

Wire break in wind sensor caused DP drive-off

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A Member has reported an incident in which one of its vessels suffered a DP drive-off during valve monitoring operations in open water.

What happened?

The wind was light – 5-10 knots – and there was good visibility. The vessel was on DP, with 2 x DGPS, 2 x taut wires and two wind sensors selected in the system. An ROV was in the water and the diving bell was on the surface with diving operations completed.

The DP operators noticed an increase in the thruster pitch followed by an 'off position' warning, whereupon both DGPS were deselected. The operators then noticed that one wind sensor was reading 60 knots – clearly an error – while the wind speed registered on the DP console was 35 knots as an average of the two sensor speeds.

The errant wind sensor was deselected immediately and the vessel position then stabilised at 17m from the original set-point.

The following points were noted on completion of the investigation:

- The cabling for the failed wind sensor had been routed through a junction box which had suffered water ingress due to a failed seal, effectively leading to a wire break.
- Tests showed that the errant wind sensor failed to zero or failed to maximum (60 knots) dependent upon where the wire was broken. The other wind sensors were wired differently and failed to zero at all times.
- One wind sensor had been deselected automatically as a function of the DP software, as it was registering less than 5 knots. Had three sensors been in the system, the DP would have rejected the errant signal.
- There was no alarm for the operators and the location of the manual readouts was poor in relation to line of sight for the DP operators.
- This particular failure mode of the sensors was not covered by the failure modes, effects and criticality analysis (FMECA).

The company concerned took the following actions:

- Changes to wiring of errant sensor (a filter) to

prevent recurrence of 'failure to maximum'.

- DP software upgrade to include a discrepancy alarm.
- Wire break tests conducted throughout the company's fleet to see if the problem exists elsewhere.

The potential for a serious accident has led to this DP incident being distributed as a safety flash.

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