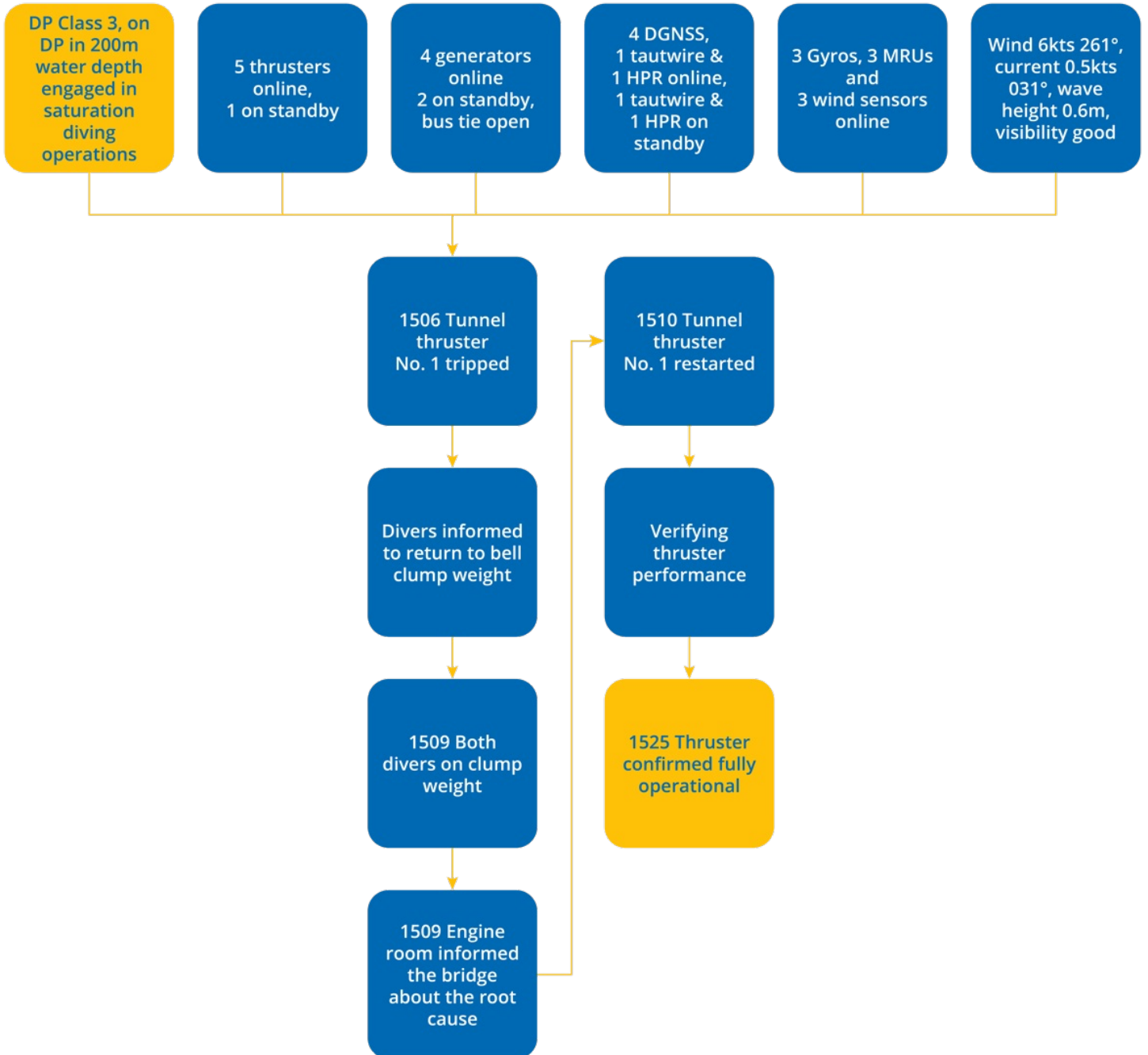


Loss of tunnel thruster

DP Event • Published on 18 February 2019 • Generated on 28 January 2026 • DPE 01/19

Voltage instability was caused by a spike load on an unrelated circuit breaker on the switchboard which tripped the thruster hydraulic pump.



Comments

During diving operations in open water, tunnel thruster No.1 tripped offline.

Investigation showed that the cause was due to tripping of the thruster hydraulic pump because of voltage instability. The voltage instability was caused by a spike load on an unrelated circuit breaker on the same switchboard which tripped. Because of the voltage drop on starboard 690V switchboard during the event some of the equipment breakers opened on under voltage:

- Tunnel Thruster No.1 due to power drop to hydraulic pump and signal command “External Shutdown” from controller to frequency converter drive.
- Starboard ER fans.

The vessel maintained position throughout the event.

Considerations

- This event highlights how unrelated equipment failure can have an effect on DP system equipment and therefore the vessels redundancy concept and needs to be considered during failure analysis.
- It is assumed that redundancy was not compromised by the tripping of the tunnel thruster and therefore it was not necessary to initiate a DP amber alert.
- It is not good practice to have four DGNSS selected to the DP controller, this could result in rejecting other selected systems if the DGNSS were to drift due to a common satellite problem.
- The root cause should have been identified and isolated from the 690v switchboard before the thruster was re-enabled.

The case studies and observations above have been compiled from information received by IMCA. All vessel, client, and operational data has been removed from the narrative to ensure anonymity. Case studies are not intended as guidance on the safe conduct of operations, but rather to assist vessel managers, DP operators, and technical crew.

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