Learning outcomes from a real time diver recovery

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During a saturation diving operation a dive team became involved in the recovery of an incapacitated diver into their bell.

What happened?

Whilst diver recovery drills are practised frequently, this Safety Flash concentrates on the feedback and lessons learnt by the team during a real incident.

The dive system had a bottom mating bell with a 6m vertical trunking going from the diving bell to the floor of the Entry Lock. In order to transfer a casualty a diver recovery hoist was used. The diver recovery hoist in the bell was to be used for both diver recovery and also to be used to transfer the incapacitated injured diver to the entry lock 6m below.

As this was a medical incident, the root causes are not relevant here.

What lessons were learnt?

Equipment:

- Diver Recovery System – During the recovery of the incapacitated diver, it became apparent that due to the fact that the diver recovery lift was capable of reaching the bottom of the entry lock, not just the bell stage, it could have become difficult to manage the consequent large amounts of loose rope during the lift. It was felt by the bell team that this had the potential to cause difficulties inside the bell for both deployment and use, especially when an incapacitated diver was recovered. A proposal was made for 2 x shorter diver recovery lifts in the bell sufficient to recover a diver from the stage into the bell and a second set of longer diver recovery lifts available at the moonpool and to be put in the trunking to allow for transfer of an incapacitated casualty from the bell to the entry lock. This would significantly reduce the amount of loose rope within the bell during a diver recovery, as well as reduce the risk of entanglement.

- Chamber Medical Kit – On examination of the chamber medical kit it was found that the Pocket Mask had a gas-filled seal. At depth the seal had compressed to the point of being useless. A different bag valve mask was used, thus was not an issue, but it highlights the need to check the chamber medical kit and that the pocket mask has a silicon face seal is not a gas-filled faced seal type.

Procedures:

- Use of Visual Observation – Close ROV observation of the diver allowed immediate recognition that "something was wrong". The ROV picture clearly showed that there was an serious incident and not just a comms issue. It is essential that a diver is monitored, either by ROV or remotely, when entering and exiting a bell during the hydrostatic change which occurs during this period.

Training:

- Realistic Drills – The dive team considered themselves fit but were surprised at the effort involved during the rescue, which reinforces the need for good diver fitness. This brought the importance of "realistic drills" into focus and the dive team requested use of a weighted mannequin when conducting the following drills:
    - Recovery of the mannequin (150 kg) from the bell stage into the bell prior to blowdown.
    - Transfer of a mannequin (100 kg) from chamber to Self-propelled Hyperbaric lifeboat.
    - It is also important that all diving supervisors are routinely exercised in the management of a diving emergencies.

Medical Personnel Involvement:

- The vessel medic also felt that it is appropriate to be more involved in the diver drills to provide a better general understanding and a chance to observe and feedback as well as gain a better understanding of the capabilities and limitations of the divers' medical skills. In addition, it was felt that all divers going into sat would benefit from a brief CPR refresher to ensure that their skills were up to date.

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