CHIRP Maritime FEEDBACK
Issue No: 44 09/2016

Editorial

Many thanks once again to our contributors who have provided enormously valuable and varied reports. They give us plenty to think about in this edition.

Our themes this time start with fire in ships: one a major fire on a ship's superstructure, reminds us of the crucial importance of 'hot work' procedures. These principles do not only apply to large vessels; a separate and harrowing case concerns a catamaran yacht which caught fire at sea, and was ablaze in moments. This was not reported formally to ***CHIRP****; however it provides a salutary reminder that safety principles apply to all classes, sizes and types of vessel. In this case the crew jumped for their lives, and were rescued from the sea; but their home went to the bottom. The other article on fire risk concerns the hardy perennial of galleys.*

*We then consider more reports with the theme of collision avoidance including one involving an encounter between a yacht and merchant ship at night; this offers us much insight. We are reminded that at sea, and especially on bridges "****doubt = danger****". We also address the growing misuse of VHF radio to "arrange" collision avoidance, and the proper use of Electronic Chart Display and Information Systems (ECDIS) in ships. Then we come to a number of reports (many from* ***CHIRP*** *ambassadors) which remind us of crucial and recurring lessons; top dead centre in many of these are safety culture, human factors generally, electrical safety, the maintenance of standards at the time of crew changes, and awareness and understanding of procedures (in other words, the avoidance of box ticking).*

*Where emergency equipment – designed to save life or prevent injury – is concerned, we are also reminded that we don't get second chances with that which is "****least used, most needed****". When a ship founders, this is not the moment to discover that the lifeboat cannot be launched or lowered. We all know that the "sea endures no makeshifts". As we go about our business, almost every action we take is to do with minimising risk. We hold on, when in heavy seas; we wear protective clothing; we are unconsciously alert for the unexpected – a noise, movement, smell, heat, water where they shouldn't be. We keep our eyes open, we try to notice something wrong before it bites us, and we rectify defects immediately. It's in the blood. So every one of us probably unconsciously notices something almost every day which could form the basis of a salutary lesson for us all. Please keep these coming!*

Finally ***CHIRP's*** *videos this time bring three recent reports in Maritime Feedback 43 to life: a car carrier's approach to a lock having lost engine control at a crucial moment (this benefitting once again from a simulation very generously provided by Warsash Maritime Academy), an unsafe reaction to a fouled anchor and poor safety in berthing arrangements. We hope many of our readers will also be able to see these. The link for these excellent videos, and CHIRP's audio podcasts, is: https://www.chirp.co.uk/newsletters/information-broadcasts*

Be safe; good sailing to all.
Charles Style, Maritime Advisor

Note: photograph for illustration purposes only

REPORTS...

Flash fire – welding and painting

This article outlines the rapid outbreak of a fire onboard a vessel in a ship yard during welding operations. Several safety lessons emerge, including the risk of multiple paint layers retaining flammable products which may act as an accelerant.

What did the reporters tell us?

During welding operations, a fire broke out on the outside of a ship's superstructure. Within two minutes the entire after side of the superstructure was on fire. Contributing factors are reported to have been the dozen layers of paint found to have been applied, and flammable components between the paint layers arising from allowance of inadequate time between the paint applications.

The welding was conducted on the outside of the superstructure on a deck panel. Sparks dropped into a pile of rubbish which ignited; the fire quickly spread. There was no fire watch set by either ship's staff or the repair yard. An attempt to extinguish the fire with a 'high pressure cleaner' did not work; the fire was later successfully put out.

The lessons to be learnt

This is a salutary report, reminding us of many safety principles applicable during hot work.

The UK MCA's Code of Safe Working Practices for Merchant Seafarers (2015 edition) ("UKCOSWP 2015") attends to this in chapter 24. Some key messages **relevant to this particular case** are contained in the text box below.

Some key messages (UKCOSWP 2015) relevant to this case: hot work.

- **Hot work should be subject to a 'permit to work'.**
- **Training should have been completed and in date.**
- **Comprehensive precautions against fire and explosion should be taken. "No combustible solids, liquids or gases [should be] adjacent".**
- **Supervision and observation should be in place.**
- **Suitable fire extinguishers should be to hand.**
- **All adjacent compartments should be visited on completion.**
- **Frequent checks should be made for at least 2 hours after completion of hot work.**

NOTE: ALWAYS REFER TO THE FULL TEXT – UKCOSWP 2015, CH 24

We don't have details of training levels, supervision, or the 'permit to work' (PTW) arrangements in place. However it is clear a that precautions against the outbreak of fire were inadequate. There was a failure to clear the area of potential fire risks, no fire watch and no fire extinguishers to hand, which infers a hotwork' PTW had not been completed, nor adequate supervision provided.

Of particular interest is the speed and spread of the fire, apparently caused by trapped flammable products igniting within the multiple paint layers. Several of the layers were presumably not recently applied, but all or some must have retained combustible products.

Paints are complex substances comprising many constituent parts; many of these can provide fuel to a fire, in particular solvents. These may not leave underlying applications of paint if 'over-coating' is done too quickly, or if faster curing coats are applied on top of slower curing ones. Incorrect coat thicknesses, or environmental factors such as excess temperature at the time of application, may also trap solvents. Product data sheets, application instructions and/or makers' advice are essential to the understanding of risks; in the absence of these or in the case of incomplete historic data, good safety management practice is the appropriate course (including awareness of the generic risks). The key point is that paint in proximity to hot work should always be treated as presenting a high risk of fire. A clean area of work, clearance of rubbish, and paint removal in way of hotwork could have prevented this incident.

CHIRP Suggests

Take hot work seriously. It should never happen without the ship's (and, if appropriate, the yard's) leadership and management knowing about and owning the activity and associated precautions. **Never treat it as routine**. Follow a **comprehensive check-off list** every time, based on the UKCOSWP 2015 or equivalent guidance. **Authorise and supervise** the work properly, know what is flammable, remember **adjacent compartments**, **remove everything flammable** before work, be alert to the **properties of paints** in the vicinity, and ensure **repeated follow-up checks**.

REPORT ENDS

An unattended galley range; risk of fire

A casserole containing oil was left unattended in the oven or on the range; oil leaked through small holes at the side.

What might have happened:

What did the reporters tell us?

This case is a classic near-miss. Fire did not break out, but it could easily have done so.

The lessons to be learnt

Galleys are high risk areas. Power should be switched off at the end of each use, whenever the galley is left unattended, and at the end of each working day. The fitting of external galley power breakers which do not require entry to galley spaces is a wise additional precaution.

In this case an unattended leaking casserole represented a long term hazard, indicating a poor sense of hygiene and awareness of risk.

CHIRP Suggests

Maintain **particular vigilance in galleys**, and invariably include them in rounds routines by day and night.

REPORT ENDS

A very near miss between a yacht and a merchant ship

A yacht at night under sail in light winds with a defective engine experienced a dangerous closest point of approach (CPA) with a merchant vessel. Several issues relating to application of the Collision Regulations (COLREGs) and interaction between large vessels and smaller pleasure craft come to light.

What did the reporters tell us?

A catamaran of some 33 ft was heading north-west for the Scilly Isles at night, making about 2 knots. Visibility was good, the sea state minimal, the yacht's lights 'burning brightly'; it was night. The yacht encountered traffic heading south for the Ushant traffic separation scheme (TSS), passing several ships without difficulty. He then observed a ship on his starboard bow, showing him a red navigation light, on a steady bearing by compass. His receive-only AIS system gave the CPA as zero in 6 minutes. A VHF call elicited no response. He shone a bright torch on his sail, slowed his boat, and altered to starboard (head to wind). The ship passed so close that he could – in his words – "feel the spray from his propeller as he passed". A VHF exchange then occurred; the other vessel stated he had not seen the yacht's light, and that the yacht had not been seen on radar.

What did the merchant ship's company tell us?

The company carried out a detailed investigation which was shared with **CHIRP**. Key observations include the following: that the ship denied they had received a DSC call; and that the ship's two watch keepers did not see any lights until sighting a red light at about 2 cables when the yacht was already

abaft the port beam and drawing left. This was at about the same time as the VHF exchange between the two vessels took place. The company denied any failure of watch keeping, and pointed to some discrepancy in the positions reported (as evidenced by an ECDIS/ARPA screen shot).

The lessons to be learnt

COLREGs. The merchant ship did not detect the yacht. The reporter stated "I should have anticipated his lack of response earlier"; **CHIRP** agrees. As soon as it becomes apparent onboard a stand-on vessel that a give-way vessel 'is not taking appropriate action in compliance with the COLREGS', she is empowered to take the necessary avoiding action, as always '**positive and ample**'. The yacht's manoeuvrability was very limited. An early action to put the ship on her port bow would have removed the existing danger. Ushant is a notoriously dangerous crossing point; it would have been prudent for the yacht to have her engine available, especially in light airs.

The detectability of yachts. We imply no criticism of the reporter in emphasising that many factors may make a yacht difficult to detect from the bridge of a ship which may also have to take action to manoeuvre while still at considerable distance. Many passive reflectors produce a poor return even in good conditions. The yacht's lights may be relatively dim, appear intermittent, and be indistinct against background lights. The tricolour at the masthead, normally used when yachts are under sail, may be only intermittently visible by virtue of lower brightness and/or the violent swinging motion of the masthead which may easily travel through 60 degrees athwartships and 40 degrees fore and aft in a seaway. The diagram below demonstrates this.

The risk of not seeing a yacht's lights in a seaway

Grateful thanks to Captain Dennis Barber (member, CHIRP Maritime Advisory Board) for the this diagram

In such conditions, yacht lights can appear as flashes on the bridge of a ship, and therefore be easily missed; they may also, given relative heights, be seen from a bridge at horizon level, giving the impression of a vessel at considerable distance. When suddenly the bearing and position of such a light starts to move rapidly, it is likely to be far too late to take evasive action.

The picture from the bridge of a ship. We imply no criticism of the ship in this case in stressing the need for an alert visual lookout. There have been cases where bright instrument lights at the front of bridges, together with an array of technical information sources, can distract the OOW from this primary duty. If, for example, it becomes a habit to rely on AIS to detect vessels and assess CPAs, by definition smaller vessels not obliged to carry AIS transmitters will not be detected.

The reporter has decided to fit a transmit and receive AIS system. This may be becoming an increasingly wise step to take, especially in busy shipping areas.

The use of radio/AIS. The UK Maritime and Coastguard Agency (MCA) provides clear operational guidance on the use of VHF radio and AIS at sea. The two key points are: (1) although the use of VHF radio may be justified on occasion as a collision avoidance aid, the provisions of the COLREGs should remain uppermost (see the next article); and (2) there is no provision in the COLREGS for the use of AIS information; decisions should therefore be based primarily on visual and/or radar information.

CHIRP Suggests

A yacht may **be very hard to detect** at night and in bad weather; if in doubt, assume you haven't been. Fit **high power (eg LED) lighting conforming to COLREG stipulations** where you can, consider burning normal navigation lights in place of the masthead tricolour, and **take positive and ample measures in good time** to avoid collision in accordance with the COLREGS if the need becomes obvious. If illuminating a sail, continue (if possible) for an extended period. **Passive radar reflectors are unreliable**; yachts should consider fitting active reflectors. In ships, remember there are **vessels at sea which are not required to transmit AIS data**, even if they can receive. In any event collision avoidance decisions should be based primarily on **visual and/or radar information**. All vessels should **avoid buying up precious time communicating (or trying to do so) on VHF. See the next article.**

REPORT ENDS

Misuse of VHF radio communications and the COLREGS

A reporter alerts **CHIRP** to the increasing misuse of VHF communications for collision avoidance.

What did the reporters tell us?

A watch keeper maintains a VHF radio watch. He writes: "I notice that there is an increasing amount of (mis-)communication between vessels concerning collision avoidance... (sometimes) there is a continuous chatter of vessels making agreements". He asks 'what has happened to just sticking to the COLREGS'. He notes that there has been a huge increase in these "collision avoidance arrangements" over the last 10 years.

The lessons to be learnt

The reporter makes an important point; it recurs repeatedly in the reports received by **CHIRP**.

The COLREGS are based on the tried and tested practice of decades. They exist to make the correct actions clear, and were originally developed long before bridge-to-bridge voice communications became available. They are thus unambiguous. It is the responsibility of all bridge watch keepers to know how to apply them instinctively, on the basis of observation primarily by sight and radar. They work effectively when ships in an interaction obey them; they also specifically address circumstances where one ship does not.

Of course VHF radio is used for the purpose of traffic management, for example in traffic separation schemes (TSSs). There can also be circumstances where – for some exceptional reason – VHF radio exchanges can assist deconfliction. If they are so used, neither ship should rely on the other to take the action 'arranged' until this is independently verified; indeed it should be assumed that the action has not been taken until it is seen to be happening. The greatest risk attaches to 'arrangements' which are contrary to the COLREGS; these are hazardous.

Further risks of language confusion, mis-identification between the communicating vessels, distraction of other ships in the area and distraction from the officer of the watch (OOW)'s primary tasks all add risk to the use of VHF in collision avoidance. It is true that AIS has made identification of vessels easier, but at busy moments – especially in heavy shipping situations – mistakes can still be made. It can also be particularly tempting to use VHF when, as the stand-on vessel, we

The lessons to be learnt – *continued*

encounter give-way ships not taking the right action. However the COLREGS make quite clear what to do in this situation: 'take action to avoid'.

Finally the 'VHF in collision avoidance' habit can also erode the plain and absolute authority of the COLREGs in the minds of OsOW, and thus their instinctive and confident application of them. This represents a serious longer term threat to safety at sea.

CHIRP Suggests

Doubt = danger. VHF communication in collision avoidance can increase doubt, misunderstanding, delay and distraction. Use it only in exceptional situations, and then with utmost caution. **Apply the COLREGS, know them instinctively, and take early and substantial action** in accordance with them when the circumstances of the case require.

REPORT ENDS

A potential close quarters situation in the approaches to the Cape Roca TSS

What a reporter told us

A ship approaching a TSS, still at a distance of 12 nautical miles, is concerned by the actions of another vessel – on the reporter's port quarter, probably overtaking – who is closing on a steady bearing. 'The other ship' alters to port at just under a mile, giving a CPA of 3 cables. The reporter who is himself overtaking another vessel on his starboard side with a speed advantage of 0.4 knots, slows down, and alters to starboard to open the CPA on 'the other ship', presumably under the stern of the one he was very slowly overtaking.

The lessons to be learnt

Pressure of space in this edition of Maritime Feedback must limit the length of this article. The report highlights the kind of relatively close quarters situations which may arise as ships shape courses for the entrances to TSSs. This process requires action in plenty of time, and a well considered assessment of other ships' intentions based on a good all-round lookout, so that – where other ships are present – an orderly separation of ships is already established before the scheme itself is entered.

The complication arises from what amounts to two simultaneous overtaking manoeuvres. The reporter is constrained to starboard, and will be for a long time as he gains less than half a mile per hour on the vessel on his starboard side. He could perhaps have minimised his constraints by instead 'slotting in' astern. 'The other ship' might have alleviated the reporter's concern by allowing more sea room, and could also have decelerated; we do not know how or if he was constrained to port.

CHIRP Suggests

Plan well ahead and keep a **complete all round lookout** when taking up position **in an approach to a TSS**; take account of the manoeuvring options of other ships. **If overtaking, do it as quickly as possible.** If sea room is at a premium, **slow down and don't overtake**. See 'The Perils in TSSs' (Maritime Feedback 42).

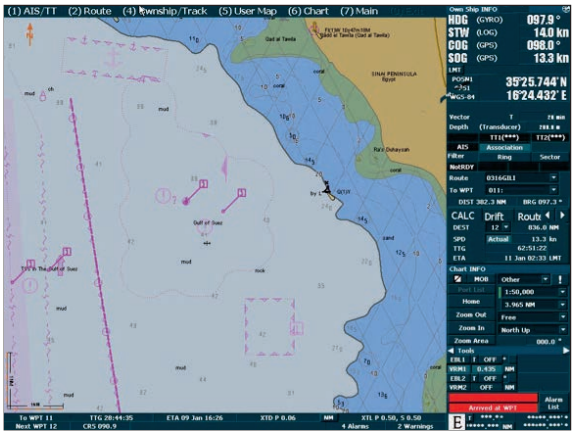
REPORT ENDS

The control, management and use of ECDIS systems in ships

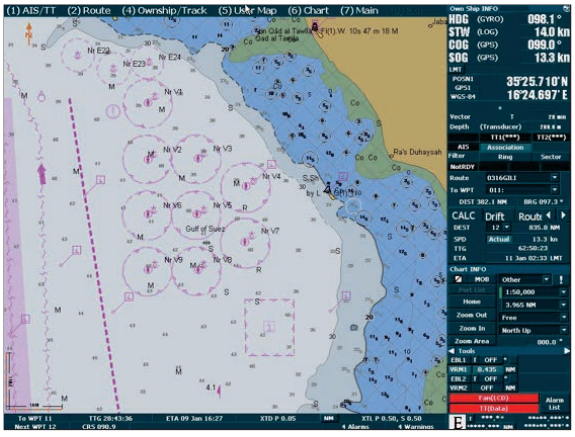
This article addresses aspects of the use of ECDIS in ships, drawing on a report about confusion between chart variants within a single ship's system, brought to light when passage planning.

What did the reporters tell us?

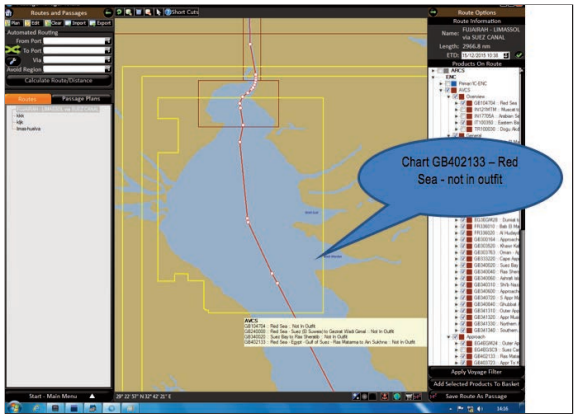
During preparation of a passage plan for a forthcoming voyage, it was observed that one chart did not show all the information that had been seen when passing through the Suez Canal previously. There emerged considerable confusion on the source, date and identity of the right chart within the ship's system. Space prevents detailed coverage. Eventually the correct electronic chart was identified by the ship's provider, and supplied.



One supplier's chart



Another supplier's chart



The Passage Manager page

CHIRP, Ancells Business Park, Ancells Road, Fleet, GU51 2UJ (UK only)
reports@chirp.co.uk Freefone (UK only): 0800 772 3243 or +44 (0) 1252 378947

The lessons to be learnt

This article acknowledges and draws on the UK Nautical Institute's "The Navigator" Issue 5, 2014, titled ECDIS.

Electronic Chart Display and Information Systems (ECDIS) are now widespread, but not yet universal. Younger seafarers might take them in their stride; older ones may feel discomforted without paper charts which they know from long experience they can interpret at a glance.

Standards and training. This article exclusively addresses IMO approved ECDIS. There are other less capable and unlicensed Electronic Chart Systems (ECS) which should not be used. In 2014, according to The Navigator (Issue 5), there were over 30 ECDIS manufacturers in operation. Their systems are far from standardised. This implies a major familiarisation task for navigators and Masters who may alternate relatively rapidly between different systems. A considerable number of accidents or near misses have been found to result from misuse of ECDIS, rather than from design failures. High quality training, meeting the requirements of the IMO model course, is essential. So is structured familiarisation with the capabilities and limitations of individual systems, accompanied by constant practice. The uses of ECDIS include active navigation (with or without automated satellite positioning input), pilotage planning and execution, and passage planning.

Passage planning. Failures in the past have resulted from errors such as the incorrect application of safety depths, safety contours, or alarms. Vessels' data (especially draught) may have also been incorrectly entered, and automatic route check facilities may not have been used. Failure to check that charts are up to date, possibly through lack of familiarity with the automatic or manual correction procedures, presents serious risk, as it always has in the past. Passage planning should also be carried out on charts at scales which allow identification of the necessary levels of detail. Final visual checks along the whole of the tracks before voyages are essential, on the lookout for obstructions, shallows, traffic management systems and the like. In addition broader checks along tracks designed to identify areas of high shipping density or strong tidal streams for example (cases which may not be immediately apparent from the automated information) should also be made. The whole should then be briefed.

Increasingly, chart supply companies offer proprietary Back of Bridge Passage Planners to plan routes, and manage chart orders to cover these. The Appraisal, Planning, Execution, Monitoring (APEM) model (IMO Resolution A.893(21)), guidance on use of ECDIS (NP232) which adds a specific Review step to give APREM, and NP231 (electronic navigational charts – ENC) are essential reading. The appraisal phase should ensure that both the Planning Station and the ECDIS are updated to the latest catalogue provided by the chart supplier, while ensuring that the latest ENC updates are available.

For such a change to charting as identified in this case, UKHO Notice to Mariners (NtM) would inform users that the GB cells covering the Suez Canal were being cancelled and that they were to be replaced with Egyptian cells. This gives the mariner the advanced notice needed to remove superseded cells from ECDIS, and to order the necessary replacements when required for planning. Thus taut configuration control can be maintained. Less obvious to the modern ECDIS navigator might be the requirement for all transiting vessels to carry Egyptian issued paper charts for the Suez Canal, even if they are a fully digital navigation platform. Assessing all information here would include reading the latest SCA navigation circulars, where this information would be available, as well as NtM Section VIII for withdrawn and cancelled ENCs.

Active navigation, including pilotage. Many of the comments on 'passage planning' apply. It is well known that too small a chart scale may conceal crucial information including shoal depths and routeing information. Both visual and radar fixes can be plotted on ECDIS charts in ways analogous to the paper method, and as quickly; but only – as in everything – with practice. It is essential – when conditions are benign – to practise the old skills as applicable to ECDIS. One day they will be needed, almost invariably in testing circumstances. Finally, use all equipment in the role that each piece is designed; for example an ECDIS display with an AIS overlay is not designed for collision avoidance.

The lessons to be learnt – *continued*

The old and the new. Many of today's potential electronic errors are just the current versions of the ones we knew with paper charts. For example, the correctly scaled and corrected charts were always crucial. Nowadays a generation of navigators used to Google maps may be tempted to unquestioning belief in the infallibility of information on screens, especially on bridges equipped with more automated information than ever before. This would be a grave mistake. On the other hand, younger practitioners can help older ones to learn and trust the new systems.

A fundamental principle of all aspects of navigation has always been the double-check; an inalienable instinct to question and to use all sources of information available. Does the depth tie in with the chart, and with the ECDIS position, and with radar information and with the ship's estimated position, for example? If the answer is yes, all is likely to be well; if not, something is likely to be wrong. Always clarify what that 'something' is, slowing down, stopping or re-checking as appropriate.

Finally we must in 2016 confront the cyber threat; by no means is the maritime environment exempt. GPS signals can be corrupted, and ECDIS systems can be subjected to attack. This puts a double premium on the double-check. See an article by Andy Norris in Digital Ship that develops this topic: http://www.thedigitalship.com/component/downloads/send/13-2015/1984-digital-ship-109-august-2015. No one wants to run his ship aground through the unseen insertion of malware, when a second glance out of the window would have put him right.

CHIRP Suggests

CHIRP suggests that **training, familiarisation and practice** are crucial. Take time to **read and understand instructions and advice** (see some of the sources listed above). **Know your equipment**. ECDIS displays don't necessarily have to have a GPS input; they can be used exactly as paper charts have been, if necessary. **The principles of safe navigation haven't changed**; just the means by which some of our information is displayed. **Don't trust automated displays, without a healthy instinct to cross-check**. Remember the age old, gilt-edged, adage: "**use all sources, and double check everything**". **Keep on top of your configuration control**.

REPORT ENDS

The articles which follow draw on a significant number of reports from contributors, including CHIRP Ambassadors, and are designed to draw out recurring themes.

Electric shocks

What did the reporters tell us?

The first report concerned an auxiliary feed water pump starter panel. An alarm sounded, indicating a trip, followed by a fire alarm; smoke was coming from the panel. Although there was no fire, the thermal relay unit and the electrical cables were burnt. No injury was incurred, thanks to insulated rubber gloves being worn. The cause was use of a metallic brush part of which touched two live wires. There was no daily job meeting, meaning there was no opportunity to assess the risks.

The second case concerned a diesel generator tripping out on a cooling water temperature alarm. The stand-by generator started automatically; electrical power was restored. Subsequent investigation revealed that cable insulation had peeled off; two cables then made contact, leading to a short-circuit. Following the repair, all other generators were inspected and several damaged cables were identified that required immediate attention.

The lessons to be learnt

In the first case, Insulated gloves saved the engineer from injury. However several necessary measures were lacking (see below).

In the second case, the stand-by generator started automatically; power was restored. However **the inspection and maintenance of cabling** beforehand was below standard.

CHIRP Suggests

Electricity can be a killer; working with it demands the utmost respect. A risk assessment, electrical permit to work, isolation of the equipment by tagging or locking out, a toolbox talk and proper supervision should have been in place and would have mitigated all risks. The UKCOSWP 2015 chapter 14 refers.

Electrical cables should be inspected periodically. The inspection of generators is routinely covered by planned maintenance schedules. However are procedures intelligently followed with the right supervision and training? **Or do we blindly follow the worksheet (ticking boxes)?** This is a continuously recurring theme.

REPORT ENDS

Routine inspection reveal hazards

A lashed valve was found to be partly open; investigation revealed bad practice with attendant risk of pollution.

What did the reporters tell us?

During a routine inspection by a recently joined ship management team, it was noticed that a bunker master valve showed 25% open, despite the valve being lashed 'shut' with rope. When the valve was checked, its handle and gearbox collapsed. The body of the gearbox was glued with plastic steel, and had been painted to conceal the problem; in addition a copper blank had been placed between the valve and the bunker piping system. The valve was in fact partly open with fuel oil in the line. Further blanks were located at the manifold. The necessary replacement components were fitted in due course.

The lessons to be learnt

The company was correctly concerned with this report. It emerged that there had been no previous order for a new valve, no record or explanation of the blanks, and no discussion at the time with the company office or at ship staff handover.

CHIRP Suggests

The company took admirable steps to emphasise the importance of **timely and open ship/shore dialogue**. Frequent communication between the office superintendent(s) and the vessel can assist with this. In the first instance a material defect was concealed, and not rectified, with potentially severe consequences: pollution, injury, and/or pipeline damage. We may surmise, but cannot know, the original reasons. The case is a clear illustration of **poor prevalent safety culture** at the time.

CHIRP Suggests – *continued*

REPORT ENDS

Obstruction of emergency doors and hatches

What did the reporters tell us?

Two cases have been reported to **CHIRP** recently. In the first instance the supply door of a mechanical fan for a galley was found obstructed by wooden boards. The second report concerned an elevator's emergency exit to the open deck being obstructed from the outside due to the incorrect positioning of a locking pin.

The lessons to be learnt

In the first case, the obstruction could have prevented the closing of ventilation doors/flaps in the event of a fire. Additionally, there was reduced air intake when the fan was in use. This is a case of housekeeping and general safety awareness. Was this complacency or carelessness? All ventilation fans/flaps should be identified and marked; colour coding is a good method of doing this.

The purpose of the emergency exit of the elevator is to provide means of escape for people in the elevator in case of emergency. The exit door should never be obstructed in any way.

CHIRP Suggests

The **CHIRP** Maritime Advisory Board emphasised that escape from an elevator should only be considered in an emergency. It also highlighted the occurrence of fatalities in connection with elevators, and the importance of taut procedures for use and maintenance, for example the locking out of all decks when an elevator is out of service. An incident report from the Nautical Institute Marine Accident Reporting Programme (MARS) 2015-55 refers: http://www.nautinst.org/en/forums/mars/mars-2015.cfm/201555

REPORT ENDS

Heard it all before ...

The following short reports highlight occurrences which recur and will be familiar to many readers.

If this is so, then the question has to be "WHY?" are we not learning from previous errors?

What did the reporters tell us?

In **CASE 1**, a bulldog grip U bolt had slipped out of position on a lifeboat lashing. It was found that the grips were fitted incorrectly, and had also been subjected to wear and tear over a period of time.

In **CASE 2**, oxygen and acetylene cylinders were not properly stowed and secured, and were about to fall onto the deck.

In **CASE 3**, the boom of a main deck crane was heaved up, without taking out the securing turnbuckle, from the rest stand. This caused deformation to the plate to which the lug had been welded.

In **CASE 4**, a fresh water generator was cleaned with chemicals without using facemask and rubber gloves.

The lessons to be learnt

In **CASE 1**, **routine inspections had been ineffective**: the bulldog grip slipped, and had been incorrectly fitted. Wear and tear was evident.

In **CASE 2**, routine checks should be carried out before, during and on completion of any job. **Effective housekeeping can eliminate many hazards and help get a job done safely**. Poor housekeeping frequently contributes to accidents by hiding hazards that cause injury or damage. **Unsecured equipment**, especially in heavy, weather is a common case in point.

In **CASE 3**, **improper preparation, haste, and inadequate supervision** were the probable causes. Every lifting operation using the ship's crane should **apply good seamanship practices, be properly planned within the prevailing conditions, and be appropriately supervised** by a competent officer. The lifting appliance should be operated by a competent, well trained crew member.

The lessons to be learnt – *continued*

In **CASE 4**, **face shields, aprons, and gloves** should be provided at chemicals lockers and used by the crew when handling chemicals.

CHIRP Suggests

- With respect to the bulldog grips, vibration can be another cause of wear and tear. The UK MCA specifically discourages their use in Annex 18.2 of the UKCOSWP 2015, and prohibits fitting to lifeboat falls and lashings; similarly for rescue boats and liferaft lifting gear. Would you trust your life to incorrectly fitted wires?
- Working with any chemical requires proper planning including the use of the Material Hazard Data Sheets that are supplied with chemicals.
- For the crane boom incident, this is down to planning and supervision. The crane operator should respond only to the supervisor who should be using correct signalling techniques. UKCOSWP 2015 19.9 and 19.11.1 refers.
- Any unsecured equipment or incorrectly rigged lashings are hazardous in a seaway. The offshore industry provide plenty of examples of this through the Marine Safety Forum. (http://www.marinesafetyforum.org/index. php/safety-alerts). The risk of severe injury or equipment damage is high.

A COMMON THEME. **All jobs, whether routine or otherwise, should be planned and discussed in advance. Toolbox talks give opportunity for everyone to speak up over concerns and for the responsible person to brief the approach. View worksites to ensure that there are no hazards in advance. Ensure that jobs are effectively supervised.**

REPORT ENDS

Accidental release of CO_2 to an engine room

What did the reporters tell us?

At midnight, during engineer handover, the main engine auxiliary blower fault alarm and a CO_2 high pressure alarm activated. CO_2 had been released and was visible; the engine room was evacuated. Upon investigation in the CO_2 room it was noted that the pilot operated section valve was in open position. After depressurisation, this was closed manually.

The lessons to be learnt

The O rings of the valve assembly had become brittle, causing a leak to develop from the pilot cylinder. In addition, ball valves in the fire station were found to be leaking. This led to the activation of the CO_2. It was subsequently determined that the control valves of the pilot cylinder had not been inspected during an annual service, that the ball valves had never been pressure tested, and that the pilot lines had never been blown through.

CHIRP, Ancells Business Park, Ancells Road, Fleet, GU51 2UJ (UK only)
reports@chirp.co.uk Freefone (UK only): 0800 772 3243 or +44 (0) 1252 378947

CHIRP Suggests

The **CHIRP** Maritime Advisory Board highlighted that heat, humidity and time will degrade systems. Manufacturers should take this into account in the maintenance sections of their manuals, highlighting guidance on contractor and ship staff maintenance periodicities. Similarly, planned maintenance systems on board should be robust and comprehensive. For more modern systems, the increasing use of technology calls for specialist skills; these may be costly or in short supply. The UK Marine Accident Investigation Branch has encountered incidents of this type in the past.

CHIRP has also received a separate report of an inspection during which manufacturers' locking pins were still in place on the whole CO_2 system which was thus rendered ineffective.

"Least used, most needed". When a fire, flood, person overboard, or other major emergency occurs, the immediate response systems must work immediately, first time. There is no room for failure or delay. This account of a CO_2 system in non-operational condition amounts to a serious threat to life. The implications for installation, maintenance and system knowledge are clear.

REPORT ENDS

Engineering mishaps

What did the reporters tell us?

In **CASE 1**, during a new build sea trial, the low level alarm of a main engine lubrication oil sump tank sounded; yard staff noticed that 5-8m3 of oil had been lost. It was found that incomplete actuation of a 3-way valve at the oil purifier inlet was to blame for a slow but continuous leak. This leak went unnoticed because, though the yard stuff regularly checked the oil residue tanks, the measurements were not recorded.

In **CASE 2**, during safety rounds in an engine room, a deck seal seawater pump was leaking. The pump was stopped and the valves were closed. In the absence of warning signs to this effect, another engineer later restarted the pump before repair.

In **CASE 3**, a bourdon tube on a pressure gauge for high pressure cleaning oil on an auto backwash filter was found to be damaged. The damage was caused when the line pressure exceeded the maximum allowable pressure of the gauge. It had been replaced with a gauge of much lower specification. After it was put into service, the bourdon tube punctured, the pressure being well above the new gauge's limit; oil sprayed the surrounding area, with consequent high risk of fire.

The lessons to be learnt

In **CASE 1,** daily sounding of tanks need to be recorded; otherwise losses may be missed. Pre-planned responses and actions in the event of activation should be available for all alarms. Routine tests of alarms are crucial and should include checks of settings and thresholds where appropriate.

In **CASE 2**, the occurrence could have caused both injury and equipment damage. It highlights the importance of the permit to work system, isolation procedures, "do not operate" notices and effective information exchange within spaces, especially engineering spaces at handover or following maintenance periods.

In **CASE 3**, the potentially disastrous consequences of fitting of sub-specification gauges or components is clearly demonstrated.

REPORT ENDS

We are grateful to the sponsors of the ***CHIRP Maritime Programme***. They are:

Trinity House — **The Corporation of Trinity House**

Lloyd's Register Foundation — **Lloyd's Register Foundation**

Britannia — **Britannia Steam Ship Insurance Association Ltd**

IFAN — **International Foundation for Aids to Navigation (IFAN)**

CAMMELL LAIRD — **Cammell Laird**

THE TK FOUNDATION — **The TK Foundation**

CHIRP, Ancells Business Park, Ancells Road, Fleet, GU51 2UJ (UK only)
reports@chirp.co.uk Freefone (UK only): 0800 772 3243 or +44 (0) 1252 378947