

Diver injury from implosion of a fishing buoy

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There have been previous safety flashes relating to 'Grimsby'-type buoys, and members are asked to note this further incident.

What happened?

Guidance relating to ROV operations is available in *Plastic spherical air-filled fishing buoys*.

During operations in 150 m of seawater to remove fishing nets from a wellhead, a diver suffered a serious hand and a wrist injury after a plastic 'Grimsby'-type fishing buoy imploded.

The operation required securing the net, wires and fishing buoys to ensure the safety of the divers in the water (from entanglement), of personnel on the deck (from the potential of explosion due to trapped pressure in the buoys) and of the vessel (from nets or buoyant objects striking or becoming entangled with the vessel). Of particular concern was the risk that fishing buoys may have been damaged whilst underwater and become partially or fully flooded at seabed ambient pressure and that when brought back to surface they might explode, causing injury to surface personnel.

These risks were recognised by the project and dive team onboard and as part of the control measures to protect the vessel and personnel the buoys were punctured subsea by the divers, using a hacksaw. This method had successfully been used on over 20 buoys on previous wells.

The divers were finding this activity physically tiring due to the buoyancy of the buoys and a change was suggested to the procedure for puncturing. The decision was taken by the dive team to change the methodology and place an initial cut on the buoy then to strike the buoy with a chisel to break the buoy. This was successfully tested on the surface.

However, when this activity was undertaken underwater a violent implosion occurred, injuring the divers. Both diver helmet diaphragms inverted and the divers were momentarily stunned by the implosion.

It has been recognised for many years that these fishing buoys pose a hazard to deck personnel and the vessel. What was not recognised is that in attempting to eliminate this hazard underwater, different hazards can be generated.

Lessons learnt

During the company's investigation it was established that there was a lack of

appreciation amongst the dive team of the forces generated due to the pressure differential across the buoy, even with such a small volume.

Also it had not been identified that the brittle nature of the buoy's shell material meant it was likely to shatter under any sharp point load.

The company has recommended that when handling such fishing buoys their buoyancy be neutralised using a remote device or that they be recovered to the surface intact, stored in a covered container and quarantined for destruction ashore.

It notes the ever-present risk of these buoys experiencing a pressure differential that could cause implosion or explosion at a weak point or contact point and stresses that personnel should not be placed at risk through direct handling of them.

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