

March 2018

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Seaways

The International Journal of The Nautical Institute

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The
Nautical
Institute



Focus

Speaking the same language

“
As I have travelled around the globe as President I have been constantly impressed by the dedication our members display
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This month's Focus comes to you from the bridge of the USCGC *Polar Star* in the Southern Ocean on Operation Deep Freeze 2018.

USCGC *Polar Star*'s Antarctic voyage is just one component of an annual international convergence of shipping on the southern continent. Voyages include cruises showcasing the unique flora and fauna, resupply missions to Antarctic research stations and research programmes in Antarctic waters during the summer navigation season. Many of these efforts are conducted collaboratively. One common challenge to all, however, is the ice.

Antarctica not only calves off massive tabular icebergs from its enormous mantle of glacial ice, but also presents the mariner with pack ice and challenging fast sea ice along its coastlines. During this voyage, *Polar Star* first had to work her way through almost 200nm of degrading first- and second-year sea ice before she reached the Ross Sea polynya (an area of unfrozen sea within the pack ice). After transiting the polynya, the real work began, breaking the track through the tough land-fast ice that extended 30nm.

All around the continent other icebreakers have been completing similar missions. Australia's *Aurora Australis* makes several journeys back and forth between Hobart and Australia's stations. The French *L'Astrolabe*, Chinese *Xue Long*, British Antarctic Survey's *Ernest Shackleton*, South Africa's *Agulhas II* and Chile's *Almirante Oscar Viel* are just a few of the icebreakers that come down to the Antarctic annually, either making supply trips themselves or providing escort to cargo vessels that complete the resupply.

Like many of the ships operating in the Antarctic resupply and research season, *Polar Star* has international personnel aboard. In addition to a RNZN Lieutenant Commander learning first-hand how to operate in ice, I am aboard representing The Nautical Institute. I was invited to sail on Operation Deep Freeze, the US military's logistical support operation for the National Science Foundation-managed US Antarctic Program, to observe *Polar Star*'s ice operations. This gives The Nautical Institute the opportunity not only to share our Ice Navigator Training and Accreditation programme with the United States Coast Guard, but also to benchmark our programme against the high standard of US Coast Guard training. We are providing officers on the bridge of *Polar Star* with the perspective of the Ice Navigators on board the ships that she will escort through the ice of the Ross Sea; and assisting the Commanding Officer and his bridge teams with ice route planning from the perspective of Ice Navigators on board escorted ships.

In July 2017, The Nautical Institute launched the

Ice Navigator Training Accreditation and Certification Scheme, which provides the first international standard in training and certification for ships operating in ice-covered waters around the globe.

The maritime industry has many common international standards of training and certification. They ensure that operators not only have the same high standard of competency, but 'speak the same language' in a particular area of expertise. They give owners, insurers, administrations and charterers confidence that people holding those certifications meet acceptable standards that have been carefully developed and maintained. A prime example is The NI's Dynamic Positioning Officer certification. Similarly, the NI Sail certification ensures a high degree of competency for officers aboard tall ships.

The degree to which the Ice Navigator certification has been accepted is evident from the number of applications under the grandfathering clause. Experienced and highly competent officers who have been operating in ice for many decades have realised the value of an internationally recognised certification in ice operations. Shipowners and management companies are advising their officers that they should apply for certification. They know that showing that their bridge officers meet an international standard from a respected professional organisation such as The Nautical Institute serves as a visible show of commitment to best practice and safety.

As I participated in the daily ice navigation training for the bridge team personnel aboard *Polar Star*, it was evident that they had a very strong safety culture. These incredibly experienced and competent officers were eager to pass on their knowledge to the next generation. Incorporating The Nautical Institute's Ice Navigator Certification and obtaining accreditation for Ice Navigator training within the training regime in a more formal way would ensure the USCG officers could better understand how other bridge officers think and expect to operate in ice.

Striving for best practice and the highest levels of professional competency at sea is our goal. As I have travelled around the globe as President I have been constantly impressed by the dedication our members display, regardless of their nationality or sector of the maritime industry, whether commercial, naval or coast guard. When we all strive for the highest levels of professionalism we all benefit. Constant learning, continued proficiency, adherence to best practice and competency are the hallmarks of a truly dedicated professional mariner. The annual shipping advance towards the Antarctic, bringing together all sectors of modern shipping, highlights the ongoing need for multi-sectoral collaborative seamanship. 🌐



Mariners' Alerting and Reporting Scheme

MARS Report No. 305 March 2018

MARS 201814

PPE for cooks too

→ On a vessel underway, the cook was in the galley preparing meals. One of his tasks was to skin and cut poultry. While attending to this job he accidentally cut a finger on his left hand. The investigation revealed that although the chicken was tested for appropriate tenderness before cutting and the knife used was properly sharpened and the correct size for the task, the cook was not wearing a protective 'cut glove' on his left hand.



Lessons learned

Using a protective 'cut glove' on the hand that holds the item to be cut is not always the first choice for cooks, but it should be. Just as hard hats and steel-toed boots are now the norm on deck and in the engine room, in the kitchen appropriate PPE should become part of the culture.

MARS 201815

Improvised pressure test causes injury

→ Two engine room crew were about to undertake a pressure test of an auxiliary engine air cooler. To this end, the sea water outlet pipe of the cooler was sealed using a large wooden plug and a piece of cloth acting as an improvised gasket. The air cooler was partially filled with water and then air pressure of about 4 bar was applied to the cooler from the sea water inlet side. Suddenly, the wooden plug shot out like a bullet with tremendous force and speed.



Red arrows show trajectory of plug

After bouncing off a casing the plug hit one crew member on his helmet, then ricocheted and hit the other crew on his forehead. While the first crew was unhurt, the second was injured, suffering swelling of the forehead with severe pain. Fortunately, the injury was not serious.

Lessons learned

- Wooden plugs or other improvised methods that do not ensure positive and secure closing should never be used for pressure testing.
- Other than on pressure vessels like boiler shells or compressed air bottles, pressure tests should be carried out by hydrostatic means, by filling the appliance with water and creating a head of pressure appropriate for the required test.

MARS 201816

Don't drink that!

Edited from IMCA Safety Flash 29/17

→ The crew noticed that there was no extra diesel fuel on the fast rescue craft (FRC), so they searched for containers to store the fuel. Some plastic bottles were found and used to store the diesel in the FRC.

Later, during a vessel inspection, these containers were observed and it was pointed out that storing diesel in inappropriate containers is a safety deficiency. These containers were old water bottles, which could cause confusion and possibly induce someone to mistakenly drink from one of the bottles.

The bottles were subsequently emptied and discarded; a safety stand-down was held with the crew.



Lessons learned

- Never use improvised containers for fuel or chemical storage, especially old drinking water bottles. This has the double disadvantage of being a risk to the environment and dangerous for anyone who might drink the contents.
- Always insist that ready-use fuel or chemicals are stored in appropriate containers.
- If ready-use containers for fuel or chemicals are bought in bulk, ensure they are labelled correctly, including safety data sheet references and full product name.

■ **Editor's note:** Any time you improvise you may well be making a serious mistake. Think safe – do your running risk assessment. Ask yourself, 'What could go wrong here?' There have been cases where fuel, thinners and other harmful substances have been consumed accidentally because water bottles were reused for other substances.

MARS 201817

Pinch point discovered the hard way

As edited from IMCA Safety Flash 04/16

➔ A crewman needed to lift an escape hatch cover from the machinery spaces. He grabbed one of the yellow handles and raised the hatch, but he was unaware of a pinch point that existed between the handle and a nearby pipe.

As he brought the hatch to the upright position his finger was caught in the pinch point causing a serious injury to his finger.



Lessons learned

- Risk assessments should be done on your vessel and pinch points should be targeted. If possible, these hazards should be eliminated.
- If it is physically impossible to eliminate certain pinch points, they must be clearly indicated and should form part of the vessel's familiarisation checklist.

MARS 201818

Deadly girding accident

Edited from official MAIB report 16/2017

➔ A 1,100teu container ship was leaving berth assisted by a small port tug. The tug, with a 320hp engine and a single fixed-pitch propeller in a nozzle, was normally used to move barges rather than large ships. It was serving as a temporary replacement for the port's usual ship-assisting 1,200hp Voith configured tug, which was undergoing maintenance.

On the bridge for the departure were the Master and pilot, the chief officer and a helmsman. All communication between the pilot and the tug was conducted in the local dialect, which the crew were not able to understand.

According to the agreed plan, the tug had been secured on the container vessel's port quarter with two of the ship's mooring lines payed out about 40 metres. The lines were placed over the tug's single towing hook.

The Master was initially concerned about the tug's ability to assist the ship effectively in the planned manoeuvre, and requested the pilot to direct the tug to pull on the port beam with full power. The tug's performance satisfied the Master, so the stern mooring lines were let go. With the stern lines away and the tug continuing to pull at full power, ahead propulsion was ordered and starboard helm applied on the container ship. The resulting actions caused the vessel to pivot on the remaining forward backsprings, thereby enhancing the stern's movement away from the quay (diagram 1).

Within a few minutes, the container vessel's stern was about 25 metres from the quay; the forward backsprings were then let go. The engine was then initially put dead slow astern with the bow thruster full to port, and then hard to starboard helm and dead slow ahead, with the bow thruster remaining full to port. Shortly afterwards the helm was ordered amidships and then hard to port, but the vessel was by now moving astern with its stern coming dangerously close to the

mooring dolphin (diagram 2). Half ahead was ordered and the bow thruster half to port, and then full ahead, hard to starboard helm and bow thruster full to port in order to avoid hitting the dolphin. Soon, the ship was moving ahead at more than 5 knots. The tug, which was now astern of the vessel, was unable to gain a safe position because of the unexpected (to the tug crew) and rapid forward motion of the container ship. It quickly girded and capsized.

The Master immediately ordered stop engines and the local pilot boat proceeded to assist the tug crew in the water. After rescue operations, two of the tug's crew were pronounced dead.

Although the rapid forward movement of the container vessel that



had led to the tug's girding was ultimately the primary unsafe event, several aggravating factors on the tug also contributed to the negative outcome:

- The towing hook was not fitted with an emergency release mechanism
- A gog rope was not rigged
- Doors and hatches were left open during the towing operation
- None of the tug's five crew was wearing a lifejacket or other buoyancy aid.

The official investigation found, among other things, that:

- The container ship's ahead movement was not communicated to the tug crew, so the tug was caught in an unsafe position and was subjected to girding.
- The pilot and Master concentrated solely on trying to prevent the ship's stern from making contact with the mooring dolphin, so communication with the tug was less than optimal.

Lessons learned

- When in doubt, reconsider your plan. In this case, the tug in service was approximately one-quarter as powerful as the tug normally used and the Master had some doubts about its efficacy before undertaking the manoeuvre.
- Always keep assisting tugs apprised of your vessel's movements, preferably before the movement begins.
- For tug crews, ensure your vessel is seaworthy and the crew properly trained and equipped.

■ **Editor's note:** Readers may recall the recent MARS 201780 report in which girding was also the focus of attention.

MARS 201819

Severe burns from hot oil

➔ A crew member found some small oil leaks from the glands of the suction and delivery valves of the fuel circulation pump on both generators. He took it upon himself to stop the leaks by adding gland packing, but he was working alone and had not informed anyone else of his plans.

Once the work had been completed on one generator, he started the pump to ensure the leak had been corrected. After confirming there was no oil leak from the valve gland, he started to work on the valves of the

other generator, but neglected to stop the pump. When he slackened the gland of the delivery valve to install the gland packing, hot oil splashed on to his face and body.

As a result of the incident, he received first and second degree burns to many parts of his body including his face, ear, left arm and left hand.



Lessons learned

- Although this accident may still have happened even had the crew member been working with someone else, it is often advisable to work on such projects as a team. Mistakes are more likely to be caught before negative consequences occur.
- Always inform your superior about work that is not planned but that you see as necessary – never improvise.
- Work methodically and continue to do a running risk assessment as you accomplish the task at hand.
- PPE, PPE, PPE!!

MARS 201820

Timber deck cargo collapse causes one fatality

Edited from official MAIB report 25-2017

➔ A bulk carrier had loaded a cargo of packaged sawn timber. This was the first time timber had been carried on board the ship and the crew were inexperienced in this type of cargo. A supercargo had been appointed for the loading to help supervise and provide guidance to the chief officer on cargo loading and securing and ship stability requirements.

Following the supercargo's instruction, the ship's crew secured the deck cargo by means of top-over lashings using chains and turnbuckles. Wooden ladders were constructed at the fore and aft ends of the deck cargo stack to allow access between the accommodation and the forecastle.



Vessel loaded and underway

Upon arrival at the discharge port the ship's crew removed the deck cargo lashings and cargo was discharged into barges secured alongside the anchored ship. All aspects of the cargo discharge, including operation of the ship's cranes, were carried out by shore stevedores as required by the charterparty. During the discharge, the bosun was to carry out security rounds and to monitor operations for any damage caused to the ship. There was no supercargo to advise the Master and crew during discharge.

Two barges were alongside on the starboard side and one barge was positioned on the port side. At one point during the discharge about 20 packages of timber, each about 2 tonnes, tumbled overboard from the port side. Cargo operations were stopped. It was then realised that the bosun had been standing on top of the stacks that had gone overboard.

A search of the water and the barge was begun. The bosun was found under a pile of timber on the barge. He was evacuated ashore, but was pronounced dead some time later.

Some of the official report's findings include:



Scene of the accident

- With the deck cargo lashings removed, the cargo packages stowed on deck had insufficient stability.
- The use of uprights would have helped prevent a deck cargo stack from collapsing once the securing lashings had been removed.
- Prior to loading, the Master was not advised of either the deck cargo package racking strength or the frictional resistance of its plastic covering. Such information would have enabled him to make a more informed assessment of the deck cargo stack's stability and security.
- Poor stevedoring practices that had been witnessed by the ship's crew were not discussed with the stevedores' foreman and so were allowed to continue.
- Without the provision of a lifeline, there were no readily available means for attaching a safety harness. Without edge protection or any means of fall arrest, the risk of falling from the top of a deck cargo stack, or as a result of a deck cargo stack collapse, was significant.
- The ship's crew did not assess the level of risk correctly. For example, it was not considered necessary for a catwalk to be installed nor for safety harnesses to be worn while on passage. This miscalculation of risk continued during cargo discharge operations.

Lessons learned

- The provisions contained in the IMO Code of Safe Practice for Ships Carrying Timber Deck Cargoes (TDC Code 2011) is unequivocal in its recommendation that 'uprights', as shown below, at least as high as the stow, should be used to stabilise stowed round wood, loose sawn wood and sawn wood packages with limited racking strength.



- The presence of non-critical persons in the vicinity of cargo operations is a factor that unnecessarily increases risks to those persons.
- If poor stevedoring practices are observed, stop operations and discuss your concerns.
- If a specialised cargo is to be transported and crew are inexperienced in the special considerations required, always ensure expert guidance is employed for all phases of the work.

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