IMCA Safety Flash 08/19

April 2019

These flashes summarise key safety matters and incidents, allowing wider dissemination of lessons learnt from them. The information below has been provided in good faith by members and should be reviewed individually by recipients, who will determine its relevance to their own operations.

The effectiveness of the IMCA safety flash system depends on receiving reports from members in order to pass on information and avoid repeat incidents. Please consider adding the IMCA secretariat (imca@imca-int.com) to your internal distribution list for safety alerts and/or manually submitting information on specific incidents you consider may be relevant. All information will be anonymised or sanitised, as appropriate.

A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links Additional links should be submitted to info@imca-int.com

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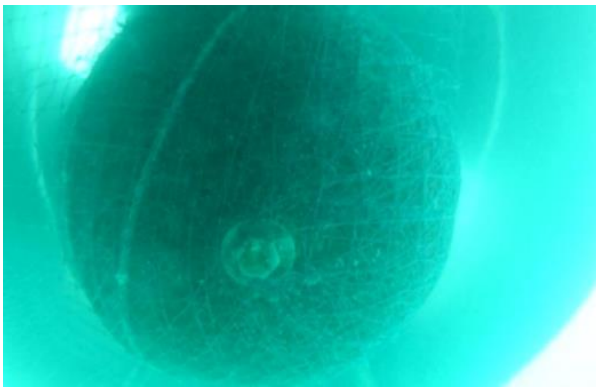
1 Fishing Nets Caught in Propellers

What happened?

While preparing to resume survey operations close inshore during the hours of darkness, a vessel caught unmarked fishing nets in both main propellers. The incident occurred a little over one nautical mile from shore, after around three days of waiting on weather.

The propulsion system was stopped before completing a visual inspection at the stern of the vessel. Fishing nets were observed on the port side, leading beneath the vessel. It was confirmed that the fishing nets were entangled in both propellers, disabling both and leading to limited vessel manoeuvrability. The bow thruster was used to maintain control of the vessel and slow down to drift towards the shore. In due course, the vessel was able to anchor in a safe location away from seabed assets and await assistance.



Port Propeller (As Found)

Starboard Propeller (As Found)

What actions were taken? What lessons were learned?

- Suspension of operations until such a time that a review and improvement of the project risk assessment document was completed to fully capture the scenario where multiple propellers and/or thrusters are compromised/immobilised due to entanglement with fishing nets or other floating debris;
- A proper look-out should be maintained by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions, so as to make a full appraisal of the situation and reduce the risk of encountering in/on water debris/fishing activities. If hazards are observed and considered by the Officer of the Watch (OoW) to pose a significant risk to the vessel, consider suspending operations.

Members may wish to refer to:

- Costly damage to azimuth thruster caused by fishing gear

2 Oil Spill During Bunkering

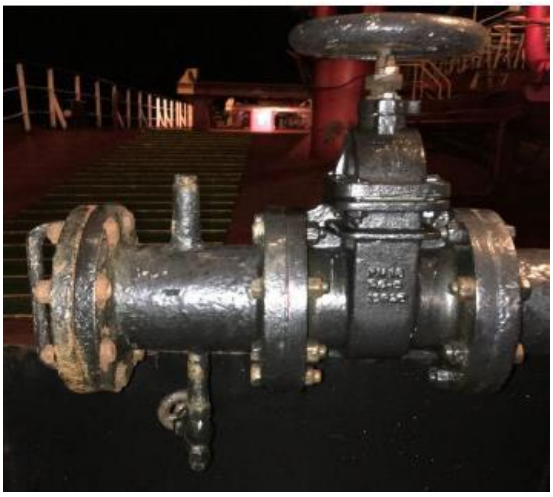
What happened?

During bunkering operations alongside, there was a spillage of around 3 litres of fuel when the hose coupling was loosened during fault-finding. The incident occurred when a vessel took bunkers supplied by five tanker trucks, one after the other. The bunker hose was connected to the manifold from the first truck. Bunkering was started and after about four minutes, the truck driver complained of back pressure and bunkering was stopped.

To investigate the reason for the back pressure, suspecting that the manifold valve was not functioning properly, the Chief Engineer instructed the Fitter to open the hose coupling at the manifold. As soon as the coupling was loosened, fuel oil sprayed out onto the pier due to pressure in the pipe. Disconnection was stopped immediately, and the spilt oil was contained in the save-all at the manifold.

The local Coast Guard were informed and arrived at the site for an investigation. They instructed crew to clean up the spilt oil on the pier and retain the sweepings onboard. Clean-up on deck and pier was done using the vessel's SOPEP equipment. Reports were made to all concerned parties as required. No restrictions were placed on the vessel by the Coast Guard or the port.

Bunker hose connection at ship's bunker manifold



Ship's bunker manifold valve

What were the causes?

- The immediate cause was carelessness; without giving the problem much thought the Chief Engineer decided to open the hose coupling without checking if the bunker line was drained properly;
- Causal factors were inadequate planning and inadequate maintenance/supervision;
- The root causes identified were:
  - the Chief Engineer was not able to methodically diagnose the reason for the back pressure and did not consider the risks involved in opening the hose coupling without checking that the line was not pressurised
  - there was no check of residual oil in the line by opening the drain dock
  - no instruction was given to the truck driver to open the truck valve to allow the oil to drain back into the truck.

What action was taken?

A full review of bunkering procedures took place.

Members may wish to refer to:

- Oil Spill Incident
- Fuel Spill During In-Port Bunkering

3 Damaged High Pressure Content Gauge Hoses on Bail-Outs

What happened?

During diving activities on two occasions in the same 24-hour period, a diver noticed that there was no pressure left in his bail-out bottle. The decision was taken by the Dive Supervisor to recover the diver from the water, as per standard protocol. After recovery, the bail-out bottle and appliances were checked, and it was found that the high pressure content gauge hose on the bail-out was damaged.

Both hoses were replaced for new hoses.

Damaged hose showed cuts in outer skin

Damaged hose showed a damaged outer skin near the ferrule

What went wrong?

The short interval in which these two incidents happened triggered an investigation which revealed the following:

- There were two different types of damage:
  - cuts; most likely caused by sharp mussels and stones (illustration above left)
  - damage caused by bending and overstressing (illustration above right);
- Both hoses were leak tested and found to be leaking through holes near the ferrule connector;
- Both hoses were fitted with bend restrictors;
- The hoses were maintained and tested in accordance with Code of practice for the initial and periodic examination, testing and certification of diving plant and equipment (IMCA D 018);
- The hoses were subjected to a regular visual inspection before every dive;
- Both hoses were in use for up to 4 years and were regularly used.

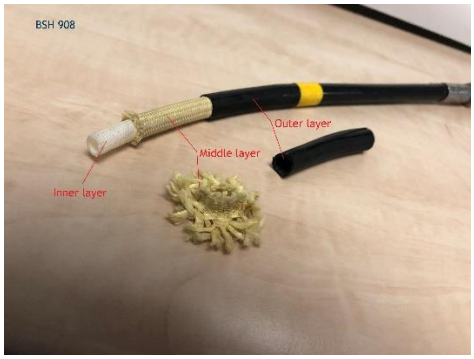
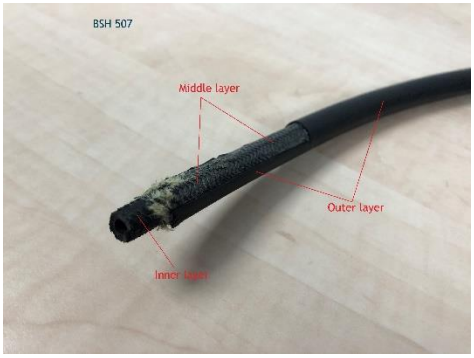
What were the causes?

Investigation suggested that one type of HP hose is prone to damage near the ferule connector, caused by bending and stressing, regardless of the use of a bend restrictor present at this location. The damage was not sustained in one single occasion but is believed to have developed over time.

What actions were taken?

There are different types of HP hoses on the market with specific characteristics:

- Hose type 1: fatigue like damage may occur near the ferrule over time. When this damage occurs, it can lead to loss of the bail-out within a dive. In order to reduce the risk of this type of damage occurring, annual replacement may be required, depending on usage.
- Hose type 2: does not show the same fatigue damage development as the construction is more flexible and rugged.

	Hose Type 1	Hose Type 2
Picture		
Appearance	Thin, smooth, black, shiny	Thick, black, dull-coloured
Dimensions	Outside diameter 10.8mm	Outside diameter 12.5mm
Composition	3 layers: ♦ Thin layer, plastic-like type (shrink fit) ♦ Soft woven middle layer ♦ Rigid inner layer, hard plastic-like tube	3 layers: ♦ Thick outer layer, rubber compound ♦ Soft woven middle layer ♦ Flexible thick inner layer, rubber compound
Other findings	Layers can move freely from each other Outer layer easily cut with knife Stiff, hard to bend, inner layer tends to buckle	Layers are vulcanized to each other In general, hard to cut with a knife Easier to bend, smaller bending radius, inner layer does not tend to buckle

Members may wish to refer to:

- Bail-Out Whip Failures

4 Fire: Smoke Coming from an Expired Line Throwing Cartridge Kept for Disposal

What happened?

A fire alarm went off; the location of the fire was confirmed, and a team went for investigation. Heavy smoke was observed coming from a spare cabin. The incident occurred on a vessel working within 500m of a rig. The rig was informed, the vessel stopped work and immediately left the 500m safety zone. A fully equipped fire team entered the cabin and it was found that the smoke was coming from an expired line-throwing apparatus (LTA) cartridge, which was being kept for disposal.

The expired LTA box was removed from the location and kept on the main deck.

What went wrong? What were the causes?

- The expired pyrotechnics were stored for an extended period onboard the vessel.
- Inadequate work procedure and poor perception of risk.

What actions were taken?

The vessel crew made a prompt response to the situation, rapidly and professionally dealing with what could have been a serious fire.

What lessons were learned?

- Expired pyrotechnics should be showed in an appropriate, safe and properly marked location;
- Old pyrotechnics should not be stored on the vessel for long periods.

Members may wish to refer to:

- Lost Time Injury (LTI) caused by inadvertent activation of expired line throwing device
- Accidental Activation of expired pyrotechnics (hand flare)
- Disposal Of Pyrotechnics (MSF)

5 Hot Water Fitting Failure Results in 3m Loss of Depth in Diving Bell

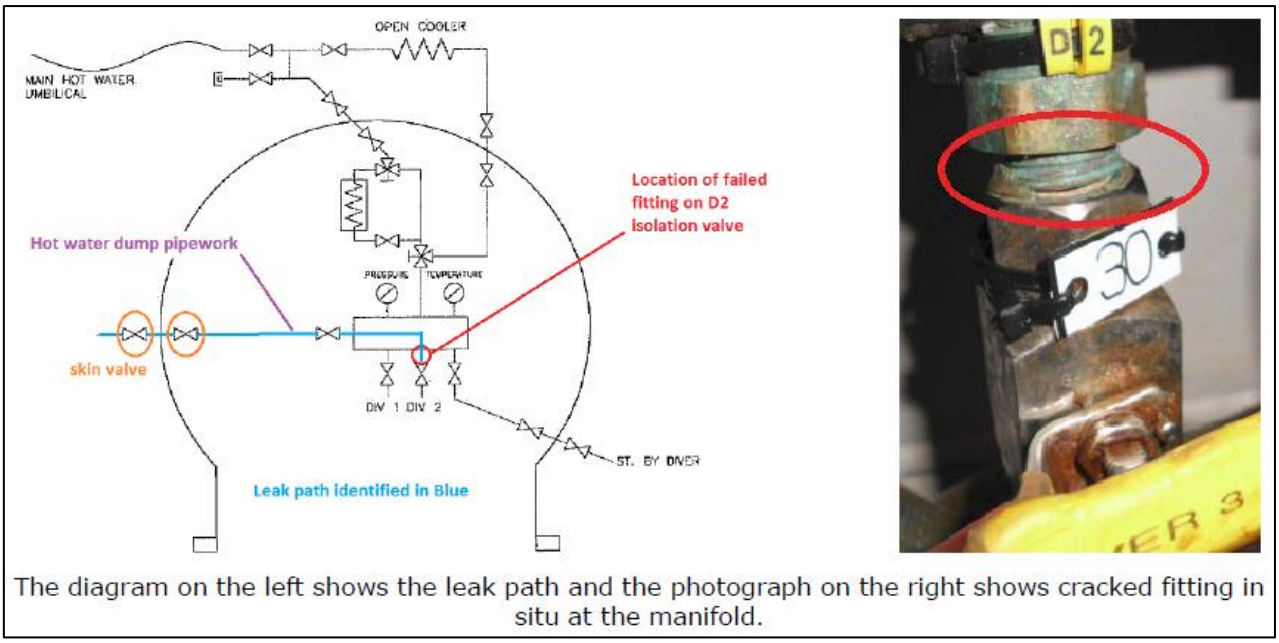
What happened?

Whilst the diving bell was on the surface, pre-dive bell checks were being completed by the Bellman, when it was observed by the Dive Supervisor and Bellman that the bell was losing pressure.

The Dive Supervisor began to blowdown the bell to compensate for the loss of pressure. The Bellman lowered the bell door to isolate the diving bell from the chamber complex. The Bellman then proceeded to close all emergency valves in the bell and the Deck Diver closed all corresponding external bell valves. The pressure loss was stopped, and it was determined that a fitting had failed on the hot water distribution system. The Bellman made the bell safe and returned to the system; the bell was then surfaced for repairs.

Upon further investigation, it was established that the D2 hot water fitting (see picture below) which connects the isolation valve was cracked. This opened a leak path via the crack to atmosphere.

The actions taken by the Dive Team clearly demonstrated the effectiveness of conducting training and drills.



The diagram on the left shows the leak path and the photograph on the right shows cracked fitting in situ at the manifold.

What went wrong? What were the causes?

- The failure of the fitting is believed to have been caused by the impact sustained from a diver's bail out bottle making contact with the unprotected fittings at the manifold;
- The bell was completely refurbished during a dry docking in 2011;
- There were no records of the fittings being replaced in the company planned maintenance system (PMS);

- The age of the damaged fittings could not be determined. It was not known if the fittings were replaced after the 2011 dry dock.

What actions were taken? What lessons were learned?

- Review similar existing fittings to verify if there has been any impact damage and also if there is the potential for impact damage;
- Ensure all critical components are recorded in PMSs and that they also meet the requirements of Code of practice for the initial and periodic examination, testing and certification of diving plant and equipment (IMCA D 018).