

Backup DP Transfer Switch Functionality

Target audience for this LFI

- Vessel Management and Operations Teams on DP Vessels
- DP Technical Support, Vessel Owners/Contractors
- FMEA providers
- Classification Societies / DP Approval Authorities

What happened

During a DP control transfer drill, the Emergency changeover switch from 'Main' DP to 'Backup' DP system, located in Engine Control Room (ECR), was observed to be out of alignment. The decision was made to make the switch correction when the vessel was not in DP, so as to have adequate risk controls in place.

Later, in preparation for the task, the vessel was in Independent Joystick (IJS) mode. The DPO set up the DP backup system in standby mode as an additional barrier. When the changeover switch was turned from 'Main DP to 'Back up DP' position, control of the propulsion was transferred from IJS to DP Backup.

Why it happened

Control of Thrusters was transferred from IJS to DP backup system. All thrusters reduced the load to the demand setup in the Backup DP system (zero thrust).

The DP system has a NetIO signal telling the Thruster controllers directly that the backup has taken command. The purpose of this is to bypass the bridge utility panels in case the bridge is no longer usable. Upon the reception of this signal, the Thruster system will force the command of each thruster to DP mode. The DP in turn, will be controlled by the backup DP system, since the transfer switch is in backup mode.

In the VMS thruster module there is a configurable parameter called "Auto DP Mode", this bit is normally set to 1 by the DP vendor during installation. When set to 1 and the Backup DP switch is selected, the thruster will transfer to the Backup DP regardless of the mode (i.e. DP, IJS, Lever, Auto pilot) selected.

Lessons learned

1. Limited information on the full functionality of the changeover switch in the vendor manual. The manual references only transfer from Main DP to Backup DP.
2. FMEA and other DP tests have been focused on transferring from Main DP system to Backup DP only. The full functionality of the switch had not been tested in navigational mode.
3. Training centers, OJT and drills are focused on transferring from Main DP to Backup DP.

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Recommendations

It is recommended that owners of DP vessels disseminate this LFI to Vessel Management Teams on all DP vessels and vendors of DP FMEAs and to their DP Technical Support Function.

Actions

Vessel owner updated OJT and assessment program to include detail information on the full functionality of the Emergency Backup DP switch. Owner also sent out a Technical Information Bulletin to the DP fleet with the following actions:

1. When the vessel is disconnected from the seabed (between wells) and operations allow:
 - a. Confirm the Main/Back-Up DP Mode Selector Switch has a plexiglass cover and the switch knob screw is well tightened, utilizing a “Loctite” type material preventing becoming loose.
 - b. Confirm transfer condition on every station (Thruster manual levers, cJoy, conning station (auto pilot mode) and DP). All modes must transfer thruster control to the Backup DP station when the switch is turned to back-up DP. Notify Engineering and Marine Assurance group if test results are different.
2. Ensure the Main/Back-Up DP Mode Selector Switch is tested as part of field arrival trials as indicated in policy.
3. Confirm DPOs have a good understanding of the risk associated with this switch, that in the event that someone unexpectedly turns this switch, all thruster controls will be transferred from bridge to the back-up DP station, therefore vessels shall place a Caution sign by the selector switch as displayed below.



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