Near miss: Fire of electrical distribution board during diving operations

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A barge suffered a total loss of electrical power whilst air diving was in progress.

IOGP Life Saving Rules:

Work authorisation

What happened?

The incident occurred during diving operations at 18 msw, conducted from a third-party client chartered barge.

The power loss affected the barge cranes and the dive spread (comprised of diver LARS, chamber, and dive control). The uninterruptible power supply (UPS) activated for dive control and the dive was immediately aborted.

However, whilst the diver was being recovered to deck with the LARS on the back-up power supply – a deck mounted generator – a fire was reported in the barge engine room.

All personnel responded to the situation in a calm and exemplary manner and followed the appropriate procedures. Once the diver was recovered to deck, all non-essential personnel mustered to their stations whilst the situation was assessed and made safe. No one was injured and no evacuation from the vessel was required.

Our member noted that the barge, power generation equipment, and diving equipment, had been in periodic use in the same configuration for the past 5 years without incident.

What went wrong?

At the time of the incident, power was only being drawn by dive control (240v, 13A) and the HPU for the forward barge crane.

An intermittent fault in the 32A circuit had been reported; the barge Engineer was attempting to trace the fault within the engine room distribution board.

He intended to replace one of the 32A breakers. As he started to remove the faulty breaker a short circuit was created causing a flash fire across the bus bar burning all circuit breakers in that row.

What were the causes?

- The established electrical lock-out/tag-out procedures were not followed.
- There was no permit to work (PTW) issued to the Engineer.

- The Engineer carried out multi-meter checks on the faulty breaker and put in place personal protective equipment, but did not isolate the distribution board or the generator.

- Simultaneous operations (SIMOPS) were being conducted with no prior communication between departments. Work was ongoing on the main power supply at the same time as diving operations using the same main power supply.

What actions were taken? What lessons were learned?

- Crew should be informed and regularly reminded of safe systems of work.

- Lock-out/tag-out and PTW systems are there for a reason and should be used and followed at all times.

- Existing procedures are there for a reason and should be followed even if it makes a simple task more complex and more time consuming.

- Better communication and planning of SIMOPS, particularly when actions in one operation can negatively impact another.

Members may wish to refer to:

- IMCA M203 – Guidance on simultaneous operations (SimOps)