

LTI: diver injured during water jetting operations

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A saturation diver suffered a lost time injury (LTI) to his left arm during subsea high-pressure water jetting operations.

What happened?

The incident occurred when the water jet gun failed, and a part came off the gun. The diver was recovered to the bell and the water jet gun to the surface. The diver received first aid in the bell and further treatment later in the chamber. He was subsequently decompressed and transferred to hospital. Though an LTI, the injury was not severe, and it was expected that the diver would return to his duties within months.

IOGP Life Saving Rules:



Energy isolation



Work authorisation



What went wrong? What were the causes?

- Equipment failure: locking bolts on the water jet retro came loose.
- Unsafe design or construction: locking nuts did not have a holding mechanism besides the threads available.
- Improper worker training/familiarization: manufacturer manuals provided were not available at worksite. There was no awareness of the need for a planned maintenance system (PMS) for high pressure equipment of this sort.
- Improper maintenance: it was observed during investigation that maintenance was not carried out in accordance to manufacturer's recommendations.

What actions were taken? What lessons were learned?

- Management of change (MoC) prepared for required changes.
- Ensure equipment is maintained in accordance with [Code of practice for the use of high pressure jetting equipment by divers](#) (IMCAD 049) and

any manufacturer's recommendations.

- Additional controls put in place to ensure the water jetting equipment is in safe condition, including checking condition of diffuser and locking nuts.
- Further awareness briefing given to dive team regarding checks of the equipment as per the manufacturer's recommendations.

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