IMCA Safety Flash 17/18

August 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 Floating Production Platform Evacuated Amid Power Outage

What happened?

The United States' Bureau of Safety and Environmental Enforcement (BSEE) has published Safety Alert 333, relating to the evacuation of a floating production platform in the U.S Gulf of Mexico, which occurred as a consequence of a power outage.

What went wrong? What were the causes?

- At the time of the incident, the floating production facility was operating on a single uninterruptible power supply (UPS), which failed. This failure cut automatic battery back-up to emergency power users, including the vessel management system (VMS) and operational critical telecoms;
- When the emergency generator was started, in the process of syncing the emergency generator with main power, the UPS's static bypass switch opened due to the emergency generator's frequency falling slightly out of range with normal power. When the static bypass switch opened, all loads on the emergency bus lost power as a result of these loads being dropped and an abandon platform sequence was initiated;
- Several attempts to re-establish power were unsuccessful due to the logic sequence in the VMS, which continued to send shutdown trip signals to the emergency generator circuit breaker whenever the control system rebooted. This logic sequence was hidden from the workers because the VMS ordinarily rebooted from battery power, which was unavailable. The backup script in the application did not inhibit the abandon platform shutdown signal during reboot.

What actions were taken? What lessons were learned?

The solution that resulted in power restoration was to physically inhibit (disconnect wires) to the emergency generator breaker.

BSEE recommends that operators consider the following options:

- Review 'black start' procedures to include, as a minimum consideration, the complete loss of power to the VMS;
- Consult with the original equipment manufacturer (OEM) to evaluate and make appropriate recommendations for UPS protective features and their impact on availability of sub-distribution systems;
- Review the performance of critical ventilation systems relative to their basis of design and develop a strategy to address maintenance requirements;
- Review the project engineering handover process for critical electrical systems to ensure personnel are properly trained to operate new equipment. Particularly, electrical technicians should be knowledgeable of what is necessary to power up emergency loads after failures;

- Create or review a platform evacuation procedure specifically prompted by a facility blackout. This evacuation procedure is unique because it is:
  - more urgent than an evacuation due to, for example, a hurricane
  - the procedure should consider a possibility of limited communications and reduced availability of resources due to the blackout;
- Verify that all necessary safety and environmental management system (SEMS) documentation (emergency response plans, as-built electrical drawings, piping & instrumentation diagrams, operating procedures, etc.) are up-to-date and accessible in hardcopy format.

If you have further questions not addressed in the recommendations above, contact BSEE at the number listed on the Safety Alert.

Members may wish to refer to the following incident:

- Power Loss within dive control

2 Wire Rope Sling Failed During Lifting Operations

What happened?

The Marine Safety Forum (MSF) has published Safety Alert 18-18 regarding the failure of equipment on an anchor handling vessel (AHV) during chain handling operations.

The crew were preparing a chain (76mm in length) for a decanting operation onto a semi-submersible mobile offshore drilling unit (MODU). Whilst recovering the chain, the starboard-aft tugger wire was connected to the chain, using a 6Te wire rope sling. The chain was recovered and was approximately a quarter of the way up the deck when the wire rope sling failed, causing the 76mm chain to fall onto the deck and into the AHV locker. No one was injured.

What actions were taken?

- The crew assessed the damage to the wire rope sling. After inspection, the sling was discarded;
- All the equipment used during the operation was inspected and no damage was found;
- A new 10Te sling was to be used, the chain reconnected and successfully recovered.

What lessons were learned?

- Equipment inspections should be made before any operations are undertaken;

- Ensure all lifting equipment is suitable and fit for purpose.
- A clear deck policy was in place when this incident took place – it is important to make sure that you have a clear deck policy in place when undertaking operations. This will, as in this incident, prevent any injuries from occurring.

Members may wish to refer to the following incidents

- Damaged Wire Rope Slings
- Failure Of Steel Wire Sling

3 Near Miss: Onboard O_2 Bottle Leaked into Diving Bell

What happened?

The entire contents of the onboard O_2 bottle leaked into the diving bell during a bell run at -140m, causing a much higher than normal PPO_2 reading. (2.2 PPO_2). The incident occurred when the bellman left the Oxygen add valves cracked open during bell pre-dive checks. The contents of the single 50 litre bottle drained into the bell and the bell run was aborted, due to the lack of O_2 which might have been required in an emergency.

What went wrong?

- The Bellman got distracted during bell pre-dive checks and both needle valves were left cracked open;
- There was a long delay before the high O_2 readings reached the topside analysers in dive control due to the 300m bell umbilical;
- The portable O_2 analyser in the bell was not believed because it had been unreliable in the past;
- The bell onboard O_2 pressure gauge was not easily read from inside the bell.

What were the causes

- Insufficient mechanical safeguards were in place to prevent this from happening. In the past, many saturation systems had an O_2 buffer tank installed in the bell. There was a three-way valve attached to it that would only allow the tank to be either filled or drained, but only one operation at a time could be performed. These tanks are not always present now;
- The time it took for bell atmosphere to reach the topside analyser in dive control was unusually long;
- The high reading on the bell portable analyser was not believed as it had not been reliable in the past;
- Human error was also a factor as the bellman got distracted during bell checks and forgot to close the two supply valves.

What lessons were learned? What actions were taken?

- If more than one O_2 bottle had been online, the outcome could have been worse;
- The bell run was aborted, and the bell atmosphere was flushed through;
- The bell divers UPDT was calculated and they were found to be within acceptable limits;
- The divers were stood down and monitored;
- The O2 plumbing was leak checked;
- Additional checks were added to ensure that all of the O_2 valves were secure after use;
- An additional O_2 analyser was added in the bell;
- Buffer tanks were sourced for any system that did not have one already installed;
- Portable O_2 analysers with alarms, suitable for use in the bell were sourced.

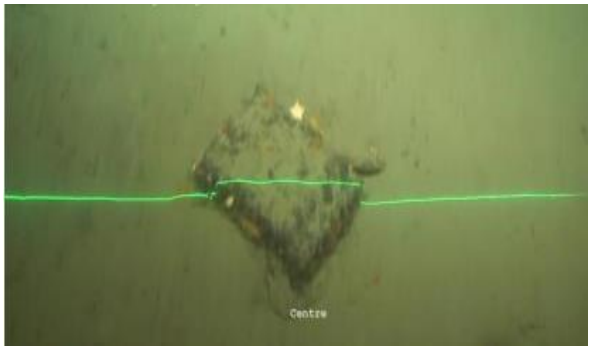
Members may wish to refer to the following incidents:

- High potential near miss: poor O_2 content in supplied air – diver temporarily lost consciousness
- Use Of Pre-Mixed Nitrox Gases
- Failure To Follow Gas Quad Procedure

4 High Potential Near Miss: Unplanned Handling of Unexploded Ordnance

What happened?

During debris removal/recovery operations being undertaken along a subsea cable trenching corridor, several items of unexploded ordnance (UXO) were bought to the surface and landed on deck with recovered debris.



During the initial phases of the operation, several boxes previously classified as concrete debris were investigated and observed to be boxes containing dumped munitions. These boxes were left in place on the seabed. Later in the operation an item recovered, believed to be 'machine parts', was recovered to the vessel deck. The box was handled by vessel crew before they realised it was a WWII munitions box. Expert advice was obtained and the UXO was returned to the seabed.

What went wrong?

Investigation determined that the likelihood of an uncontrolled detonation was low. However, since the potential risk at the time of handling was unknown, the situation was defined to be out of control and thus classified as high potential.

Our member noted a number of barrier failures leading up to the recovery of the debris:

- Contact had been made with the local Armed Forces regarding the trenching corridor. It was stated that a re-organising of this service within the Armed Forces has caused information to be lost or misplaced. The information received back from the relevant department dealing with this information was that this corridor was 'clean' and free from known WWII dumped munitions;
- A pre-survey was carried out of the area and most of the debris was located. However, none of the items were identified as potential UXOs. Machinery parts, concrete blocks, wire, barrel etc. were used to describe the findings;
- A risk assessment was completed for debris removal. However, UXO was not mentioned as it was perceived not to be a risk due to pre-survey information;
- An ROV attempted to move 'concrete objects' which disintegrated, and cartridges fell out. A cartridge magazine was picked up by the ROV and a request made for it to be brought to deck. Some cartridges were released, a magazine was released by the ROV and dropped to seabed. No 'all stop' called at this stage;
- Shift logs identified that the ROV continued to locate and move additional items of potential ammunition into subsea basket and relocated what was thought to be barrels/drums, but what were later identified to be munitions. Operations continued and no 'all stop' called;
- Personnel handled dangerous items, bringing them to deck, and one person tampered with a piece of ammunition attempting to verify its condition. Personnel raised concern to on-board management;
- Eventually the authorities were contacted, and the advice provided was to return the recovered items to the seabed.

What were the causes?

- Immediate causes:
  - lack of valid information
  - lack of correct identification of debris
  - lack of management intervention
  - lack of adherence to procedures/lack of direction
  - complacency;
- Underlying causes:
  - failure to apply suitable management of change (MoC) and adequately assess risk
  - fundamental misunderstanding of key risks.

Items recovered to vessel deck

What were the main lessons learned?

- Reinforcement required of stop work authority and MoC, specifically actions towards managers/leaders;
- Revision required for procedures covering actions to be taken in the event of discovering dangerous items such as UXO;
- Method of survey to be re-evaluated;
- Additional training and guidance to teams involved in debris clearance operations.