Divers helmet struck and damaged subsea by crane hook

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During subsea spool tie-in operations, a crane hook unexpectedly struck a diver's helmet.

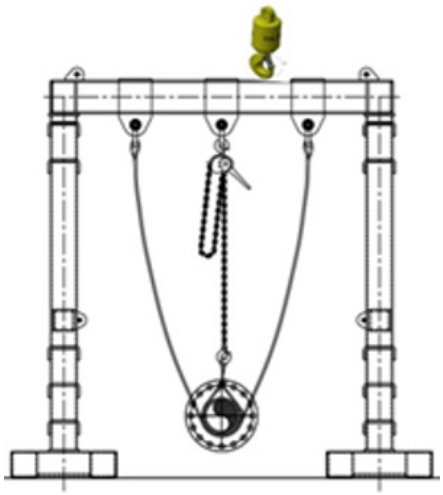
IOGP Life Saving Rules:

Line of fire

What happened?

During subsea spool tie-in operations, divers were working on the seabed in poor visibility. After landing the pipe handling frame (PHF) on the seabed, the Diving Supervisor instructed the crane operator to lower the crane hook to the seabed to allow the diver to disconnect rigging from crane. When the crane operator reported that there was 'no weight' on the crane wire, the Diving Supervisor assumed the hook had reached the seabed and instructed the diver to proceed with disconnecting the PHF from the crane.

Whilst the diver was positioned beneath the PHF and moving up to disconnect the rigging, the crane hook unexpectedly struck the diver's helmet. The diver reported that they were unharmed and well, and returned immediately to the dive bell. The dive was aborted. Upon inspection, the diver's reclaim helmet was found to be damaged beyond repair, including the side block. Despite the impact, the integrity of the helmet was maintained throughout, demonstrating the high quality and durability of the diving helmets. The diver was unharmed.



What went right?

- Diver 2 promptly assisted Diver 1, ensuring that no injuries were sustained. Both divers immediately returned to bell safely.
- Both divers and the crane block had locating beacons fixed to them enabling

accurate tracking.
- All procedures, lifting plans and Job Hazard Analysis (JHA's) were followed throughout the operation.
- Protective equipment did its job – the diver was uninjured because the impact was absorbed by the helmet.

What went wrong?

When the crane hook was lowered for PHF rigging disconnection, it came to rest on the top beam of the PHF. This resulted in a 'no weight' reading, leading the crane operator to assume the hook had reached the seabed. As the diver approached the disconnection point, the hook slipped off the beam and struck the side of the diver's helmet.

What was the cause?

- Inadequate length of crane pennant / stinger, which did not provide sufficient distance between the divers and the crane hook.
- Poor visibility, which hindered the ability to accurately observe the position of the crane hook.

Lessons and actions

- Ensure adequate distance between divers and crane hook:

– The length of the crane pennant/stinger should be sufficient to maintain a safe distance between the divers and the crane hook during subsea operations. This will reduce the risk of accidental contact with the hook, particularly in limited visibility conditions.

- Enhanced visibility aids and monitoring:

– In environments with poor visibility, alternative methods such as additional locating beacons, underwater cameras, or sonar should be considered to better track the position of critical equipment like the crane hook. Improved monitoring can help prevent misjudgements about the location of the crane hook.

- Reinforce communications, challenge assumptions!

– Assumptions regarding equipment position should be minimised.

– Clear communication and confirmation procedures between the dive supervisor, crane operator, and divers should be reinforced to ensure all parties are fully aware of the equipment's location at all times.

Our member additionally:

- Updated project procedures to specify minimum pennant lengths for different operations;
- Conducted pre-operation inspections of all rigging and lifting equipment, including crane hooks and pennants, to ensure they meet safety

standards and are appropriate for the operation;
- Updated the Job Hazard Analysis (JHA) to incorporate lessons learned from this incident, particularly regarding safe distances, visibility, and communication requirements for subsea lifting operations.