



## **IMCA DP Station Keeping Bulletin 01/20**

February 2020

The following case studies and observations have been compiled from information received by IMCA during 2019. To ensure anonymity all vessel, client and operational data has been removed from the narrative.

Vessel managers, DP operators and DP technical crew should consider if these case studies are relevant to their own vessel DP operation so that they can be used to assess and assist the safe operation of the vessel.

Any queries regarding this bulletin should be directed to Andy Goldsmith (andy.goldsmith@imca-int.com), IMCA Technical Adviser – Marine. Members and non-members alike are welcome to contact Andy if they have experienced DP events which can be securely analysed and then shared anonymously with the DP industry.

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### **The IMCA DP Accreditation Scheme**

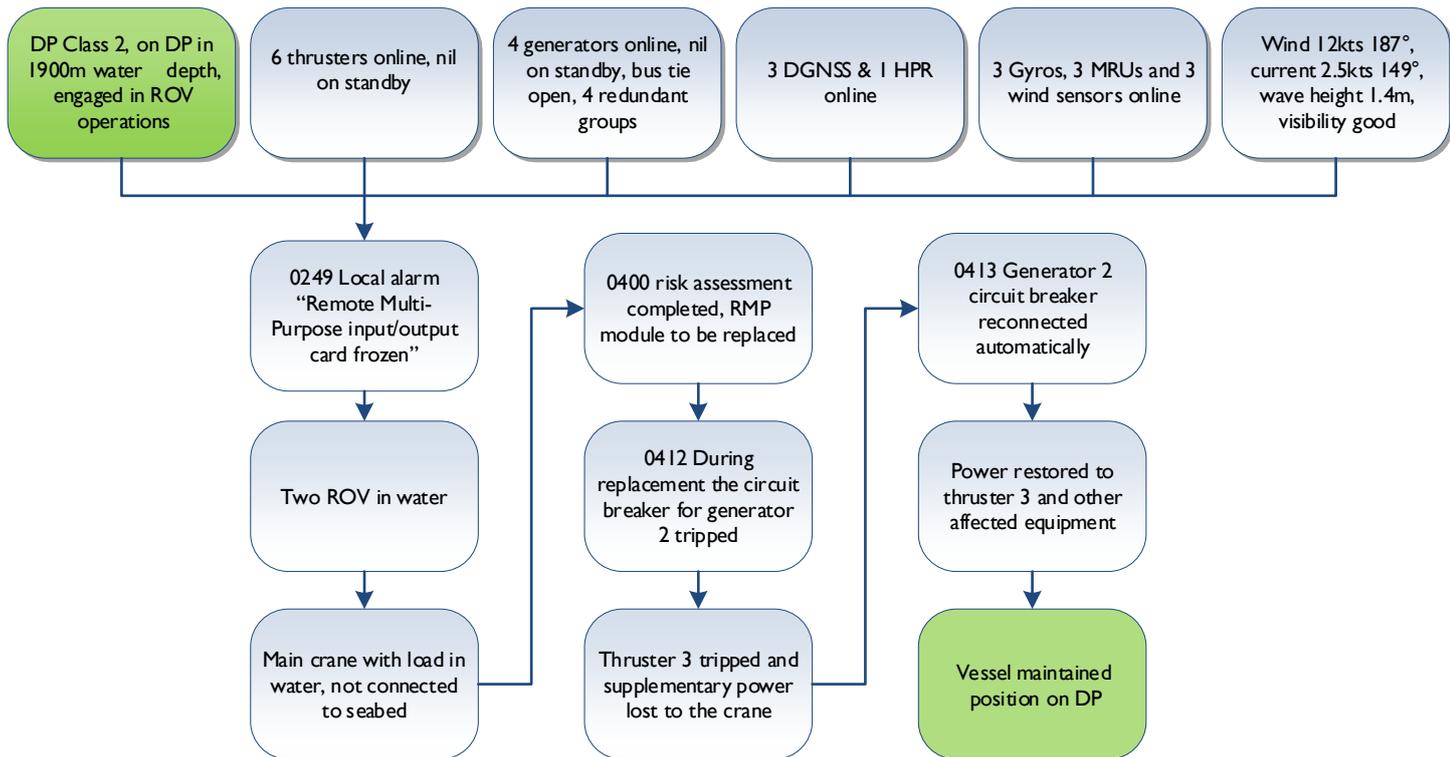
The DP Practitioner Accreditation Scheme was launched on 1 May 2019 to ensure high quality DP trials across the globe. The scheme is widely accepted throughout the industry and meets the accreditation requirements of the major energy companies. It is easy to apply for either category:

**DP Trials & Assurance Practitioner  
OR  
Company DP Authority**



For more information on the IMCA DP Accreditation Scheme, please visit our [website](#).

## DP Undesired Event Due to Online Maintenance Work



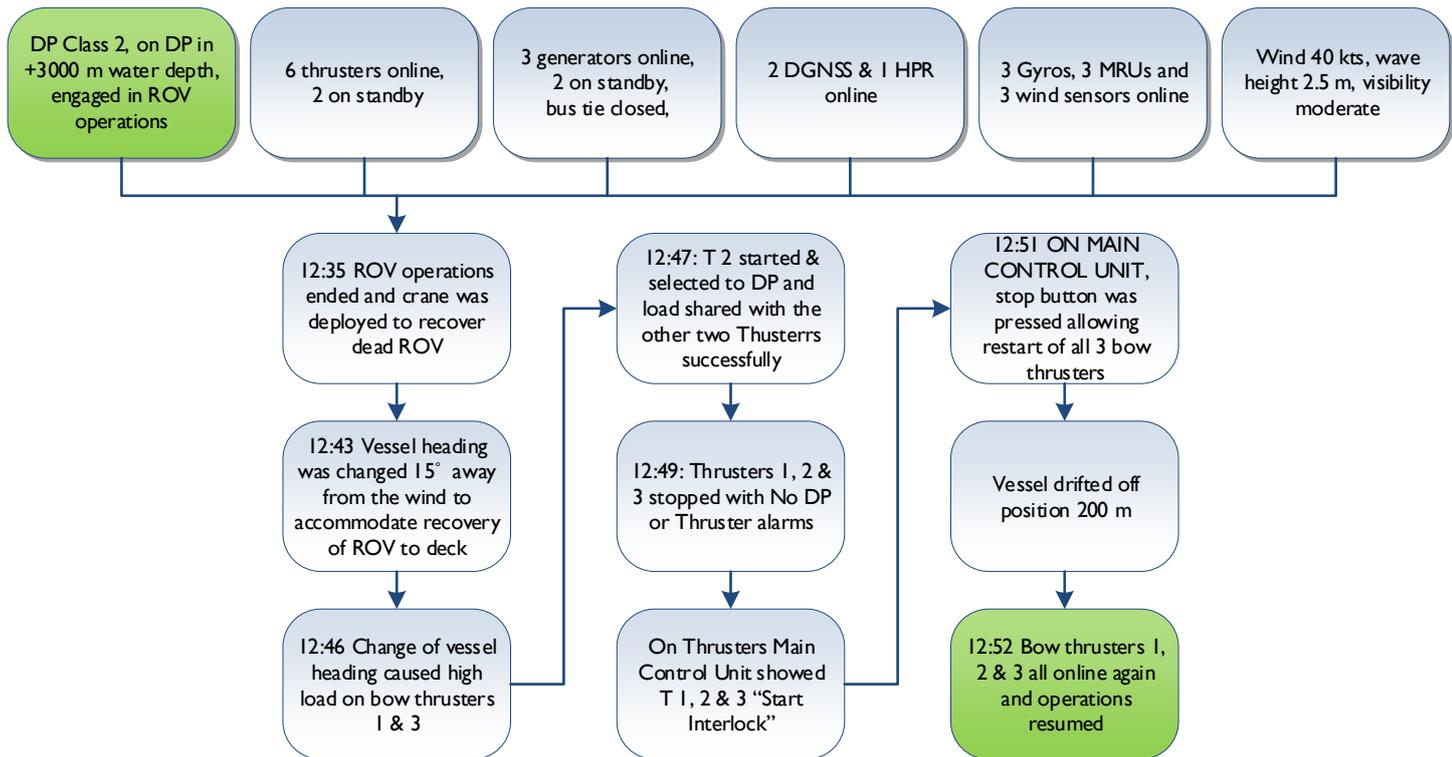
### Comments from the report:

The vessel reported that they had changed these modules in the past whilst on DP without any issues. The risk assessment had identified that the consequence would not lead to loss of equipment greater than worst case and proceeded due to the status of the vessel operations, open water and not connected to the seabed.

### Considerations of the IMCA Marine DP Committee from the above event:

- ◆ Incident validates the redundant capability of the vessel, but also potentially highlights a hidden failure leading to generator 2 failure;
- ◆ The report did not identify the root cause for the loss of equipment whilst replacing the RMP module, a successful online activity undertaken previously;
- ◆ This event highlights the benefit of considering mission equipment during risk assessments;
- ◆ It also event highlights that expected results of repairs are not always guaranteed;
- ◆ As far as is possible, maintenance or replacement of critical DP equipment should not be done while conducting DP operations;
- ◆ In this instance, it would have been prudent for ROVs to return to their TMS and the crane made safe prior to undertaking the work.

## Change of Heading Leads to DP Incident



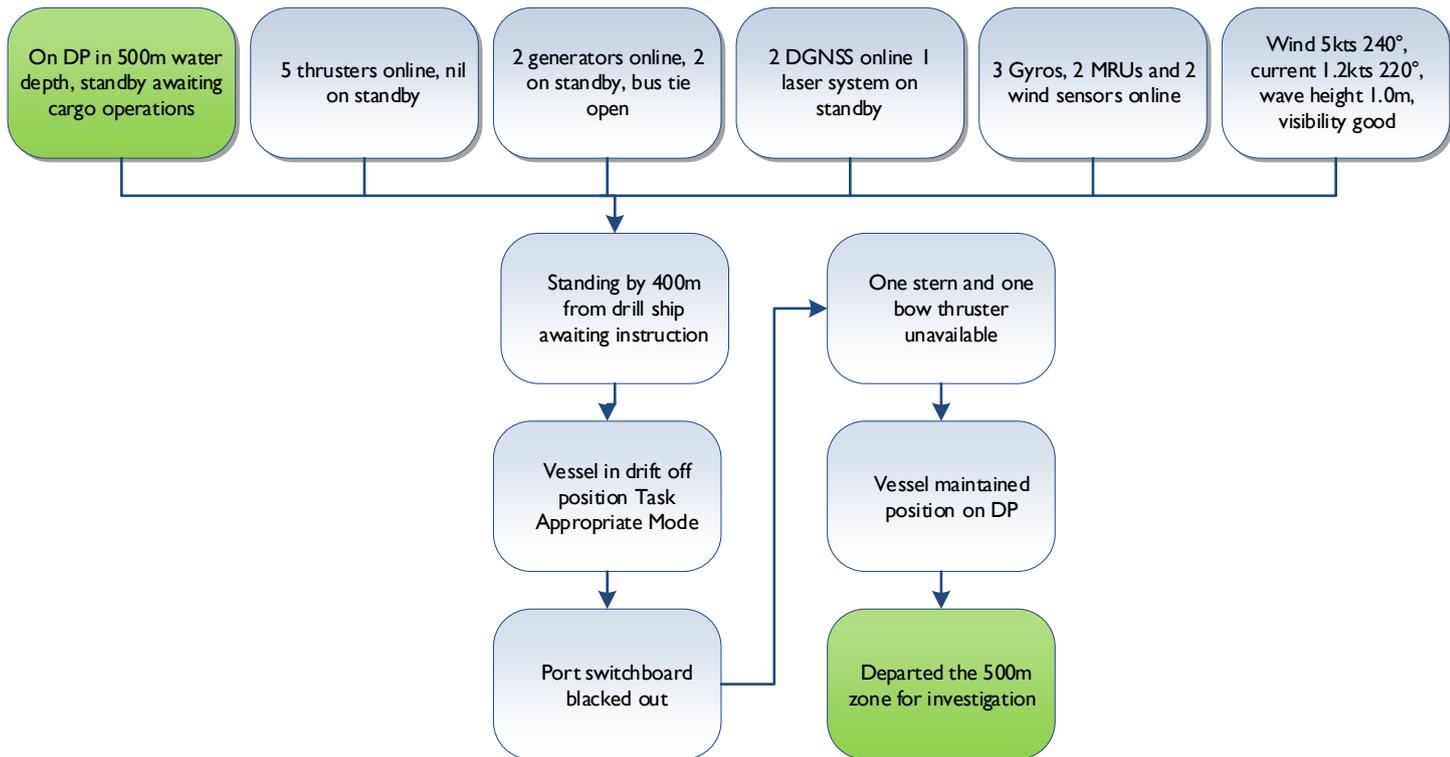
### Comments from the report:

The vessel had been on DP for the whole day and in order to lift the ROV on deck with the crane, vessel heading had to be changed 15 degrees away from the wind. This caused a high load on two running bow thrusters and the third bow thruster was started, selected to DP and successfully shared the load. Increased windward force on the vessel due to high wind velocity acting on it as it changed heading, caused all the three bow thrusters to trip on overspeed with no DP or thrusters' control system alarms! Further investigation revealed the overspeed settings were too tight and had to be increased in accordance with manufacturer's recommendation.

### Considerations of the IMCA Marine DP Committee from the above event:

- ◆ It is not clear why the additional bow thruster was not put online before the heading change;
- ◆ A simulated alteration of heading and or referring to the vessel's capability plots should have been considered to ensure that the heading change could have been performed within vessel's DP capability;
- ◆ The overspeed trip of all thrusters during DP operations shows inadequate initial commissioning and full power testing during the FMEA proving trials and annual DP trials and following any modification;
- ◆ This incident further highlights the importance of equipment protection settings with respect to DP redundancy concept, in addition to equipment safety. DP FMEAs require to consider the effects of equipment protection system on the wider DP redundancy concept. Reference [Guidance on Failure Modes & Effects Analysis \(FMEA\)](#) (IMCA M 166).

## Unreliable Component Causes a DP Undesired Event



### Comments from the report:

Investigation found that a 24v bridge rectifier supplying voltage to the main generator switchboard breakers 1 and 2 had burned out. The age and quality of the rectifier was thought to be the main reason for failure. Planned maintenance routines were updated and shared with the fleet. It was recognised that the system was vulnerable due to a single 24v bridge rectifier supplying the entire port switchboard.

### Considerations of the IMCA Marine DP Committee from the above event:

The vessel validated that it could maintain position following the worst-case failure of a complete switchboard. Though redundancy is a must in DP 2/3 designs, components quality may impact the likelihood of such DP events occurring.

## Vessel Collision with Wind Turbine – MSF Safety Alert 20-01

### What happened?

After a transfer of 4 technicians to a wind turbine, the vessel was positioned just outside the 200-meter exclusion zone for standby. The next task was to pick up the same technicians when they had completed the work they had planned. The OOW moved the vessel from the turbine to outside exclusion zone in DP surge mode. Just outside the exclusion zone, the vessel was turned to have stern on the weather, vessel was then in a 'drift on' position. On completion of turn, the OOW activated auto DP by 'double tapping' the auto DP button, but not confirming that the vessel indeed was in full auto DP before leaving the DP desk to deal with other duties. The OOW was at the time alone on the bridge. The Vessel was still in DP surge mode and by the help of the current, the vessel drifted towards the wind turbine and made contact just 6 minutes later. The vessel had a speed of 1.1 knots at the time of contact.

The vessel hit the wind turbine with the helideck perimeter netting and the bridge wing on port side of the vessel. The incident did not result in any personal injuries, and only minor damage to turbine, and vessel. No technical issues were identified during the investigation of this incident.

### Why did it happen?

1. OOW failed to comply with procedures and industry guidelines.
2. OOW did not confirm that full auto DP was activated after double tap of the button on joystick.
3. OOW was alone on bridge.
4. OOW decided to deal with some administrative task while alone on bridge.
5. Vessel placed in a drift on position.

### Corrective action and recommendations from the report

The incident was fully investigated, and a corrective action plan established including but not limited to:

- ◆ A review of Bridge operations procedures with emphasis on bridge routines;
- ◆ A review of Bridge operations training Module 1 and 2

### Considerations of the IMCA Marine DP Committee

- ◆ The incident raises a concern regarding the robustness of the double push method of confirmation;
- ◆ After requesting an action, an operator should always confirm it by remaining situationally aware;
- ◆ Bridge manning levels should be in accordance with [Guidelines for the Design and Operation of DP Vessels](#) (IMCA M 103), section 3.8;
- ◆ Personnel in the report are referred to as Officer of the Watch (OOW) and not DP Operators (DPO). Key DP personnel should have training and experience in accordance with [Guidance for the Training & Experience of Key DP Personnel](#) (IMCA M 117).