IMCA Safety Flash 06/13

April 2013

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

1 Crew Transfer Vessel Trapped Under a Boat Landing

A member has reported an incident in which a crew transfer vessel became trapped when the bottom section of a boat landing fixed to an offshore accommodation vessel gave way. The master of the crew transfer vessel was not able to manoeuvre the vessel free under own power, and the vessel was eventually pulled clear by another crew transfer vessel. Some of the passengers launched liferafts and abandoned ship without any obvious instructions from the crew of the transfer vessel. Personnel were in a liferaft adjacent to the vessel when it was pulled clear and could have been run down. One liferaft was launched incorrectly and did not inflate. The boat landing was damaged, and there was minor damage inflicted to the bow of the crew transfer vessel. One member of the transfer vessel crew suffered minor bruising.

Figure: Crew transfer vessel shown trapped

During the investigation a number of immediate causes were noted, including:

- Defects or failures in design of equipment (the boat landing and the bow of the crew transfer vessel);
- Inadequate risk assessment or consideration of the deteriorating weather and sea state;
- Unexpected relative motion between the crew transfer vessel and the accommodation vessel;
- The trim and draft of the accommodation vessel.

The underlying causes were found to be:

- Inadequate structural integrity of the boat landing - inadequate design;
- Existing work procedures not adequate to the work in hand;

- The bow height of the crew transfer vessel;
- Inadequate communication.

Actions identified included the following:

- Repair, redesign and subsequent extension of boat landing system;
- Use of fall arrest equipment when transferring from crew transfer boat to accommodation vessel;
- Ensure life-rafts are properly attached to vessels;
- Development of more adequate procedures and detailed risk assessment for this method of crew transfer.

2 Loss of ROV after Umbilical Termination Failure and Damage to ROV During Recovery

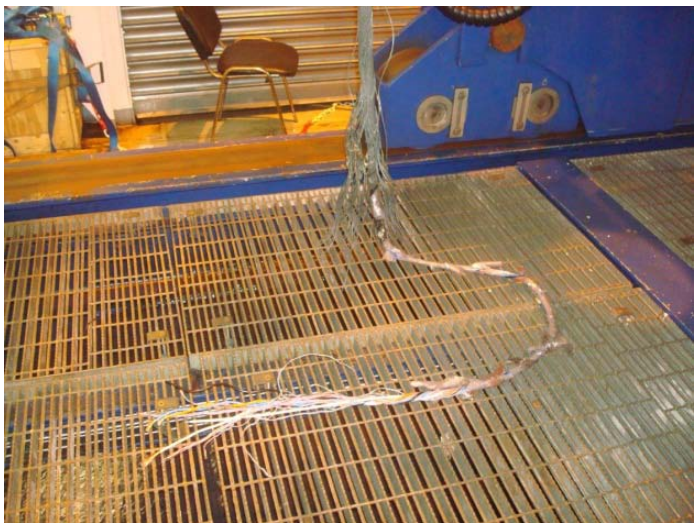
A member has reported an incident in which there was an ROV umbilical termination failure, loss of ROV and subsequent damage to the ROV during emergency recovery from the seabed. The ROV and its TMS were lost during launch of the ROV when the umbilical detached from the TMS bullet.

Umbilical Termination Failure and Loss of ROV

The launch operation was supported by 3 ROV technicians, one operating the winch from a remote controller and another the handling platform using manual hydraulic valve handles. The third person (the ROV supervisor) monitored the operation from the ROV control room. To be able to unlatch and disengage from the docking head, the operator needed to lift weight off the docking head latches. This was qualified visually by the operators. Once the bullet was lifted off and latches disengaged, the umbilical became detached from the TMS bullet. The ROV and TMS descended to the seabed and landed sideways at 298 meters water depth in soft sediments.

Emergency Recovery

Another vessel was able to assist in the recovery of the ROV. The ROV was inspected on the seabed and based on that information and the sea conditions (3m significant wave height), a risk assessment and toolbox talk was carried out between the two vessels, and recovery was considered safe and possible. A soft sling was used and attached into the bullet. The sling was routed through the legs in the bullet, and doubled back. The TMS and ROV were then recovered to deck. After breaking the splash zone it was discovered that the "tools" were loosened from the manipulator. When landing on the seabed, the front of the ROV frame was on top of the "tools". The crane driver held the ROV with 2 T tension while a tag line was attached to the "tools". When lifting off again, approximately 1 metre, the soft sling snapped. The ROV frame collapsed from the weight of the TMS (2.9 tons). There were no injuries to personnel but the ROV, TMS and umbilical were damaged.



Figures: (Left) ROV on the seabed (Right) Parted umbilical

Umbilical Termination Failure

Our member had the parted umbilical analysed by a third-party consultant, who drew the following conclusions:

- Three main factors combined to cause the umbilical to fail;
- The overall effect of these factors was a failure to wedge the potting properly into the bullet;

- If one or more of the below factors had not occurred the break point would more likely to have been above the bullet;
- The factors were:

1. The lack of seating was hindered by the rough internal surface of the bullet. The cast had not been seated properly in the socket cone, limiting the strength of the termination to the cohesion/friction between the steel wires and the cast;
2. The reported use of a booster pack, at temperatures higher than recommended, dramatically shortened the curing time, causing the wirelock to gel rapidly. It is not known whether or not this caused the insufficient filling at the bottom part of the socket, but considered as likely. The use of a booster pack at temperatures above 9°C is not in accordance with manufacturer's recommendations and is strongly advised against.
3. Un-axial loads were imposed on the termination occurred, which caused snagging. This was confirmed by several witnesses onboard. This is a result of the design of the bullet/socket allowing the bullet/socket to catch/stop when entering the docking head receptacle. Un-axial loads are likely to have been a contributory factor. It was reported by the crew that the socket occasionally got caught on the edge of the receptacle of the snubber. Normally such a scenario would be more likely to cause overload of the wires than snagging should the termination have been arranged correctly. If, as argued above, the socket was not properly seated or if sufficient filling was not achieved at the bottom of the cone, un-axial loading is likely to have instigated the failure. Un-axial loading is a possible explanation for the fact that the termination failed at a significantly lower load than the load test. Snagging may have broken the bonding between the cast and the steel wires and the wires could have worked themselves out of the cast over time until the length of wires remaining in the cast were insufficient to support the weight of the ROV and TMS.

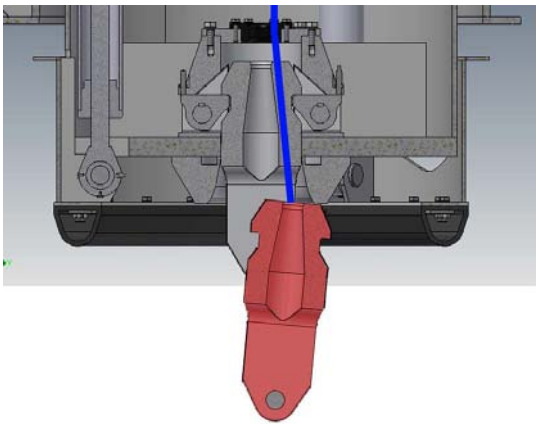


Illustration of un-axial load on cable from edge of socket getting caught on snubber

Emergency Recovery

Our member's investigation revealed the following:

- Sharp edges on the bullet cut through the soft-sling and caused the ROV and TMS to drop to the deck during landing;
- The edge inside the bullet grade was sharp and not polished. An emergency recovery strop was not installed on the TMS.

Figure: Showing sharp edges on bullet

Our member drew the following lessons from the incident:

- Umbilical re-termination procedures to be revised:
  - Prevent flat edge on the cone and use machine tools to prevent surface roughness inside the socket, all edges to be rounded and polished.
  - Use of a booster pack at temperatures above 9°C not in accordance with manufacturers recommendations and is strongly advised against.
- Emergency strop to be mounted on TMS systems;
- Bullet design to be approved and quality checked before use;

Members may also wish to refer to:

IMCA R 004 - *Code of practice for the safe and efficient operation of remotely operated vehicles*

IMCA R 011 - *The initial and periodic examination, testing and certification of ROV handling systems*

3 Near miss: Dropped Object - falling camera

A member has reported an incident in which the mounting for a fixed camera gave way allowing the camera, weighing 25kg, to fall 4 metres. Electrical cable and a gland held it in place, preventing the camera from landing on the deck. This happened in an area where personnel could have been working. There were no injuries.

Figure: Camera of the sort that fell

Our member's investigation revealed the following:

- The equipment was so reliable that it had become part of the fixtures and therefore "invisible";
- Weak fastening / mounting;
- Securing wire not fit for purpose;
- Possibility of excessive vibration from nearby machinery;
- The camera had not been identified as a potential dropped object.

The following lessons were learnt and corrective actions taken:

- Similar cameras are now secured with wire (safety sling);
- Recommended inspection routine advised based on physical and environmental circumstances.

4 Near Miss: Dropped Objects During Lifting Operations

A member has reported an incident in which pieces of angle bar slipped out of slings and fell into the sea. The incident occurred when the crew of a platform supply vessel used slings instead of a cargo basket, as the means to hoist a cargo of angle bar up to a rig.

A number of factors made this incident of particular concern to our member:

- No cargo baskets were available for this job – use of an approved cargo basket would have prevented this incident;
- The slings used were provided by a 3rd party contractor and were of uneven lengths, which caused the load to hang at an angle, and the bars to fall into the sea;
- No proper near miss report was made at the time of the incident:
  - The crane operator assumed that the incident would be reported by someone else and thus did not report the dropped object himself.
  - No report was made until 10 days after the incident.

Our member noted the following:

- Where possible, cargo baskets should be used for pipes, metal bars and other objects that can easily fall out of slings;
- Crew should be reminded that when using slings or other lifting gear, care should be taken to select the appropriate equipment for the job at hand;
- ALL incidents and near misses should be reported, no matter if one believes that someone else has reported it, or how trivial the matter may seem.

Members should refer to the following IMCA documents, in particular the pocket safety cards which are intended for use by vessel crews:

IMCA SEL 019 - *Guidelines for lifting operations*

IMCA SPP 04 - *Avoiding dropped objects*

IMCA SPC 05 - *Lifting equipment*

IMCA SPC 12 - *Avoiding dropped objects*

5 Failure of Connector on Marine Riser

The U.S. Department of the Interior Bureau of Safety and Environmental Enforcement Gulf of Mexico OCS Region (BSEE) has published the following report regarding a pollution incident involving the discharge of synthetic base mud (SBM) into the sea due to a loss of integrity of a connector on a LMRP (lower marine riser package).

The report can be downloaded from http://www.bsee.gov/uploadedFiles/BSEE/Regulations/Safety_Alerts/SA-303.pdf