

IMCA Safety Flash 03/16

January 2016

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 webmaster@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.

Summary

In this Safety Flash, in order to facilitate timely distribution of incidents, we must cover a range of subjects rather than focus on one particular area.

In the first incident, someone loses an eye by being in the line of fire of stored pressure release; two incidents involve personnel transfer in the offshore renewables sector; there are two incidents of spontaneous combustion of towels in the laundry, and a case of damage to pressurised cylinders during loading operations.

I Lost Time Injury (LTI): Stored Pressure Release - Crewman Lost an Eye

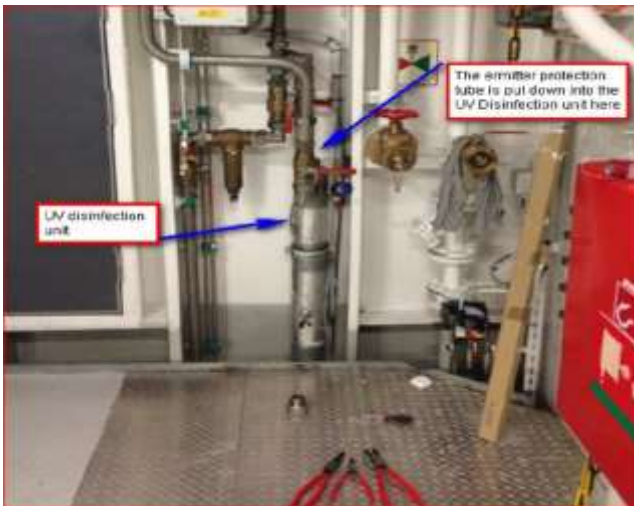
A member has reported an incident in which a crewman lost an eye during a stored pressure release incident. The incident occurred during maintenance work on the UV disinfection unit for the freshwater system on an offshore vessel. The job was installation of the emitter protection tube. As the injured person started to tighten the tension screw, it appears that he inadvertently touched the inlet valve handle – opening it by a third. This led to water running into the UV disinfection unit, building up pressure below the emitter protection tube and forcing it out through the opening. The glass element hit the injured person on the forehead and smashed. He was hit in the face and eyes by pieces of glass, and was brought to hospital for surgery. The doctors were unable to save the left eye.



Emitter tube and UV-filter ready to be inserted



Investigations revealed the inlet valve was approximately 1/3 open



Actual system on-board.



Emitter protection tube lowered into the filter (picture from another vessel).

Our members' investigation revealed the following:

- ◆ The injured person (a 2nd Engineer) had dismantled the UV disinfection unit on other occasions and was therefore familiar with the equipment;
- ◆ The UV sterilizer has a vendor user manual which indicates which valves to close and how to change out the filter;
- ◆ The shut off valves before and after the UV disinfection unit were closed. The bypass valve was open. The valve upstream of the shut off valve ahead of the unit was open. The fresh water inlet supply was also not shut off;
- ◆ The following direct causes were identified:
 - The hydrophore pump was running and building pressure into the system
 - The 2nd Engineer wanted to verify the correct position of the seal ring so he used a torch and bent over and placed his head directly over the tube
 - Type of valves – It was possible to open the water inlet valve by accident due to the type of valve handle, which led to water running into the UV disinfection unit and building up a pressure below the emitter protection tube. This resulted in the emitter protection tube being forced out through the opening in the tension screw with high speed, hitting the 2nd Engineer in the face;
- ◆ The following indirect causes were identified:
 - Location/layout of pipes and valves: Tight space and difficult ergonomics
 - There was no system description in place for this maintenance task
 - There was poor risk awareness related to this specific job
 - There are gaps in compliance with vessel company requirements
 - A permit to work including a Lock out Tag out (LOTO) or isolation of the pump should have been issued for the job in accordance with company work permit system – this was not done
 - Failure to use Proper Personal Protective Equipment (PPE) – The injured person was not wearing safety glasses, as required in company procedures when working on high pressure systems.

Members may wish to refer to the following incidents (search words: *eye, face*):

- ◆ [IMCA SF 16/15](#) – Incident 3 – *Line of fire injury – man struck in face by hammer;*
- ◆ [IMCA SF 22/15](#) – Incident 4 – *Hydraulic company sentenced after employee loses sight in one eye.*

2 Crew Transfer Vessel (CTV) Personnel Transfers

A member has reported two incidents involving personnel transfer using the Crew Transfer Vessels (CTVs) used in the offshore renewables industry.

Incident 1 – Near miss: use of fall arrest devices during CTV personnel transfer

Whilst transferring personnel to a wind turbine generator tower during the hours of darkness in the winter months, a CTV was pushed onto the boat landing for approximately 10-15 minutes. During this time two persons were transferred safely. As a third person clipped on to the fall arrest device, a rogue wave hit the vessel. It was dark and the wave was unseen and unexpected. It lifted the CTV at least 4 meters up the boat landing. The crewman assisting the transfer instructed the transferee to quickly unclip from the fall arrest device to prevent himself from being picked up off the deck. He was able to do so, and the vessel quickly dropped to its previous level on the boat landing.

The Master immediately notified the company of the incident and stopped transferring personnel until there was an improvement in sea state and/or visibility. In due course the Master was happy that the safe transfers could resume, and operations continued without further problem.

The client issued a safety notice warning of the imminent worsening seasonal weather in their newsletter – this included additional instruction for CTV transfer during marginal weather conditions.

Members may wish to refer to the following similar incidents (search word: CTV):

- ◆ [IMCA SF 06/14](#) – Incident 3 – Near miss incidents during personnel transfer to offshore renewable energy installations;
- ◆ [IMCA SF 19/15](#) – Incident 1 – Near miss during transfer operations from a crew transfer vessel (CTV) to a turbine tower.

The issue of where and how to safely attach personal fall protection during transfer from one vessel to another, is one that is currently of great interest to IMCA and its members within the renewables sector, as this kind of incident has been reported several times to IMCA in recent years.

Safe transfer of personnel in general is dealt with in detail in [IMCA SEL 025 Rev 1](#) – *Guidance on the transfer of personnel to and from offshore vessels and structures*.

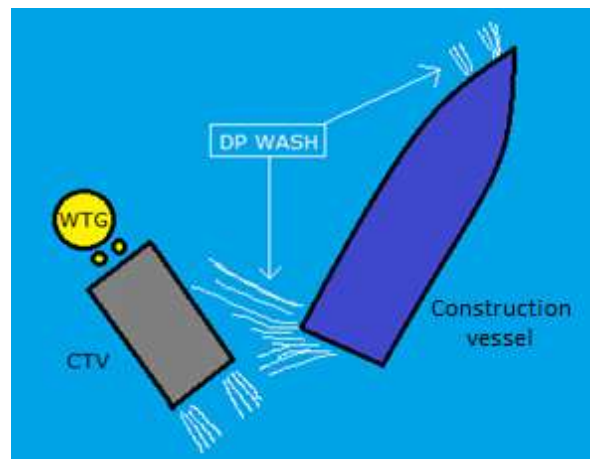
Incident 2 – Manoeuvring in close quarters to other vessels – crew transfer as Simultaneous Operations (SIMOPS)

A CTV was requested to attend a wind turbine generator monopile to transfer some personnel, whilst a construction vessel was nearby in dynamic positioning (DP) mode. The personnel were successfully transferred to the foundation, but as the Master activated astern gear and pulled away from the monopile, the CTV went through the thruster wash caused by the construction vessel (which was in DP mode). This caused the CTV to move in an unpredictable and uncontrollable way – the CTV passed within 4 metres of the construction vessel itself.

Construction vessels holding station using DP are now in common use in the offshore renewable industry; these vessels, which are much larger than crew transfer vessels, operate in DP mode whilst navigating close to a wind turbine generator monopile. It is not always possible for the construction vessel to move further away from the monopiles as they are generally constrained by subsea equipment such as cables, survey gear and construction equipment.

The client required that procedures be reviewed and reconsidered:

- ◆ When personnel are not on the wind turbine generator, the construction vessel should maintain a clear distance between itself and the tower of approximately 50m;
- ◆ After personnel have safely accessed the wind turbine tower, the construction vessel can then move into position to complete works.



Members may wish to refer to [IMCA M 203](#) *Guidance on simultaneous operations (SIMOPS)*.

3 Fire: Spontaneous Combustion of Towels

Two members have reported incidents in which there were fires in the laundry arising from the spontaneous combustion of galley towels removed from the tumble dryer.

Incident 1

The galley crew decided to wash & dry dirty, greasy towels. As soon as the laundry was removed from tumble dryer, it was folded and placed inside a stainless steel cupboard in the galley area. A few minutes later, smoke was noted coming from the cupboard. When the door was opened, the towels were found to be on fire due to self-combustion. The fire was rapidly extinguished with no injuries or further damage sustained.

Spontaneous combustion occurs when a flammable or combustible substance (in this case, the oil or grease in the towels) is slowly heated to its ignition point through oxidation, and many substances will begin to release heat as they oxidise. In this incident, the process was sped up through heating in the tumble dryer. If the heat has no way to escape (such as with a pile of laundry within a closed cupboard) the temperature will raise to a level high enough to ignite the oil and cause a fire in the laundry.



Photograph of the burned towels.



The stainless steel cupboards where the towels were kept.

Our member took the following actions:

- ◆ Galley staff briefed on laundry procedures – all laundry clothes should be checked prior to washing and tumble drying – greasy cloths covered in vegetable or animal oils should not be dried at high temperatures;
- ◆ Implemented daily toolbox talks specifically related to daily tasks for catering team;
- ◆ Ensured that the sub-contractor providing galley staff was advised of the incident and was asked to brief all employees on these hazards.

Main lessons learnt:

- ◆ Care should be taken to organise and separate different items for laundry;
- ◆ Wash thoroughly on hot cycle – Using a hot water cycle to clean oily laundry will help remove the substances more efficiently than a cold or “warm” cycle;
- ◆ Dry at proper temperatures – drying laundry at too high a temperature can greatly increase the risk of spontaneous combustion. Any residues that are left over after the wash cycle will be at a much greater risk of ignition if the dryer temperature is too high;
- ◆ Laundry should be stored in well ventilated areas; keeping the laundry room cool is important. By keeping air flow in the room, the temperature will stay lower and reduce the risk of laundry getting overheated;
- ◆ Laundry should not be folded and put away whilst still hot from the dryer – allow it to air and cool down;
- ◆ Of particular high risk are the animal and vegetable oils commonly used in the galley.

Incident 2

Burning towels were discovered in a laundry room on an offshore vessel. Whilst working in the laundry room, the steward on duty noticed a burning smell. Upon investigation a basket of galley towels was seen smouldering. The steward immediately discharged a dry chemical extinguisher on the basket. After discharging the extinguisher the towels were moved to the wash sink and saturated with water.



Showing the scene of the fire and the damaged towels.

Our members' investigation revealed the following:

- ◆ The steward reported that the towels had been removed from the dryer and placed in the basket approximately two hours before the smell was noticed;
- ◆ The towels had been used to clean up a cooking oil spill in the galley prior to being washed. After washing, the towels had been put in the tumble drier for approximately 45 minutes before being removed, folded and put in the basket.

Our member drew the following lessons from the incident:

- ◆ Most common cooking oils have a moderate to high susceptibility to causing spontaneous heating of impregnated materials – more so than mineral or petroleum based oils;
- ◆ Even after one wash, there could still be enough residue of oil in the material to cause spontaneous heating;
- ◆ The process of spontaneous combustion is more likely when the articles are warm and folded (if air circulation is reduced).

Our member took the following actions:

- ◆ Cooking oil contaminated materials should be treated the same as all other “oily rags” – if disposing of these, use a metal drum with a self-closing lid;
- ◆ If such materials must be washed, ensure that items that were contaminated with combustible substances such as solvents, grease, oils and fats are washed in very hot water with adequate detergent and rinsed thoroughly to completely remove the contamination;
- ◆ Ensure that the ‘cool down’ cycle of the tumble dryer is adequate to reduce the temperature of the items and that the items are cool before folding;
- ◆ Ensure that the lint filters in the tumble dryers are cleaned before use and that lint is not allowed to accumulate in and around the appliance;
- ◆ Articles should be removed from the dryer as soon as the drying/cooling cycle is completed.

Members may wish to refer to the following incidents (search words: *dryer*):

- ◆ [IMCA SF 07/03](#) – Incident 4 – *Fire incidents (particularly fires involving laundry tumble dryers)*;
- ◆ [IMCA SF 16/09](#) – Incident 4 – *Tumble dryer fire on-board a vessel.*

4 Breathing Air Cylinder Air Valve Broken Off

A member has reported an incident in which, during transportation of breathing air cylinders by a third party vessel, one of the air cylinder valves was broken off, resulting in a sudden release of air pressure. There were no additional damages or injuries caused.



Our members' investigation noted the following:

- ◆ Carriage was conducted without following local and international requirements for transportation of pressurized cylinders;
- ◆ Offshore industry standards for transportation of pressurized gas cylinders were not followed;
- ◆ The cylinders were transported in the horizontal position and were not properly fixed or enclosed in a box or crate of substantial construction in order to prevent damage;
- ◆ There was no evidence that Management of Change (MoC) documentation and task risk assessment had been completed for this job;
- ◆ The pressurized cylinders were handled by untrained personnel;
- ◆ The opportunity to **STOP THE JOB** was not taken – the Master and Chief officer did not stop the crew handling pressurized cylinders even though no risk assessment had been conducted;
- ◆ The risks of handling pressurized cylinders were not properly assessed and not communicated to deck crew by vessel safety officers;
- ◆ There was a lack of control for transportation of pressurized cylinders and of crew deck activities.

Our member took the following actions:

- ◆ All cylinders were stowed in a correct manner and returned to shore for inspection;
- ◆ Local safety professionals conducted a joint investigation with a third party UK Health & Safety Executive (HSE) team, to agree finds and improvements;
- ◆ Subsequently an appropriate storage basket was made available for future use, to prevent further damage and improve safety.

Lessons Learnt:

- ◆ Transportation and handling of pressurized cylinders should be conducted with extra care – only by trained/certified personnel, and an appropriate task risk assessment should be conducted;
- ◆ Local and international regulations and requirements and company procedures, should always be followed when transporting pressurized cylinders offshore;
- ◆ All pressurized cylinders should be transported in vertical “valve-up” position, secured to prevent falling or rolling, and protected from impact from any other objects by the use of an appropriate box or crate of substantial construction.

Whilst this incident did not involve actual failure of a pillar valve, it highlights the underlying principles of appropriate care and maintenance of pressurized cylinders and associated equipment, whether used for diving or not.