

IMCA Safety Flash 06/14

April 2014

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

I Fatality During Air Diving Operations

A member has reported an incident in which a diver was killed during air diving operations, whilst working from a four point dive support vessel moored alongside an offshore platform. The incident occurred when the diver was working on attaching a marker buoy near to a leak in a 12" live high pressure (800psi-900psi) water injection pipeline. This was so that the leak could be located later for repairs. The diver was working in 29m of water.

The diver successfully attached the buoy to the pipeline but it became fouled under the vessel. In order to free the buoy the diver was asked to move it to the far side of the leak. At the time of the dive, visibility was reduced as it was approaching sunset; the diver used his hat-mounted light to navigate. In addition, the tremendous noise of the leak on the live pipeline severely hampered voice communications between the diver and diving supervisor.

Once the diver had detached the marker buoy he started to move along the seabed beside the pipeline. He was on the same side as the leak. The diver appeared to look down at some debris and, as he stepped over this material, he was struck by a jet of the high pressure water coming from the damaged pipeline. All communication with the diver was instantly lost.

The standby diver was deployed immediately using the second diving basket. Within 5 minutes he had located the stricken diver who was lying on the seabed. The dive helmet (KM37) was no longer on the diver's head but was lying beside him with the neck dam still attached. Both divers were recovered to surface. All attempts to resuscitate the injured diver failed; he was later pronounced dead by a doctor who had been helicoptered offshore.

An independent investigation was conducted by an experienced third party Diving Accident Investigator and various findings were noted, including the following:

- ◆ The diving equipment was functional, in-date, certified and compliant with IMCA guidelines at the time of the incident. There is no suggestion that diving equipment failure played any part in this incident;
- ◆ A generic risk assessment was used;
- ◆ A toolbox talk was conducted verbally for the divers and the hazard was informally discussed;
- ◆ There was a flow of work instructions that started off via formal instructions contained in the Diving Service Order and email and was changed later via informal, verbal commands and radio communications between various parties as the work progressed which may have caused some confusion;
- ◆ Reduced visibility, poor ambient lighting conditions and extreme noise interfered with conduct of the dive.

The **root cause** of the incident was determined to be a lack of understanding of the level of risk posed by the leak.

Our member learnt the following lessons:

- ◆ All supervisory personnel should be conversant with industry guidelines and in this particular instance operations of this nature should be conducted in accordance with **IMCA D 006 – Diving operations in the vicinity of pipelines**:
 - “In planning to undertake damage inspection on pressurised pipelines it is important that the assessment of hazards encompasses not only the possible failure modes but also the associated risks to the diver, diving support vessel (DSV) and environment. ROV inspection should be used to conduct any initial inspection. Diver access should not occur until the pipeline has been depressurised to a level which has been established as safe through the engineering hazard assessment;
- ◆ Hazard identification and risk analysis must be carried out before any hazardous activity. The results of the hazard identification (HAZID) should be used to inform a job safety analysis (JSA) before the diver, if required, is deployed.
- ◆ Toolbox talks should be informed by the HAZID and JSA and should include all members of the dive team;

- ◆ Care should be taken to ensure that all members of the dive team have fully understood the hazards and risks involved;
- ◆ A formal documentary record should be kept of the toolbox talks, including the name of the person conducting the toolbox talk, date, time, dive no., and names of persons attending;
- ◆ Communication of work instructions to and from the vessel needs to be formalised and if possible reduced in volume;
- ◆ Environmental conditions should be taken into account in any diving operation;
- ◆ Following a serious or fatal accident it might be appropriate to consider arranging psychological counselling for all those involved.

Members may wish to refer to the following similar incidents (key words: *diver, pipeline, pressure*):

- ◆ **IMCA SF 12/01** – Incident 2: *Negative pressure injury to a diver* [when breaking containment on subsea pipework];
- ◆ **IMCA SF 14/11** – Incident 2: *Identification of differential pressures subsea during diving operations*;
- ◆ **IMCA SF 03/03** – Incident 6: *Fatality during diving operation* [on a pipeline end manifold];

2 Near Miss: Strong Sun Glare Contributes to Heavy Impact on Boat Landing

A member reported an incident in which a CTV (crew transfer vessel) made a heavy impact on a boat landing on an offshore renewable energy turbine tower. The weather conditions were 1-1.5m significant wave height, wind on the beam of the vessel and a flood tide. On this occasion the sun was low in the sky almost directly behind the turbine tower and was causing significant glare on the water. Although sunshades were in place and adjusted, the Master found it difficult to judge the final approach and landed on the boat landing in excess of the threshold limit of 200 KN. There was no damage to the vessel or injury to crew.



View as seen by vessel Master shortly before incident

Our member's investigation revealed the following:

- ◆ The heavy impact was recorded by the 'vessel black box' monitoring equipment;
- ◆ Whilst the conditions made manoeuvring the CTV challenging, more than 30 landings had already been made without incident;
- ◆ The glare made it difficult to judge the distance in final approach;

- ◆ The approach could have been delayed to allow for the glare to reduce.

Our member took the following corrective actions:

- ◆ Revision of generic risk assessment for navigation along with procedures for small vessel operations;
- ◆ Reminded vessel Masters to take into account all elements of visibility and to adjust their passage plans and approaches accordingly, including delaying a pickup, if they deem that the conditions are not safe.

Members may also refer to the following similar incident (key words: *turbine, slip*)

- ◆ [IMCA SF 16/13](#) – Incident 4: *LTI: Crewman injured foot during offshore renewables mooring operation*

3 Near Miss Incidents during Personnel Transfer to Offshore Renewable Energy Installations

A member has reported a number of near miss incidents involving a workboat used to service wind turbine towers in the offshore wind farm sector. The near misses related to marine growth on the ladders and boat landing push tubes, which became exposed during a period of exceptionally low tides.

Incidents 1 and 2

In the first near miss incident, a technician slipped whilst on the rung of a ladder on the side of the turbine tower, but recovered – there was no injury or damage. The ladder was cleaned by scraping the rungs with a sharp tool.

In the second near miss incident, some days later, a technician reported that he had caught his knee on a protruding barnacle on the boat landing push tube. His immersion suit was not damaged and he was not injured.

Our member noted the following:

- ◆ The incidents occurred at a period of extremely low tides which exposed parts of the boat landing normally submerged;
- ◆ Not all small workboats are fitted with pressure washers so cleaning of boat landings might have to be performed manually;
- ◆ The manual method of cleaning by scraping the ladder rungs with a sharp tool was not effective;
- ◆ Although there was no injury or damage, the crew correctly reported the incidents and proposed revised methods of working.

The following actions were taken:

- ◆ A change to the method of cleaning - using a stiff brush and wiping with a rag: this was implemented the next day;
- ◆ Revision of risk assessment for personnel transfer to turbine towers;
- ◆ Amendment of company procedures to reflect new technique.

Members may also refer to the following similar incidents (key word: *ladder*):

- ◆ [IMCA SF 17/13](#) – Incident 3: *Pilot ladder safety*
- ◆ [IMCA SF 11/11](#) – Incident 8: *Pilot ladder failure*

(Key issues in both – housekeeping and corrosion).

Members may also refer to the following similar incident (key words: *turbine, slip*):

- ◆ [IMCA SF 16/13](#) – Incident 4: *LTI: Crewman injured foot during offshore renewables mooring operation.*

Incident 3

A technician transferring from a small workboat to an offshore wind turbine tower was snatched by his fall arrest device when the bow fender slipped on the boat landing.

Our member noted the following:

- ◆ The bow slippage was caused by an unanticipated wave trough;
- ◆ The wind farm operator had made a recent revision to the transfer method, to ensure that the transferring technicians were connected using fall arrest devices when on the deck of the vessel and not to disconnect until back on the deck;
- ◆ This revision did not include a step where slack in the tag line is handed to the attending deckhand to ensure that the line does not become caught if the bow slips;

- ◆ Concerns were raised about who should be watching for unexpected waves as it seems that everyone was concentrating on the transfer;
- ◆ A similar incident had been reported before but the revisions to procedures made at that time as a result were not wholly effective.

Working in co-operation with the client, our member made a thorough revision of the procedures for personnel transfer in this context, particularly addressing the following:

- ◆ Slack in the fall arrest tag line should be handed to the deckhand;
- ◆ The Master is responsible for monitoring the passing wave sets and warning the crew of any changes.

Members may also refer to the following similar incident:

- ◆ [IMCA SF 06/13](#) – Incident 1: *Crew transfer vessel trapped under a boat landing.*

4 Navigational Near Miss in Restricted Visibility

A member has reported a near miss incident in which an offshore wind farm crew transfer vessel (CTV) avoided another vessel in its path during a period of restricted visibility. The incident occurred when the vessel was on passage along the designated wind farm traffic route. It entered a fog bank which resulted in visibility being reduced to less than 100m. Upon entering the fog bank, the Master reduced to minimum steerage way, posted a lookout in the wheelhouse and commenced making sound signals as required by International Maritime Organization (IMO) collision regulations. In addition to this, a second crew member prepared to mount a watch on the foredeck, and the intercom external speaker was activated to monitor for sound signals of other vessels.

Another vessel ahead was sighted at less than 100m away. It was at anchor in the wind farm traffic route. The Master immediately stopped the CTV and then proceeded slowly around the anchored vessel, which was not making any sound signals nor was an Automatic Identification System (AIS) signal noted. Although the CTV had radar operating on the 2 mile range the anchored vessel was not detected. This incident was reported to the UK Marine Accident Investigation Branch (MAIB) and the client.



Showing fog from bridge of CTV

Our member took the following recommendations:

- ◆ Amend the generic risk assessment for navigation, along with the company procedures for small vessel operations, to reflect this incident;

- ◆ Ensure Masters are aware of their radar settings, as improperly adjusted rain and sea clutter or gain settings can affect reception;
- ◆ Ensure Masters are able to use known objects such as channel buoys to confirm correct calibration.

5 Hand Injury - Grease Injection into Small Finger

The Marine Safety Forum (MSF) has published the following safety alert regarding an incident in which someone using a grease gun managed to inject grease into his arm. The incident occurred when the person was using a hand held grease gun to lubricate various grease points on earth moving plant. Medical attention was sought resulting in a lengthy operation and removal of a vein in the forearm. This was replaced with an artificial vein.

The safety flash can be downloaded from www.marinesafetyforum.org/upload-files//safetyalerts/msf-safety-flash-14.07.pdf

This is quite an unusual incident – but it has occurred before. Members may wish to refer to the following:

- ◆ [IMCA SF 16/09](#) – Incident 3 *Hand injury – injection of hydraulic fluid.*

6 Equipment Damaged by Waterspout

The United States Department of the Interior Bureau of Safety and Environmental Enforcement (BSEE) has published the following safety alert, regarding an incident in which hydraulic work-over equipment was toppled over and damaged by a waterspout which touched down nearby. A significant amount of equipment was lost as a result, but there were no injuries or loss of life.

The safety flash can be downloaded from www.bsee.gov/uploadedFiles/BSEE/Regulations/Safety_Alerts/SA-310.pdf

7 Pontoon Compartment Explosion on Floating Roof Tanks

The International Association of Oil and Gas Producers (OGP) have published the following safety alert regarding an incident in which an explosion occurred. The incident occurred at a location during restoration activities on a crude oil tank which had been cleaned up. Two workers were carrying out hot work on the top of the tank floating roof (cutting rim seal brackets in close proximity to the pontoon). One of the pontoon compartments exploded. Flammable residue was released onto the tank floor causing a small fire.

In this case, workers sustained moderate injuries. However similar accidents involving hot work on floating roofs after tank clean-up had taken place in the past and led to more severe injuries and fatalities.

The safety alert can be downloaded from http://info.ogp.org.uk/safety/SafetyAlerts/alerts/Detail.asp?alert_id=255

Members may wish to refer to the following similar incidents (key words: *explosion, pressure, fire, hot work*)

- ◆ [IMCA SF 07/01](#) – Incident 3 *Explosion Caused by Ignition of Paint Vapours*
- ◆ [IMCA SF 05/13](#) – Incident 1 *Explosion causing fatal injury during maintenance of metocean buoy*
- ◆ [IMCA SF 08/13](#) – Incident 5 *Fire Caused by Hot Work.*