

Near-miss during subsea cutting operations

Safety Flash Published on 30 April 2012 Generated on 21 January 2025 IMCA SF 04/12

A member has reported an incident during subsea gas flame cutting in which a flashback occurred and one oxygen hose burst in two places.

What happened?

During gas flame cutting with a PVL torch, it was noticed that the oxygen bottle for the gas mixture was approaching depletion. Cutting operations were suspended whilst a new oxygen bottle was prepared. The diver reported closed valves on the torch and the deck crew closed the old oxygen bottle and unscrewed the regulator. The regulator was then screwed to a full bottle and the bottle opened. Cutting operations were about to restart when the diver had difficulty igniting the torch. After several attempts at ignition, the flashback occurred, resulting in the hose bursting around 4metres underwater and also on deck, causing a small fire. The fire was put out by deck crew. There were no injuries.

Our member's investigation revealed the following:

- There had been no flash back arrestors on the regulator side of the oxygen hoses.
- The available operations/user manual did not provide clear instructions.
- The procedures used to change out the oxygen bottle were not correct.
- The torch valve was not closed properly.

The following steps were taken to ensure there was no recurrence:

- All gas and oxygen hoses were fitted with flash back arrestors and non-return valves at the regulator side.
- Non-return valves were fitted at the torch side.
- Oxygen and/or gas quads were used instead of single bottles.
- The incorrect procedures and work Instructions were updated and rewritten, and redistributed to personnel.
- The member together with the equipment manufacturer is researching further development of equipment and instructions.

The effectiveness of the IMCA Safety Flash system depends on the industry sharing information and so avoiding repeat incidents. Incidents are classified according to IOGP's Life Saving Rules.

All information is anonymised or sanitised, as appropriate, and warnings for graphic content included where possible.

IMCA makes every effort to ensure both the accuracy and reliability of the information shared, but is not be liable for any guidance and/or recommendation and/or statement herein contained.

The information contained in this document does not fulfil or replace any individual's or Member's legal, regulatory or other duties or obligations in respect of their operations. Individuals and Members remain solely responsible for the safe, lawful and proper conduct of their operations.

Share your safety incidents with [IMCA online](#). Sign-up to receive Safety Flashes [straight to your email](#).