IMCA Safety Flash 10/17

May 2017

This safety flash consists of incidents having a number of unrelated themes.

1 More than a Dropped Object – the Need for Vigilance During Cargo Operations

UK Step Change in Safety has published a 'Safety Moment' describing an incident in which a car travelling along a road near a port was struck by an object. It is thought that the object was left on top of a container that came back from offshore and was being transported on a lorry travelling in the opposite direction.

The object weighed 15kg and came through the windscreen of the car, narrowly missing the driver - a mother - and her child. This incident could easily have been very much more serious.

This object became a missile when it flew off a lorry at speed

Step Change notes the following causes of dropped and potential dropped objects:

- Objects left unintentionally and not found before transportation;
- Unsecured items missed during pre-lift checks;
- Items detaching as a result of colliding with other cargo or vessel/lorry.

Step Change suggests the following helpful advice:

- Pre-transportation checks must be undertaken and given high importance;
- People responsible for loading and transportation must be observant and ensure loads are secure;

- Everyone must remain in a safe area, clear of lifts until the cargo is landed;
- All dropped and potential dropped objects must be reported to the installation and vessel owner.

Please circulate widely the 'Safety Moment' PPT presentation developed by Step Change describing this incident, which can be found here.

Members may wish to refer to the following incident (search words: *cargo, object*):

- IMCA SF 19/14 – Incident 3 – *Near miss: dropped object from cargo.*

2 Unsecured Cargo Inside Containers

Two incidents are highlighted here in which cargo was damaged because it was not properly secured.

Incident 1

A member has reported an incident in which cargo weighing 1.5 tonnes was damaged during transportation when it was returned to the supplier by road. The cargo was placed unsecured within a half-height container and was allowed to move freely. Whilst the damage was minor, the incident highlighted several very serious issues that posed a risk to the truck driver, the truck, as well as other road vehicles and pedestrians.

- The truck could have become unstable due to the shifting load affecting handling and braking;
- This situation could have caused damage to the strops used to secure the half height container to the truck leading to a lost load.

A finding in this case was that there had been a breakdown in communication between the lifting crew, a third-party technician and the truck driver, which led to a failure to secure the load within the container.

- Ensure that any cargo or equipment is confirmed to be adequately secured for transfer before it is lifted;
- Ensure good communication between those responsible for the cargo, lifting teams, and transportation teams ashore;
- Ensure that it is clearly understood who has responsibility for confirming the security of equipment when it is lifted in containers.

Incident 2

Step Change UK reports an incident in which an unsecured motor in a cargo carrying unit (CCU) fell to deck as it was being secured. No-one was harmed but the motor, which weighed 95kg, was extensively damaged.

When opened, a CCU was found to be a shelved unit containing two palletised blower motors each weighing 95kg – one on the lower level and the other on the shelf. It was intended to remove only the lower motor and send the second (upper) motor back onshore for reloading. The upper motor was not secure and moves were made to secure it before back loading. As crew climbed onto the shelf in attempts to secure the motor, its pallet shifted and tipped forward. The motor fell from height onto the deck, causing extensive damage to the motor. No one was injured during the incident, but had there been crew in the way, this could have resulted in serious personal injury. See the full alert here.

Members may wish to refer to the following incidents (search words: *cargo, unsecured*):

- IMCA SF 17/09 – Incident 2 – *Loading and securing of containers;*

- IMCA SF 10/13 – Incident 2 – *Loading and securing of cargo.*

3 Damage to Rescue Boat During Lowering

A member has reported an incident in which a rescue boat (FRC) was damaged as a result of it being lowered in its davit during a scheduled drill. During the process of being swung out, the FRC experienced a load imbalance causing it to list heavily on its starboard side. This resulted in the starboard load bearing rod being dislodged from the boat foundation, which in turn meant that the boat could not be lifted back up using its single arm davit. No personnel were in the boat so there were no injuries – but the FRC was damaged.

FRC listed to starboard, showing canopy parted

Showing failed starboard load bearing member

Our members' investigation revealed the following:

- Following the Masters instructions, crew proceeded to lower the boat up to water level;
- The boat was swung out on the davit without removing the shipside securing chain before launching;
- The crew continued to hoist the boat with the help of motor; the boat started tilting to port side, until the whole load of the boat came onto the starboard side supporting rod;
- Structural integrity of the boat: pictures taken during drill reveal that the engine door was not in place on the canopy before lowering. It is important to ensure the structural integrity of the boat before launch;
- Due to more load on the base of the starboard side supporting rod, the boat top canopy sheared off from the foundation. At that point, the Master suspended the operation.

The following lessons were learned:

- More effective command and control should be exercised by vessel management during small boat operations, particularly launch and recovery;
- Careful checks should be carried out by designated personnel before lowering the boat, to ensure that everything is properly prepared and ready;
- The vessel management and crew resourcefully managed to recover the damaged boat using the provisions crane, but there was no proper Management of Change (MoC) procedure initiated, leading to the potential for a second, possibly more serious incident;
- Thorough review to take place of company procedures and training for small boat operations, including preparation of video and photographic training material.

Members may wish to refer to the following incidents (search words: *boat, davit*):

- IMCA SF 10-11 – Incident 2 – *Lifeboat drill – near casualty*;
- IMCA SF 09-12 – Incident 1 – *Inadvertent lowering of lifeboat.*

4 Near Miss: Incorrect Rigging of Life Raft Hydrostatic Release

IMCA's attention has been drawn to a near miss in which it was found that the hydrostatic release on a life raft was not correctly rigged. This was discovered following the replacement of a life raft. It was noticed that if the collar on the Senhouse slip was lifted for life raft launch, it would not release the strap as the lashing that connected it to the hydrostatic release unit was tied too tightly, so the arm would not easily slip through and release. This was due to the hitches in the lashing being carried on too far up towards the slip, not leaving enough room for the arm of the slip to move sufficiently.

Lashing tied too tight where usually connected to Senhouse slip

The following points are to be noted:

- The Senhouse slip should not be attached through a lashing and should be directly attached to the hydrostatic release unit;
- Hydrostatic release units are fitted with a yellow plastic that aids the release of the Senhouse slip when released. If fitted through a lashing, this can create friction making the operator unable to launch the life raft safely;
- The lashing can still be used in the securing of the life raft, but in a different position. Care should be taken to ensure that the painter line is tied through the red ring on the Hydrostatic release unit.

Further information on correct securing of life rafts can be found in the UK Marine & Coastguard Agency (MCA) Marine Guidance Note 343.

Correctly stowed HRU on life raft

Incorrectly rigged HRU.

5 Line Parting as a Result of Socket Failure During Grapnel Operations

A member has reported an incident in which a line parted during grapnel operations. The incident occurred as grapnels were being recovered during attempts to snag, capture and recover a cable on the seabed.

The end of the rope pulled out of its socket, releasing the rope down the aft deck and overboard. A bar at the stern was damaged and a camera and floodlight were carried overboard.

Parted rope on deck

Resulting damage to Atlantic bar

Our member noted the following:

- Higher than expected tensions were experienced during the recovery. At the time of the incident rope tension was observed to be 175kN;
- During watch handover, the situation regarding high tensions (averaging 130-140kN) was properly explained;
- The aft deck and "Snap Back Zones" were kept clear as per normal practice;
- The "Atlantic bar" was in place on the stern sheave;
- All ropes had been inspected (as per toolbox talks conducted and recorded) during pay-out and recovery, and there was no sign of excessive degradation to the failed rope or fitting prior to the incident;
- The recovery of the grapnels at higher than expected tensions, handover and safety briefing in unusual operation conditions, and back deck/snap-back zone safety were all handled diligently and professionally;
- The rope failed at less than the minimum breaking load (MBL) of the rope, which was 25.0 tonnes:
  - tensions of up to 200kN (app. 20 tonnes) had been experienced during the recovery
  - the working load limit (WLL) of the rope would have been 12.5 tonnes (app. 125kN) which was adequate for the expected tensions (app. 100-120kN / 10-12 tonnes);
- **It is possible that the rope socket had gradually degraded over the previous 10 grapnel drives, but with no obvious visual signs of having done so.**

Members may wish to refer to the following incident:

- IMCA SF 06/13 – Incident 2 – L*oss of ROV after umbilical termination failure and damage to ROV during recovery***.**

6 LTI: Contact with Refrigerant Gas Causing Hand Injury

What happened?

An engineer suffered a freezing burn to his hand when there was a leak of refrigerant gas while he was refilling a vessel's central air conditioning (AC) system. When the job was completed, the engineer closed the proper valves, disconnected the refrigerant gas bottle, and started the motor to check for any leaks in the system. The AC system was up and running at that time.

But the engineer decided – with the AC compressor running – to give one last torque to the valve to once more ensure it was properly torqued. He crouched and placed himself in front of the point of connection to the hose – "in the line of fire". Unfortunately, he inadvertently opened the valve instead of tightening it further. It is considered likely that the pin of the ratchet wrench had moved to the opposite position and the engineer did not check the direction of the torque.

There was an immediate refrigerant gas leak towards him. He put his left hand on the leak and tried unsuccessfully to close the valve with the ratchet wrench with his right hand. At that moment, a colleague pushed the engineer out of danger and was able to close the valve in a safe manner.

The engineer's gloves were initially frozen on; once they were off, his hands were placed in running water. He suffered severe second degree freezing burns to both hands. He was treated on board with the telephone guidance of a doctor, and subsequently transferred ashore for hospital treatment.

It was noted that the client was not made aware of the incident by the contractor until the following morning, and therefore the client (operators) emergency response organization was not notified nor mobilized. The on-board vessel crew did not immediately realize the severity of the injury and therefore did not communicate it immediately to the client.

What were the causes of the incident?

Refrigerant gas Freon™ 404A reaches temperatures of around -46°C when it is released (i.e. decompressed).

- Lack of risk assessment and proper preparation:
  - there was no proper risk assessment nor job safety analysis (JSA) conducted for the task
  - there was no awareness of the dangers involved
  - there was no knowledge of the MSDS for this refrigerant gas;
- Line of fire:
  - the point from which the leak occurred pointed towards the operator
  - the engineer placed himself "in the line of fire" in front of the point of connection to the hose
  - there was improper intervention on 'live' equipment without proper safety precautions;
- Procedures:
  - the engineer did not check the torque direction of ratchet wrench before use, therefore he torqued the valve in the wrong direction;
- Personal protective equipment (PPE)
  - the engineer was wearing fabric gloves instead of proper thermal protection gloves as recommended in the MSDS
  - thermal protection gloves were not available on board nor had the need for them occurred to the company.

Consequences

- Eleven days in hospital including intravenous medication and surgery to the burnt hands;
- Following discharge from hospital, a further month of physiotherapy before the injured person was fit for work.

Actions:

- Proper training in job risk analysis, risk assessment and “line of fire” for crews;
- Permit to work (PTW) to become mandatory for work on high pressure equipment;
- Rotate the position of the discharge point of the compressor so as not to point towards workers, and addition of safety/retention valve (Schrader type valves) on compressor discharge lines;
- Provision of proper and specific thermal protection gloves;
- Reassessment of chemicals used on board and their MSDS;
- Ensure that client/operator is informed of any and all injuries on board contractor vessels on hire as soon as possible.