The Nautical Institute
1971 - 2011
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SEAWAYS

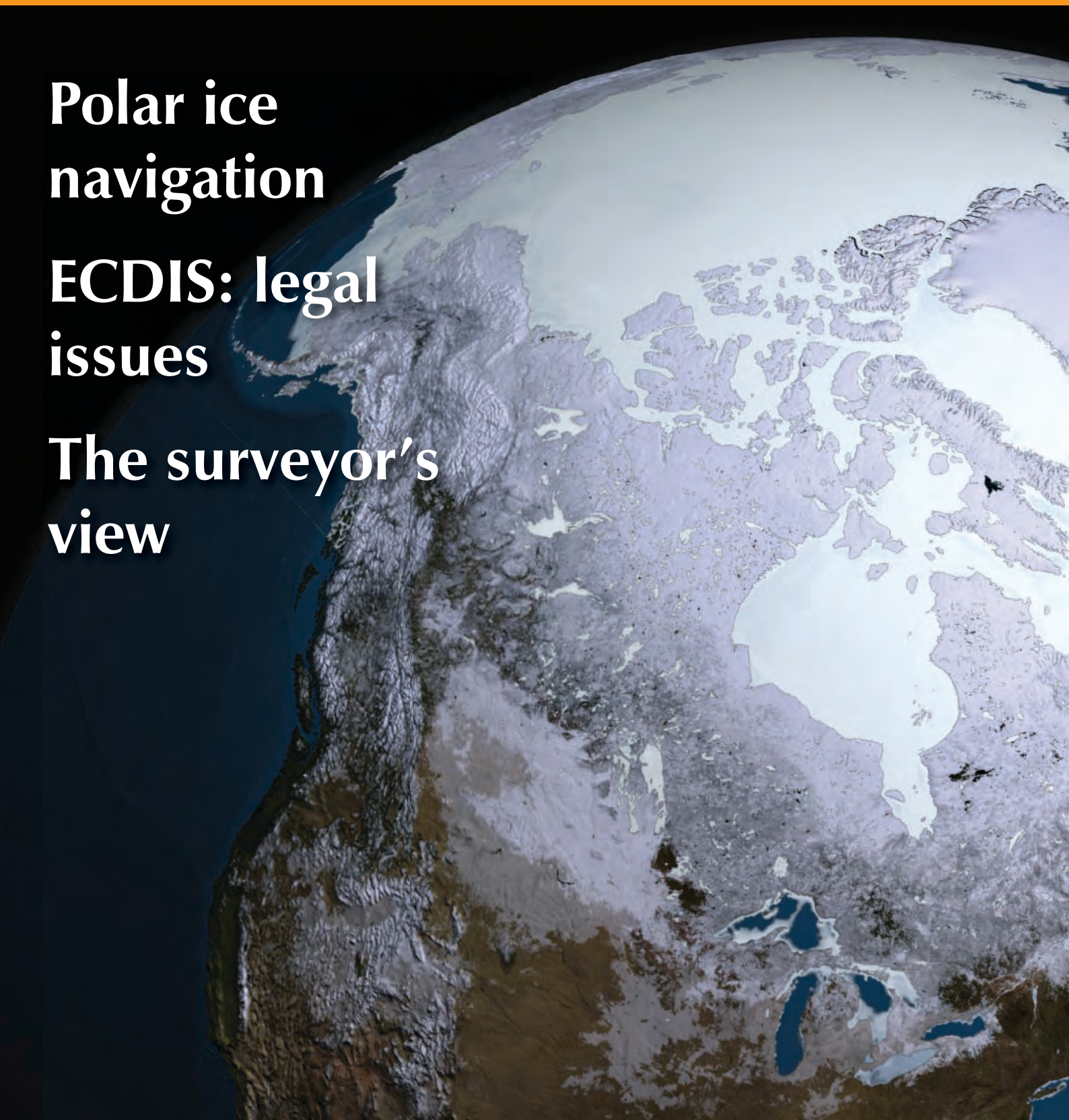
April 2012

The International Journal of The Nautical Institute

Polar ice navigation

ECDIS: legal issues

The surveyor's view



Do you know the risks?

It is difficult for anyone, however professional, to know everything about everything – which is why the Institute has developed a range of publications so that those with knowledge may share it with others. These publications, in an increasingly varied media, are written by practitioners for practitioners and this is certainly exemplified by our latest book, *Polar Ship Operations*, which is launched this month at the Arctic Shipping Forum in Helsinki. Captain Duke Snider FNI is a highly experienced ice navigator and pilot who has also been leading the Institute's related project which seeks to establish training standards and competencies for ice navigators in consultation with industry stakeholders (see pp 10-12). With the expansion of shipping operations in the polar regions, and the significant risks that this entails, there is an urgent need for both these projects.

In the third part of the UK P&I Club circular on ECDIS (see pp 7-9) the legal risks associated with the new system and other recording devices such as the Voyage Data Recorder (VDR) are clearly identified. This should be required reading for all, but particularly those shipowners or managers who may be intending to skimp on implementation of and training on ECDIS – and there will be some, perhaps many, in this category. A few case findings of unseaworthiness and hence loss of insurance cover will do wonders for concentrating minds, and making the industry realise that thorough training and sensible implementation of ECDIS is absolutely essential if it is to provide the safety benefits intended and expected. Some of these points were also explored at the Hong Kong SAR Branch Seminar during China Maritime 2012 (see pp 29 - 30) and at a seminar in Colombo during the President's and CEO's visit to the Sri Lanka Branch (see p 31). It is really good to see our branches far and wide putting on such professionally worthwhile events from which members and potential members may increase their knowledge as well as benefit from excellent networking opportunities. This was equally true of the first joint seminar with the Indian Navy and Indian Coast Guard organised by the Institute's India (West) Branch and the Indian Maritime Foundation (see pp 27-28).

Inspections – risk assessment

Two articles (see pp 13-14 and 15-16) from ship inspectors this month provide excellent advice and, for fleet managers, if *Seaways* is not getting to the ships in your fleet we suggest that (a) you take out a bulk subscription so that it does, and in the meantime (b) that you promulgate these articles as a Fleet Circular immediately. Similarly, the MARS reports are as relevant and useful to safety meetings on board as ever. Not only do the articles highlight various physical deficiencies, they also focus on the need for proper training, sufficient manning and effective drills to ensure the safe and efficient operation of the ship. The benefits of training and retaining competent personnel within the company should not need emphasising but sadly it is an operating model that still does not apply in far too many companies. Until it does, the safety record of the industry will not dramatically improve despite the technology put in place to supposedly help the seafarer.

AGM 2012 – Governance Changes

Please see the Notice of the AGM on page 5 with a Proxy Voting form on the reverse. Important changes to the governance structure and documentation of the Institute are necessary and proposed (ref. articles in January & February 2012 *Seaways*), and we hope that as many members as possible will vote on these changes. The new Articles of Association and Constitution, By-Laws and Branch By-Laws may be downloaded from the website, www.nautinst.org, as can the Proxy Voting form. The AGM event itself will be well worth attending – see brochure on website – as it includes a seminar on 'Generation Y' and a Gala Ball.

Features

The Nautical Institute
Mariners' Alerting and Reporting Scheme
MARS Report No 234 April 2012

Providing learning through confidential reports – an international cooperative scheme for improving safety

MARS 201218
Incinerator fire

During routine watch keeping, the engineer in charge started the waste oil incinerator for burning garbage and waste oil sludge. After about an hour of operation, the ship's fire alarm sounded and the local fire (hyper mist) extinguishing unit was activated in the waste oil incinerator space. On hearing the alarm, all personnel mustered and the incinerator was stopped.

Result of investigation

1. The atomiser unit's air nozzle holes were found to be choked with hard viscous sludge thereby restricting the flow of air into the incineration chamber. This condition seemed to have existed for some weeks prior to the incident;

2. Waste oil had failed to atomise properly and had collected and spread over the bottom of the combustion chamber and ignited, producing a large quantity of smoke;

3. The smoke activated the fire alarm, triggering the local fixed water mist fire extinguishing system.

▲ Exterior view of incinerator

▲ Burner assembly removed and atomizer holes found blocked by unburnt residue and debris

▲ View of burner assembly port showing evidence of oil accumulation

Root cause/contributory factors

1. Failure to maintain the incinerator's burner assembly as per maker's recommendations; in particular the atomiser nozzles had not been properly inspected and cleaned;

2. Failure to fully inspect the combustion chamber, which would have shown that waste oil had accumulated on the bottom from previous burning operations;

3. Failure to properly monitor the exhaust during past operations which would have indicated abnormal combustion.

Corrective/preventative actions

Engineers' familiarisation form revised to include training and familiarisation in the use of the incinerator.

A new fleet circular was issued to all vessels, instructing all engineers to:

1. Discuss the incident at their next safety meeting;

2. Conduct onboard training on proper operation and maintenance of the incinerator, including emergency stop procedures, checks to be carried out prior to and during the use of the incinerator;

3. Ensure that the incinerator is cleaned and checked after every use;

4. Regularly test all safety devices on the incinerator as well as emergency stops.

MARS 201219
Improper stowage of oversize steel structurals

As a port captain, I recently handled the discharge of a project cargo consignment of oversize steel structurals loaded inside the hold and on the hatch cover of a heavy-lift cargo vessel. Each lift was between 30 and 40 metres long, and almost identical in height (3 metres) and width (2 metres) and weighed an average of about 55 metric tonnes. Both loading and unloading was done using ship's twin cranes used in tandem (Gemini) mode.

In line with my past experience, none of the lifts bore proper markings to show the gross weight, slinging method and centre of gravity. Further, the pieces were randomly loaded with some stowed standing on the flanged base (vertical orientation) and others on the side (horizontal orientation). Proper lifting padeyes were welded on both

sides of each lift, indicating that they were designed to be lifted and stowed in a vertical orientation only.

The consignment was destined for a project site deep in the hinterland, involving transportation on a single lane road by special trailer for a distance of nearly 900 kilometres from the discharge port. Fearing the trailer could overturn if the lifts were loaded in the vertical orientation, the road haulier insisted that all the lifts were loaded on their sides. Citing safety reasons, the vessel's master refused to turn over the vertically oriented pieces with ship's cranes.

After heated discussion between vessel, charterers, road transporter and the port, all the cargo was unloaded as stowed, with the road haulier arranging for the vertically oriented lifts to be turned over at the storage yard inside the port with three mobile cranes, at his own risk. The vessel duly completed the discharge and sailed. The flipping operation ashore involved serious risk to personnel, cargo and equipment and indeed resulted in some minor damage to the cargo and also the paving of the storage area.

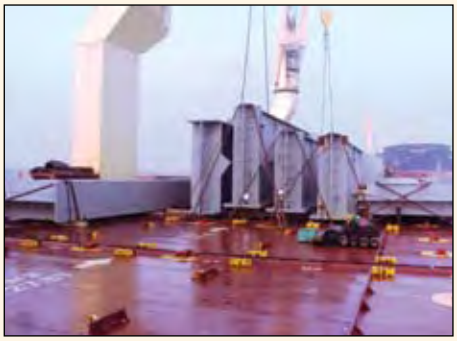
In my opinion, the shippers at the loading port had illogically stowed many lifts wrongly on the side and the ship's staff had not questioned the stowage nor considered the modalities at the discharge port. The manufacturers were also negligent in not marking the lifts to indicate correct lifting and stowage methods.

▲ The outboard lifts on hatch cover stowed on their sides

▲ Random orientation of structurals stowed in the hold

◀ Orientation of dedicated padeyes confirm that the lifts must be lifted and stowed only in the vertical orientation, i.e. on either the upper or lower flange

First lift being ▶ discharged by twin deck cranes. All the vertically oriented lifts were later turned on their sides by the road haulier on the shore



MARS 201220

Fatality from parted mooring rope

Edited from MAIB Report 29/2011

A feeder container ship was berthing starboard side to a terminal on a clear, calm morning. The berthing pilot was assisted by the bridge team consisting of the Master, 3/O and helmsman. The forward mooring station was manned by the C/O, Bosun, an Ordinary Seaman (OS), a Trainee Seaman (trainee) and a deck cadet. The aft mooring station was manned by the 2/O and two ABs. The helmsman, who was also an AB, was expected to join the aft mooring party on completion of his bridge duties, once the vessel had been placed alongside its berth.

Two tugs were assisting, one was made fast on the port quarter and the other was standing by forward to assist in accordance with pilot's orders. After closing with the berth, the aft backspring was sent ashore. The Master then instructed the C/O to send out the forward lines. While the cadet, OS and the trainee were lowering the forward backspring and a headline through the centreline panama chock, the Bosun, facing aft, operated the winch controls located inside the fore peak store access trunk. The C/O was standing on the starboard bulwark platform and directing the team with hand signals. As the vessel was required to move 10 metres astern, the Master instructed the C/O and 2/O to keep the headline and aft spring slack. The C/O started to heave on the forward backspring and, after the sternlines were ashore, both mooring parties were warping the vessel astern with the C/O estimating that the headline had just the right slack to stop the vessel at the desired location. He also informed the bridge that the TS and OS were passing the two other headlines from the port side of the forecastle.

When the vessel reached her intended final position, the Master instructed the C/O and 2/O to start taking weight on their respective head and sternlines and gave a kick ahead on the engine to stop the vessel's astern movement.

Without the Master's knowledge, the pilot then ordered the tugs to stop pushing. Instantly, the ship's bow began to swing away from the berth. At this time, the OS approached the centreline fairlead to visually estimate how much slack was required on the additional headlines that were being sent from the port bow for the eyes to reach the bollard ashore. Without warning, the first headline parted, snapped back and struck him on the head. The C/O immediately reported to the Master that the first headline had parted, but as his line of sight was obscured by the mooring winch, he could not see the injured OS. However, the Bosun informed him that OS had been struck by the parted rope and had collapsed on deck. The C/O promptly conveyed this to the Master.

The Master activated the vessel's medical response team and also asked the pilot to arrange for the shore emergency services to attend. Although he was wearing a safety helmet at the time of the accident, and despite receiving prompt medical assistance, the injuries the OS sustained to his head were fatal.

The parted mooring rope was an 8-strand polypropylene rope, 72 mm in diameter and the test certificate stated its minimum breaking strength of 101.6 tonnes when new. The rope had been in use for a year and its condition was assessed as 'satisfactory' when last inspected a month earlier. Following the accident, a representative sample of the rope outboard of the failure zone was analysed and it was concluded that:

1. The representative sample had suffered a large reduction in strength;

2. The main cause of this strength loss was external abrasion damage;

3. The abrasion damage had slowly become cumulative before the failure incident;

4. Internal abrasion damage also contributed to the failure, but to a lesser degree;

5. The pre-existing external abrasion damage on the failure zone was worse than the representative sample, causing the rope to fail at that point;

6. Thermal degradation had also possibly contributed to the rope's failure.

Root cause/contributory factors

1. Failure on the part of the OS and other crew to recognise the danger of coming within snap-back zones of taut mooring lines;

2. Both the C/O's and the Bosun's attention were focused towards the stern and neither was aware of the excessive tension on the single headline;

3. Both the C/O and the Bosun were unaware of the OS's location as the former's line of sight was obstructed by the centre mooring winch and the latter was operating the winch controls in an aft-facing position;

4. Failure on the part of the trainee and cadet to warn the OS in time;

5. Unusual location of the winch controllers which had recently been moved from a conventional deck pedestal location to the inner forward side of the fore peak store hatch trunk or coaming, causing the operator to adopt an aft-facing stance (this modification was carried out on the orders of ship's managers to avoid the recurrent heavy weather damage to the controllers in the original exposed location);

6. In the absence of roller fairleads, all mooring ropes had to be led through Panama fairleads or chocks. The high frequency of port calls caused significant external abrasion damage;

7. Improper assessment of the rope's true condition by ship's staff. Ropes should have been withdrawn from service if the company's retirement criteria had been followed correctly;

8. The company required a tool-box meeting before every mooring operation, but no tool-box meeting was held prior to the incident;

9. Ineffective onboard training on the dangers involved in mooring operations;

10. The snatch loading and parting of the mooring rope occurred without the audible warning that usually occurs when a synthetic rope is subjected to high stress and the mooring team was therefore unaware of the imminent danger;

11. All three experienced ABs were deployed to the aft mooring station due to which the forward lines were being tended by relatively inexperienced crew;

12. The pilot did not communicate to the Master that he had given an instruction for the tugs to stop pushing which prevented the Master from anticipating the possible consequences.

Corrective/preventative actions

A fleet circular was issued to the entire fleet instructing vessels to:

1. Conduct a thorough risk assessment of mooring operations and a review of the mooring procedures being followed onboard;

2. Properly inspect all mooring ropes to identify and replace damaged ropes in line with company procedures and ensure a detailed record of inspections and condition is maintained;

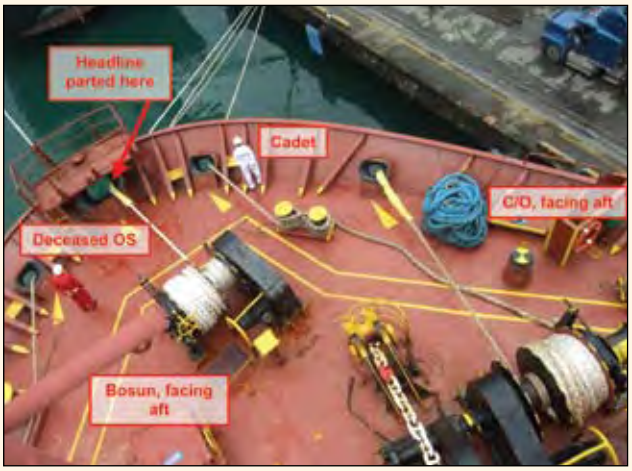
3. Conduct training for all crew on identifying and understanding the dangers associated with snap-back zones;

4. Ensure that no modifications are made to the layout of mooring arrangements and associated equipment without completing a risk assessment and obtaining the requisite approvals.

Additional recommendations made by MAIB to the shipmanager:

1. Ensure the effectiveness of control measures put in place following this accident and review them regularly;

2. Ensure that a sufficient number of experienced crew is available at each mooring station.



▲ Reconstruction of accident site showing location of persons


▲ Evidence of abrasion damage near the failure zone

MARS 201221

Faulty automatic electric kettle caught fire

The electric kettles being used on board typically consisted of a cordless stainless steel jug fitted with a plastic base that contained the electric heating element. Power was supplied via a male-female central connector mounted on the base unit, also made of plastic. Following a mid-afternoon coffee break, the crew had left the messroom and had failed to notice that the water in the kettle was still boiling and the automatic thermostat switch had not operated and cut off the power supply to the heating coil. Some minutes later, all the water had evaporated and without any more heat load, the temperature rose high enough for the plastic base and kettle bottom to melt and ultimately catch fire. The strong smell of burning plastic drew the attention of a passing crewmember, who, after seeing the fire and smoke at the base of the electric kettle, quickly disconnected the power cord from the supply socket and transferred the burning kettle and base unit into the adjacent galley sink and turned on the water, successfully extinguishing the fire.

Root cause/contributory factors

1. Automatic thermostatic switch malfunction;

2. Negligence on the part of the crew in not observing that the kettle was still boiling when they left the messroom at the end of the coffee break.

Corrective/preventative actions

1. All existing kettles permanently removed from use and replaced with new ones;

2. Prominent notices displayed near all electrical appliances requiring the disconnection of power cord from electrical supply outlet when not in use;

3. An incident report was sent to the office to be shared with the rest of the fleet;

4. Incident discussed at the next onboard safety meeting.

▲ View of fire-damaged kettle and base unit

MARS: You can make a difference.

You can save a life, prevent injury and contribute to a more effective shipping community.

Everyone makes mistakes or has – or sees – near misses. By contributing reports to MARS, you can help others learn from your experiences. Reports concerning navigation, cargo, engineering, ISM management, mooring, leadership, design, training or any other aspect of operations are welcome, as are alerts and reports even when there has been no incident. The freely accessible database (http://www.nautinst.org/mars/) is fully searchable and can be used by the entire shipping community as a very effective risk assessment, loss prevention and work planning tool and also as a training aid.

Reports will be carefully edited to preserve confidentiality or will remain unpublished if this is not possible.

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