IMCA Safety Flash 29/18

December 2018

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.

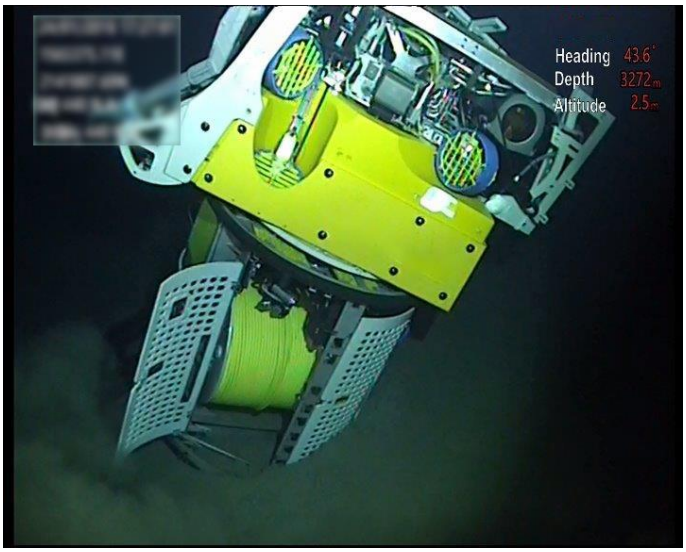
A number of other organisations issue safety flashes and similar documents which may be of interest to IMCA members. Where these are particularly relevant, these may be summarised or highlighted here. Links to known relevant websites are provided at www.imca-int.com/links Additional links should be submitted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

Any actions, lessons learnt, recommendations and suggestions in IMCA safety flashes are generated by the submitting organisation. IMCA safety flashes provide, in good faith, safety information for the benefit of members and do not necessarily constitute IMCA guidance, nor represent the official view of the Association or its members.

1 Umbilical Termination Failure and Loss of ROV

What happened?

An ROV system had just completed a test dive to 3000m and was being returned to deck. Upon lifting the system out of the water, the umbilical became detached from the TMS bullet. The ROV and TMS fell to the seabed and landed upside down on a firm seabed at 3276m water depth. The vehicle was located by another ROV system from the same vessel. The system (ROV and TMS) was inspected on the seabed. Based on that information and the sea conditions (1.5m significant wave height), a risk assessment and a toolbox talk (TBT) were carried out which determined that recovery was both safe and possible. The spare bullet was terminated onto the ROV umbilical to allow it to be used to recover the system with the emergency recovery rigging on the TMS. The ROV, TMS and umbilical termination were damaged in the incident. No personnel were injured.



What went wrong?

The parted umbilical termination was analysed by a third-party specialist laboratory. Following a detailed engineering examination and internal investigation, it was concluded that the umbilical failed because its termination had been conducted in a very poor fashion with a number of clear defects observed.

- It was noted that the subcontract technician doing the termination did not demonstrate appropriate skill in how to conduct such terminations, and it was clear that procedures were not followed;
- There was an over-reliance in each link of supply chain delivering a quality product, rather than following appropriate checking or verifying of quality.

What actions were taken? What lessons were learned?

- Umbilical re-termination procedures were revised to provide clearer instruction and now include requirement for photographic evidence showing completion of each main step;
- Umbilical termination considered a critical point of assembly therefore quality control processes should be followed to confirm appropriate surveillance is applied to sub-contractor.

Members may wish to refer to:

- Loss of ROV after Umbilical Termination failure and damage to ROV during recovery
- Loss of ROV: Dropped Object
- ROV Main Lift Umbilical Failure

2 Fires Caused by Electronic Device Chargers

What happened?

The United States Bureau of Safety & Environmental Enforcement (BSEE) has published Safety Alert 337 on fires relating to the charging of personal electronic devices. IMCA has dealt with this before, most recently in Safety Flash 18/18.

BSEE has related several similar incidents:

March 2016: A drillship's fire alarm sounded due to a fire reported in the living quarters. Crews mustered at their primary muster stations and fire teams were deployed to extinguish the fire. The initial response with fire extinguishers did not smother the fire, so a fire hose was required to completely extinguish the fire. Although the source of the fire was classified as 'undetermined', findings suggested a wall mounted fluorescent light for marine use with receptacle, a universal adapter plugged into the light fixture, a phone charger plugged into the adapter, and/or a tablet left under the bunk pillow may have started the fire. Damage as a result of the fire was estimated at $50,000.

March 2018: A fire occurred in temporary living quarters after a contractor left a cell phone charging on his mattress while at work for the day. The charger wire apparently failed, creating enough heat to ignite the bed sheet and mattress (see photo, right). The fire team responded to the area and quickly extinguished the flames. No personnel were present at the time of the fire, and no injuries resulted from the incident.

Wire insulation apparently failed, leading to fire.

Device was left charging on night stand.

May 2018: Black soot was noticed above the entry door of rented living quarters. After power was isolated, personnel entered the building and found heat damage to the ceiling and lights, as well as multiple charred mattresses. A possible cause of the fire was a tablet being charged on a bottom bunk hanging night stand (see photo, left). The tablet and electrical receptacle were badly charred.

No personnel were present at the time of the fires, and no injuries resulted from these incidents.

Therefore, BSEE recommends:

- Charger cords for all electronic devices should be in good working condition (with no exposed wiring) prior to being brought offshore;
- Charging devices should not be left on surfaces that are potentially flammable or that can promote heat build-up;
- Avoid leaving charging cables or portable electronic devices on bedding;
- Do not leave unattended devices connected to outlets found on lights in bunks;
- Remove electronic devices from chargers and outlets once fully charged;

- Include information about the hazards of charging portable devices during orientations and post relevant signage in living quarters.

3 High Potential Near Miss: Anchor Brake Failure

The Marine Safety Forum (MSF) have released Safety Alert 18-25 regarding a potentially fatal near miss incident during dry-docking.

A vessel's anchors were ranged on the dock bottom for inspection and painting. With the work complete and the vessel due to depart from the dock, the anchors were recovered. Once recovered, the brakes were applied, guillotines on both anchors dropped across, and devils' claws were engaged. The clutch was disengaged and the brake on the port anchor was tightened to ensure that it was properly applied before finishing the maintenance. At tightening the break, the threaded spindle sheared, completely releasing the break band, meaning that the full weight of the anchor was taken on by the devils' claw. The weight of the anchor forced the arms of the claw open, allowing the chain to run freely and the anchor and chair to run out to the dock bottom unrestricted.

"devil's claw": device used as a chain stopper to grab and hold an anchor chain. It consists of a turnbuckle, usually attached at the base of the anchor windlass, and a metal hook with two curved fingers that grab one link of a chain.

What happened? What were the causes?

Stripping the brake assembly for investigation revealed that both linkages housing the failed threaded spindle were seized. Lack of rotation in the linkages caused a 'bending force' to be applied to the spindle upon tightening the break. Over time, this has caused stress within the spindle, resulting in complete failure.

- Maintenance:
  - maintenance on the windlass and associated parts was conducted in line with requirements of planned maintenance system (PMS)
  - all parts of the windlass were greased regularly; however, as identified in other mechanical failures, grease from the greasing nipples had not penetrated every part of the equipment, leading to the linkages becoming seized;
- Claw:
  - the devils claw had been engaged on the anchor cable and tightened, leaving no gap or slack in the lashing
  - the two arms of the claw opened as the weight fell upon them, allowing the cable to pass through
  - there was no significant corrosion noted on the equipment;
- Guillotine:
  - the guillotine had not been secured in place when dropped across the cable when the break failed
  - because of this, it did not effectively stop the anchor cable running out when the claw failed.

Claw as intended

Claw post incident

Failed section of brake assembly

Failed section of brake assembly

Anchor post incident

What actions were taken?

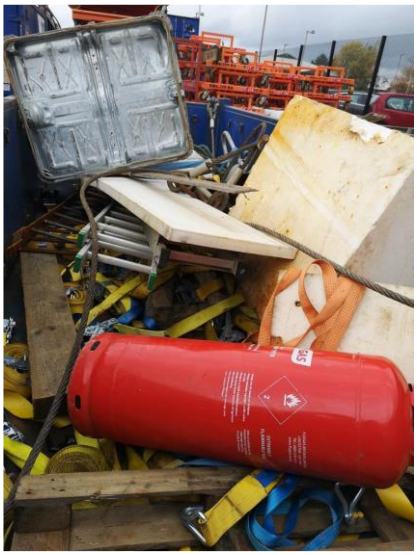
- Conduct thorough inspections of moving parts of the anchor windlass – particularly the brake band assembly. All moving parts should be confirmed operational;
- Routine greasing of parts to ensure proper lubrication. When greasing, moving parts should be moved to fill extent of operation to ensure full functionality;
- Any seized or non-operational parts should be freed up at first opportunity;
- Devils claws of the design shown were replaced with wire strops of appropriate safe working load (SWL). Alternative designs are to be reviewed by vessels;
- All anchoring operations should include a check of the area to ensure no other part is placed at risk by the job; check over the side for any small craft at sea or in port. Exclusion zone in the proximity of the anchor during dry dock.

Members may wish to refer to:

- Winch Brake Failure
- Near Miss: Corrosion-related failure of bolts used to secure lifeboat winches

4 Unsafe Backloading of Equipment

What happened?



Project related equipment was returned to a yard in a half-height container. The equipment came from a project-chartered vessel which had been demobilised at a nearby port.

As the half-height container was unloaded from the truck, it became obvious that the equipment inside was inadequately packed and secured. The contents of the container included an empty intermediate bulk container (IBC) and a full propane gas cylinder.

What went wrong?

- Inadequate active supervision during the demobilisation;
- Low risk perception and rushing to get the job finished;
- Failure to acknowledge or understand hazardous acts/conditions and the importance of intervention.

What lessons were learned?

- Personnel to call an 'All Stop' if an unsafe act or condition is observed;
- Vessel management should ensure all equipment is backloaded in a safe and secure manner.

This is an ongoing 'house-keeping' issue which can be seen in previous reports. A few examples are included here:

- Loading and securing of cargo
- Unsecured Cargo Inside Containers
- Poor Cargo Stowage: Material Damage On Container

5 Fatal Injury During Lifting Operations – *Maersk Interceptor*

What happened?

The Norwegian Petroleum Safety Authority (PSA) has completed its investigation of the fatal accident on 7 December 2017 on *Maersk Interceptor*, a jack-up facility, in which one person was killed and another seriously injured. Several breaches of the (Norwegian) regulations were identified.

This incident occurred in connection with lifting and installing a seawater pump. Four people took part in the work, which involved the use of a steel sling. The latter parted, and the pump fell down. A power cable attached to the pump was pulled along in the fall and hit two people who were in the vicinity. One of them fell into the sea and died, while the other was seriously injured. Under slightly different circumstances, several lives could have been lost.

The incident also had material and financial consequences.

What were the causes?

- The direct cause of the incident was that the lifting sling broke because it was overloaded;
- Underlying causes were multiple and complex and can be related to design weaknesses and inadequacies in following these up, failure to identify risk at several levels, training, and planning and work practice.

The full report can be found here.

6 MSF: Near Miss – Potential Dropped Object During Cargo Operations

The Marine Safety Forum (MSF) has published Safety Alert 18-23, in which a 20ft basket was lifted during offshore cargo operations. The bridge team were later informed by the installation crew that a yellow metal plate had been found trapped inside the forklift pocket of the basket; the plate was used to protect a potential trip hazard (stanchion mounting holes).

A detailed risk assessment had been in place and was used as the basis of the toolbox talk (TBT). The following hazards were identified:

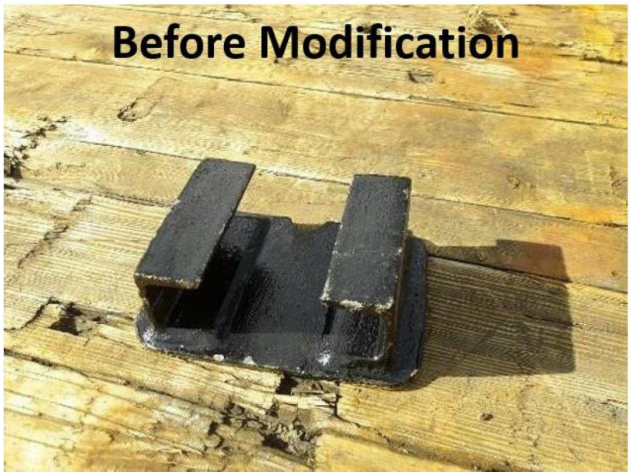
- The use of covers for trip hazards was justified in removing the potential of a personal injury resulting from a trip – trip hazards marked or removed if possible;
- Dropped objects were prevented by a pre-inspection of the container, prior to lifting, and the use of safe havens when any lift is suspended.

However, the control measures listed did not include pre-inspection of the deck; the control measure requiring a pre-inspection of the container failed as it did not identify the potential dropped object. The MSF does note, however, that the ability to conduct a full, detailed inspection of a container prior to lifting deck can be impaired and may not always identify potential dropped objects. This can be due to:

- Weather conditions – water on deck may not allow a full check of fork pockets;
- The orientation of a container against the vessel's rail or other cargo may impair visibility of all areas that could harbour a potential dropped object.

What actions were taken?

- The cover plate was replaced, and the trip hazard was removed.
- Vessel crew were able to come up with a solution to prevent the plate from accidently being moved again – additional pins had been added which will hold the plate in place in the future (unless removed intentionally);
- The vessel owner implemented preventative measures including:
  - update the risk assessment to include the addition of pre-work inspection of the deck as an additional control measure against the hazard of potential dropped objects
  - update 500m entry checklist – include a requirement for a positive report to the bridge that pre-work deck inspection has been completed
  - all safety officers to conduct an inspection of the vessel plate cover arrangements to determine if a similar hazard could occur – take preventative actions where required
  - conduct additional briefing for all deck crew surrounding lessons learned – particularly on the potential failure of the pre-lift check of the container and the new requirement for a pre-work deck inspection.



The MSF has issued the following instructions to vessels owners:

- All crew should be made aware of MSF Safety Alert 18-23 – display on noticeboards, print copies for mess rooms and discuss all learning points and recommendations at the next onboard safety meeting;
- Any applicable points should be actioned in order to reduce the likelihood of similar incidents occurring on another vessel.