

IMCA Safety Flash 09/18

April 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 Dropped Object – Intermediate Bulk Container (IBC)

What happened?

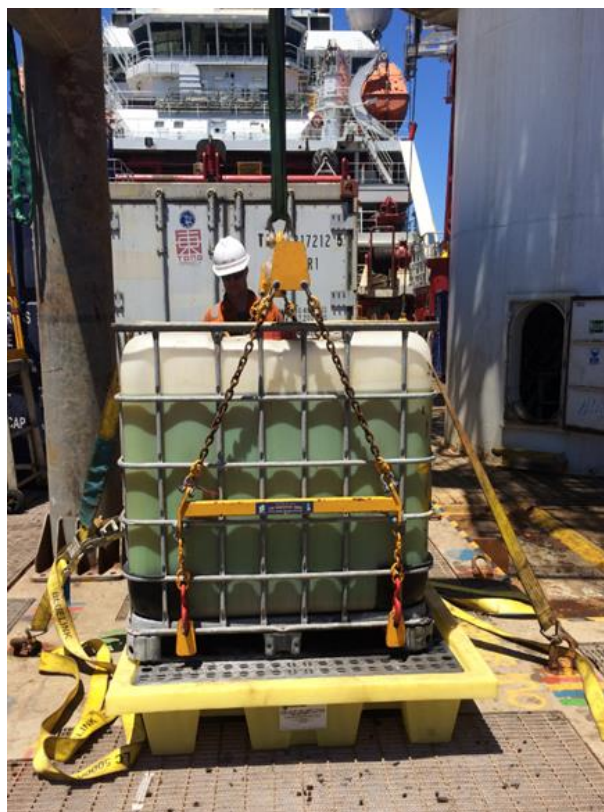
An intermediate bulk container (IBC) was dropped from a crane to deck. The incident occurred when a vessel crane was being used with a certified lifting device to lift and move an IBC containing 1000kg of monoethylene glycol. As the IBC was moved, the liquid inside was sloshed around (owing to the ‘free surface’ effect) which changed the centre of gravity. This change in the centre of gravity caused the IBC to rotate, resulting in the lift rigging device being unable to support the load. Subsequently the IBC fell approximately 3.5 metres to the deck and burst open, spilling the contents. The spill was contained onboard with no pollution to the environment.



Result of dropped object – IBC after loss of load



An IBC stored within appropriately designed lifting frame (note lift points at top of frame)



Lifting arrangement used in this incident (re-enactment)

What went wrong?

There was no adequate risk assessment of the effects of the possible combination of:

- ◆ The 'free surface' effect in the liquid within the IBC;
- ◆ Vessel movement in sea states (within limits and minor);
- ◆ Crane movement.

The rigging installed to lift the IBC – whilst certified – was of incorrect selection which created:

- ◆ Minimal resistance to side loading;
- ◆ The lift bars were able to slide under the base of the load;
- ◆ The load was lifted below the centre of gravity.

What were the causes?

Our members' investigation is ongoing, but the current cause analysis determined:

- ◆ Inadequate risk assessment of the lift;
- ◆ Inappropriate selection of rigging arrangement;
- ◆ Inappropriate design of storage equipment/containers for liquids which require movement in the offshore environment.

What actions were taken? What lessons were learned?

- ◆ Review and re-assess the selection and use of liquid storage containers;
- ◆ Review and re-assess the lifting and rigging arrangements in accordance to identified international standards;
- ◆ Lift plans and associated risk assessments should include not only lifting and rigging arrangements but also possible movement of loads within storage containers which may affect centre of gravity.

Our member also prohibited the lifting of IBC's utilising 'pallet' type rigging arrangements, and made arrangements to transfer all IBCs into appropriately designed and certified lifting frames.

Members may wish to review the following incidents:

- ◆ [Uncontrolled rotation of 9.6m reel](#) [investigation revealed a failure to recognise the importance of a change in the centre of gravity of a large and complex structure]
- ◆ [Fatality during lifting operations](#) [early investigation noted that a heavy load moved in an unexpected way for a number of reasons, including induced momentum from crane swing, induced spin from offset of the centre of gravity, and vessel motion from sea state]
- ◆ [Dropped pallet during loading of stores](#)

2 BSEE: Potentially Catastrophic Crane and Lifting Incidents

What happened?

The United States' Bureau of Safety and Environmental Enforcement (BSEE) has published Safety Alert no. 329 relating to four recent safety incidents involving cranes and lifting devices:

- ◆ While picking up a 'slick joint' to connect to a blowout preventer (BOP) stack, the joint, weighing over 19 tonnes, became dislodged and fell across the derrick, causing structural damage. No personnel were in the drop zone at the time of the incident;
- ◆ During the lifting of a diesel tote tank from a supply vessel, when the tank was around 1.5m off the deck, the fast line parted and about 40m of cable, crane headache ball, and tote tank fell to the deck. Failure of the crane

was caused by a frozen boom tip sheave, which caused the running line to jump the sheave. No personnel were in the drop zone at the time of the incident;

- ◆ A crane boom fell freely, hitting the side of a jack-up rig and puncturing a hole in a diesel tank. The cause of the failure was missing retaining rings that held the pawl pin in place, causing the pin to dislodge. 38 barrels of diesel fuel escaped into the environment as a result of this incident;
- ◆ During lifting of tubing from a rig to a workboat, one tubing joint slid out of a bundle of 12 joints and fell around 40m to the deck of the workboat below. The joint landed on an empty cutting box, puncturing the lid and then fell to the deck of the boat. No personnel on the boat were near the area of the cutting box and there were no injuries.

What actions were taken? What lessons were learned?

The BSEE recommends the following:

- ◆ Ensure that proper planning is conducted prior to lifts. This planning should include a review of drop zones, identification of safe zones while the lift(s) occur(s) and verification that all participants are trained in the work practices to conduct lifts and/or perform inspections;
- ◆ Review the mechanical integrity program to verify that crane maintenance and inspections are being performed according to company, crane manufacturer and regulatory requirements. Special consideration should be given to:
 - accessibility and inspection of a crane’s boom hoist lock pawl cylinder assembly
 - outer diameter measurements of boom, main, auxiliary and pendant cables
 - documentation on the installation date, manufacture date and identification information for boom, main, auxiliary and pendant cables
 - inspection and lubrication of sheaves; and,
 - ensuring that wire rope size and sheave sizes are compatible;
- ◆ Verify that loads are centred, balanced and secured prior to initiating lifts.

The BSEE Safety Alert No. 329 can be found on the [BSEE website](#).

Members may wish to refer to the following guidance:

- ◆ [Guidelines for lifting operations](#) (IMCA SEL 019)
- ◆ [Lifting operations](#) (video)
- ◆ [Lifting equipment](#) (video)
- ◆ [Risk assessment](#) (video)
- ◆ [Safe Lifting](#) (video)

Members may also wish to refer to the following incidents:

- ◆ [Incidents involving poor crane operations](#)
- ◆ [Lifting incident](#)
- ◆ [Near-miss: dropped object from crane](#)

You can also search through our published safety alerts by typing key words, such as lifting operations and dropped objects, into the ‘search safety flashes’ bar on the [IMCA safety flash web page](#):

Search safety flashes ... 

3 Worker Hit by Steel Plate Falling from Crane

What happened?

The UK Health & Safety Executive (UK HSE) reports that a company has been fined after an employee was injured when he was struck by a steel plate that fell from a crane.

What went wrong? What were the causes?

A person was carrying out work on a new metal staircase which was under construction. The task involved using a crane to lift a steel sheet attached to a magnet, but the sheet became detached from the magnet and fell, striking the injured person on the back and causing severe back injuries. The worker fractured his spine and has been unable to continue working as a steel fixer.

The UK HSE investigation found that the company had failed to ensure that the lifting equipment was of adequate strength and stability for each load. Whilst the safe working load was 1000kg, the magnet had to be de-rated to take into account the thinness and the length of the metal being lifted. The company also failed to ensure that the lifting operation was planned by a competent person, appropriately supervised and carried out in a safe manner.

The full press release can be found on the [HSE website](#).

Members may also wish to refer to the following incident:

- ◆ [LTI as a result of load dropped from lifting magnet](#)

4 Missing Protection Cover Becomes Potential Dropped Object

What happened?

The Marine Safety Forum (MSF) reports a near miss incident in which a small protective cover was lost from the deck of a vessel, and was later found in the pocket of a five-foot container which had been offloaded ashore. This could have been a serious high potential dropped object risk to the crew, shore-side workers and to the general public.



What was the cause?

An investigation revealed that the rubber which keeps the deck covers in place was in poor condition and this enabled them to become loose and be washed out during heavy weather. It was also observed that inadequate inspection and maintenance had been contributing factors.

What actions were taken?

A temporary deck cover was made to remove the tripping hazards created by the missing cover. New covers were ordered and delivered on board. Further recommendations were:

- ◆ Check the condition of the covers on a regular basis;
- ◆ The inspection of the covers should be part of the onboard planned maintenance system;
- ◆ After any heavy weather, deck crew should visually check the deck and if a cover is missing, try to locate the cover before discharging any cargo. This is to help prevent the possibility of dropped objects.

The MSF alert can be found on the [MSF website](#). Members may also wish to review the following incidents and videos:

- ◆ [Near miss: dropped object from crane](#)
- ◆ [Dropped object incidents](#)
- ◆ [Near miss: missing nut and split pin on shackle](#)
- ◆ [Technip Drops \(video\)](#)
- ◆ [Safe Lifting \(video\)](#)
- ◆ [Risk Assessment \(video\)](#)

5 Load Fell from Trailer After It Was Inadequately Secured

What happened?

Two articulated lorries with 20' trailers were organised to move equipment, including lifeboat davits, a power-pack, winches and sheave blocks, from one location to another. The first trailer was loaded inside a shed, then driven outside to complete lashings and allow simultaneous loading of the second trailer. During the movement of the first trailer, the free end of a single lashing became entangled in the tractor unit wheels, breaking the strap and allowing part of the load to topple from the trailer onto the roadway.



The winch after the incident – shown here correctly secured with ratchet straps



Position on road where winch came to rest



Position where snatch blocks came to rest

What went wrong? What were the causes?

The loads were inadequately secured on the trailer, resulting in a davit winch and two sheave blocks falling on to the road. This incident had potential for personal injury and damage to other road users.

The loose end of the strap securing the winch and blocks was not stowed correctly. The driver took the vehicle out of the shed to allow the second collection trailer to access the shed, and continued to drive out of the front yard area, then proceeded to take a wide arc left over the middle of the port's road. A loud bang was heard as a winch and two snatch blocks fell from the vehicle. A worker witnessed a loose strap flapping on the trailer's nearside, before hearing the loud bang. However, the vehicle was too far away for him to intervene.

The incident area was made safe by removing the fallen equipment from the road to the shed. Other than surface damage, the equipment appeared to be unharmed. Additional ratchet straps were placed on the winch for extra security.

What lessons were learned?

- ◆ The winch was a heavy piece of equipment with a high and offset centre of gravity, rendering it an unstable load;
- ◆ A conventional pallet was unsuitable for the type, shape and size of the equipment. Consideration should have been given to shipping the items in half height containers;
- ◆ There was a failure to effectively secure the load before movement of the truck, and there was poor practice in not securing the free end of a securing strap;
- ◆ A dedicated loader or dispatcher should discuss loading arrangements with the driver;
- ◆ The driver should remain in a safe area during the loading operation;
- ◆ Vehicles with an open flatbed should have their loads secured before entering and exiting the worksite.

Members may wish to refer to the following incidents:

- ◆ [Loading and securing of cargo](#)
- ◆ [Unsecured cargo inside containers](#)