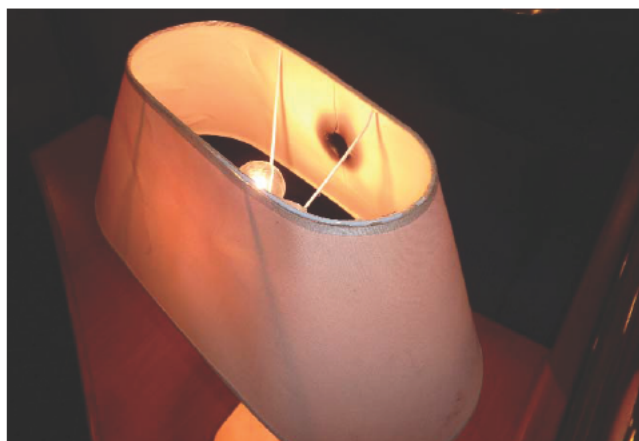
Keep your fire-fighting equipment in good order; you may need it. Check your fire-fighting systems.



### 4. Fire safety

Fire safety is enhanced by good housekeeping. Electrical appliances, particularly in the accommodation, are a major source of ignition. The risk of a fire is reduced just by the simple task of ensuring that the ship is maintained, and kept clean and tidy, and potential fire hazards are removed. The picture below of a lamp inside passenger accommodation taken recently clearly shows defective equipment that a fire has or is about to occur. Remove the danger.

Accommodation inspections should be carried out regularly.







## 5. Engine room

This photograph shows a group of live wiring located in the engine room of a ship recently surveyed. It is probable that there have been major wiring modifications carried out without Class approval.

(The member was asked to rectify the situation in compliance of Class within a specified time and a follow-up survey carried out as confirmation).

On closer inspection, it can be seen that:

- there are junctions in the wires
- some of the wiring outer covering is damaged and bare wires are showing

It is obvious even to the untrained eye that this wiring is:

- not safe
- a significant electrical and fire hazard
- not in compliance with Class rules
- not in compliance with Flag State rules
- not in compliance with the ISM Code



There is no reason why this situation should have been allowed to continue without being rectified by the company. It is clearly a fire and personnel hazard, obvious to anyone inspecting the engine room.

## Surveyor's notes summary

The adherence to basic safety management techniques such as safe tank entry are fundamental to helping personnel stay safe on board. The use of permits to work must be in all safety management systems. Good housekeeping, making sure the ship is clean, tidy, free of residue and water on decks, free of litter and rubbish enhance the safety on board. Maintaining your fire-fighting and life saving appliances is not only a statutory duty, it is common sense. You may need to use them.

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