

IMCA DP Station Keeping Event Bulletin 04/16

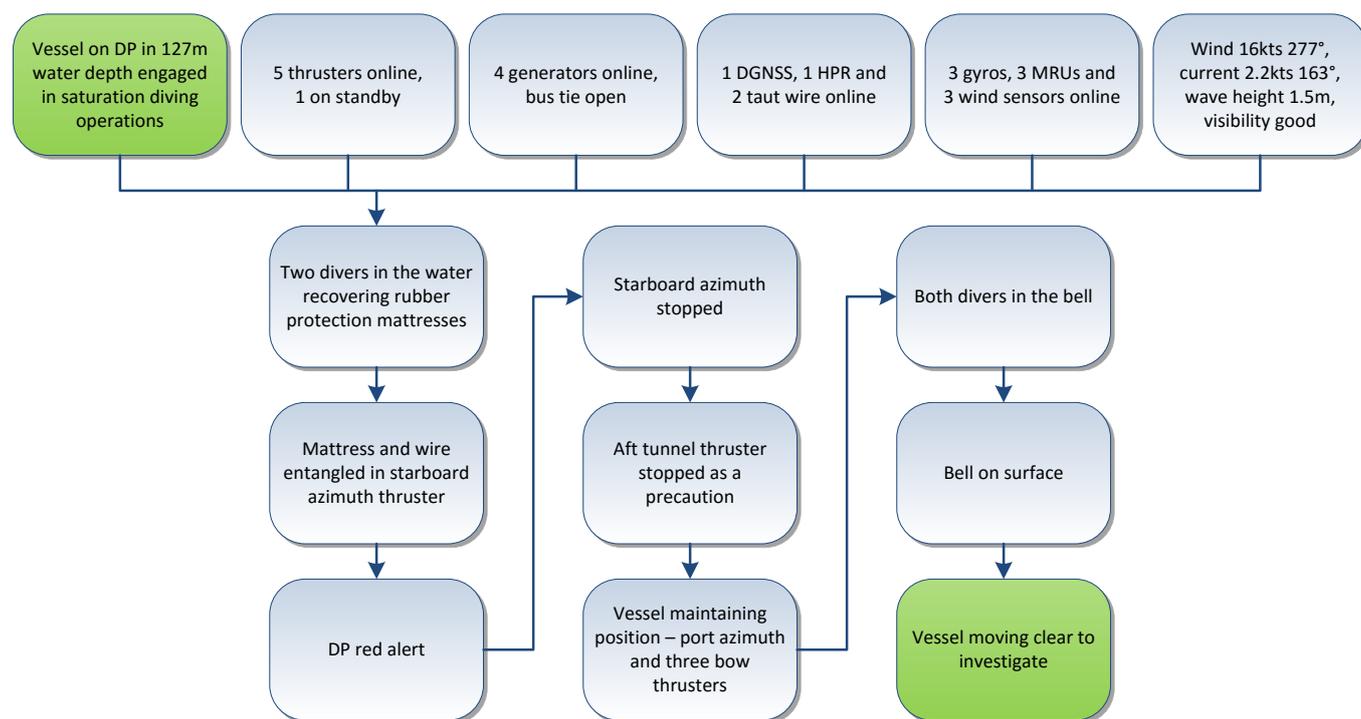
November 2016

The following event trees have been compiled from recent reports received by IMCA. The originators granted IMCA permission for the trees to be analysed and commented on by the IMCA DP Focused Workgroup. To ensure anonymity not all of the information contained in the original report was made available to the persons analysing these event trees.

Vessel managers, DP operators and DP technical crew should consider if these events and comments 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 IMCA Technical Adviser Andy Goldsmith (andy.goldsmith@imca-int.com). Members and non-members are welcome to contact Andy if they have experienced DP events which can be securely analysed and then shared anonymously with the DP industry.

Non-Routine Lift Leads to Thruster Incapacity – DP Undesired Event



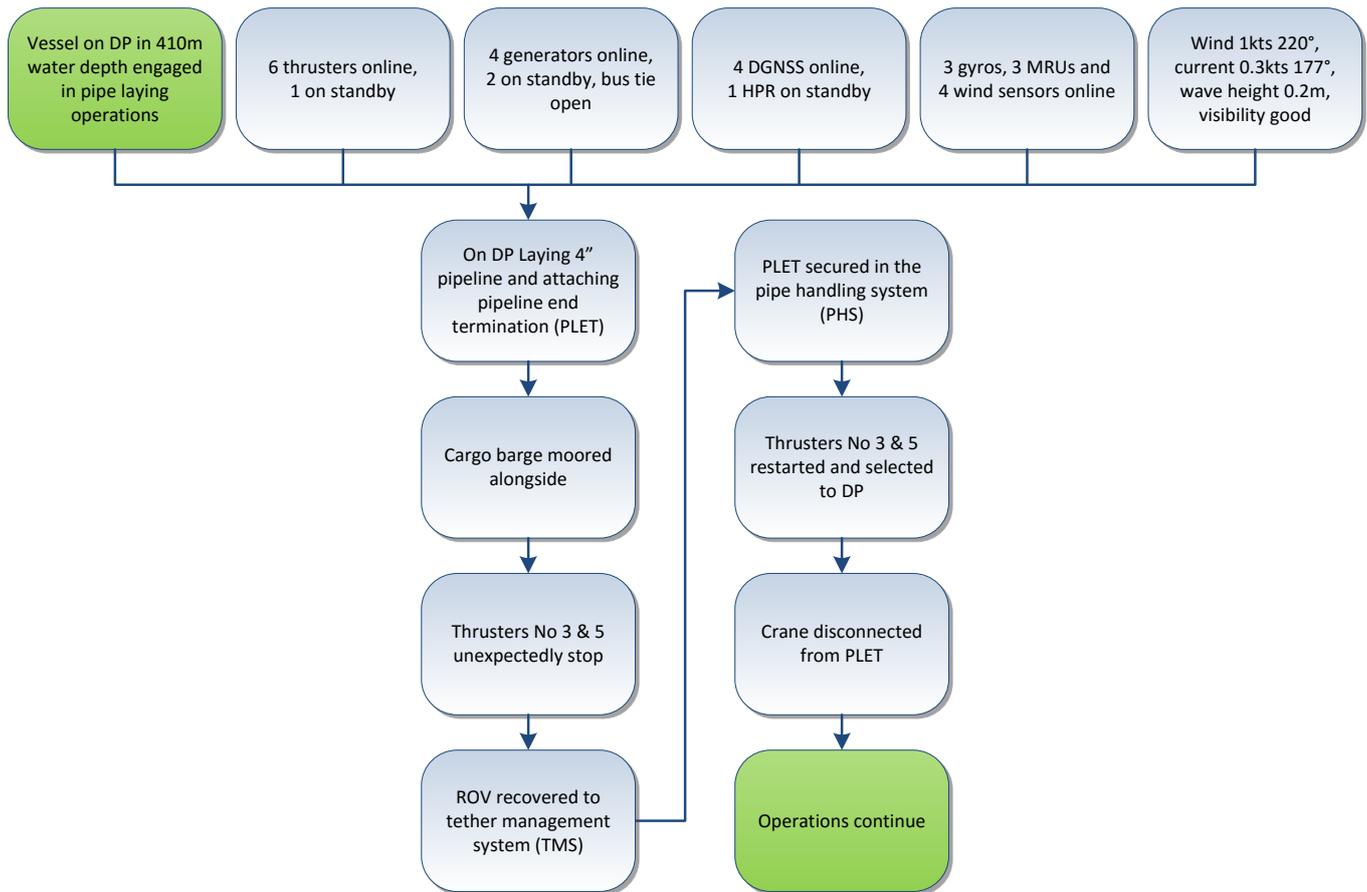
Comments:

The vessel maintained position throughout. The lift had not been properly planned or risk assessed for the object being lifted. There was a failure to recognise that the mattress was not a routine lift. A generic lift plan was used which did not cover this specific lift.

Considerations from the above event:

- ◆ Danger of recognising an operation as routine, when it isn't, and therefore using inappropriate standard procedures and risk assessments;
- ◆ A situational awareness of the whole operation, involving all departments, is required;
- ◆ Was there pressure to perform the task on an inappropriate vessel heading?
- ◆ One thruster was on standby – if the lift had been identified as non-standard then possibly all thrusters would have been online;
- ◆ DP red alert was used by the DP operator (DPO), although redundancy had not been compromised. It is unknown whether this was in line with the activity specific operating guidelines (ASOG), however the DPO considered that the event had potential to escalate and therefore decided to initiate red alert.

Pipelaying Equipment Short Circuit Causes Thrusters to Trip – DP Undesired Event



Comments:

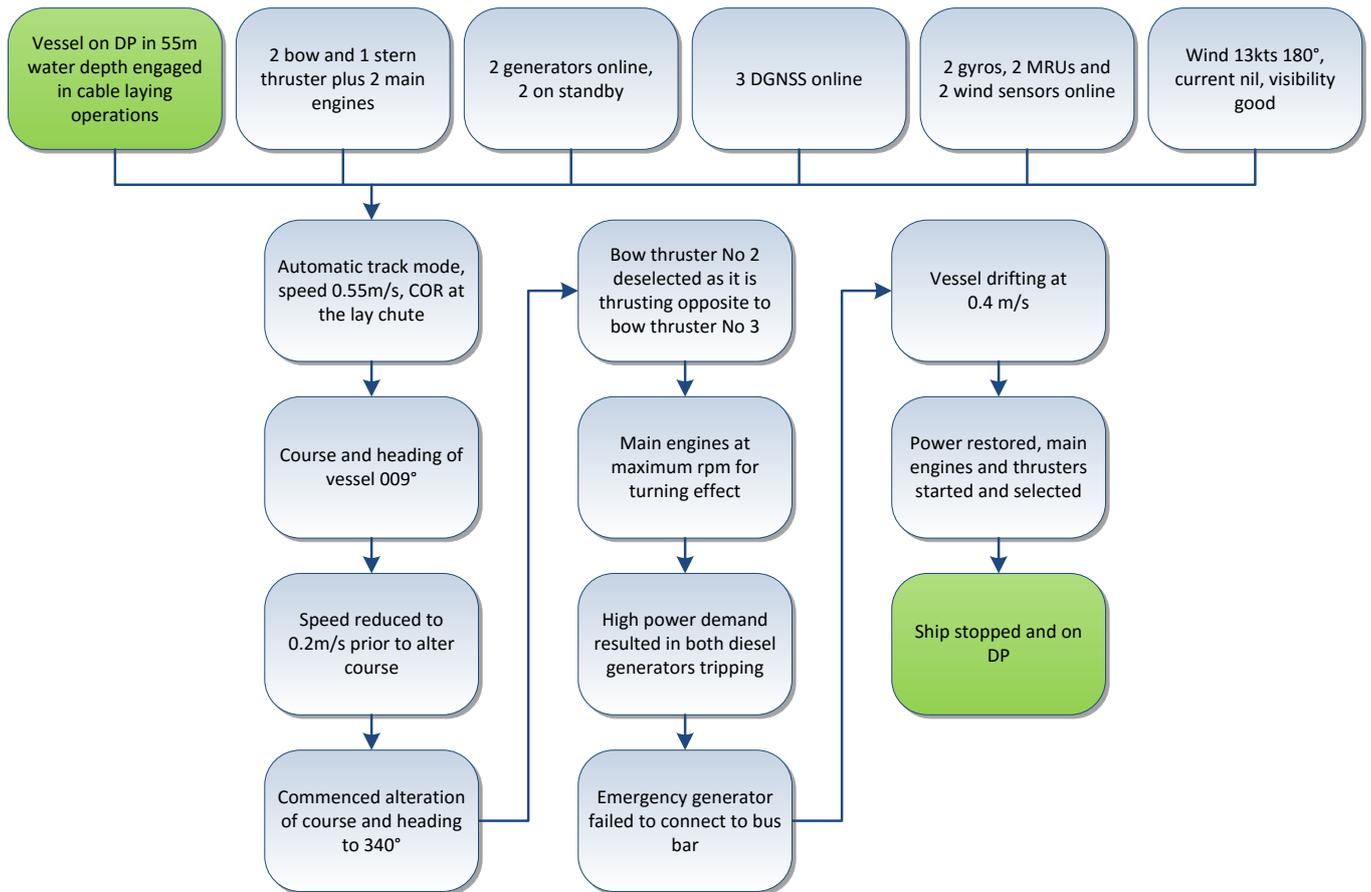
The vessel maintained position throughout. The ROV was restricted to the tether management system (TMS) until the vessel was confident of the cause of the thrusters' unexpectedly stopping.

All damaged sections of the 'lay spread' DC bus bars which fed in to the spare drive section of frame A were removed from service and all cabinets cleaned and dried out with air driers. Blown fuses were replaced; the vessel was confident that the fault was localised to the bus bar, and not the connected equipment. The set point of the air conditioning unit was adjusted from 21°C up to 28°C and signage placed on the AC units stating 'Not to be adjusted'. All external doors have been closed and signage placed on the doors stating 'To be kept closed at all times'.

Considerations from the above event:

- ◆ The DP system was configured for open bus tie operation;
- ◆ Pipelaying (project) equipment should be on a separate switchboard to critical DP auxiliary equipment;
- ◆ Ideally, main and standby equipment should be fed from separate switchboards;
- ◆ Four DGNSS were online – this is contrary to International Maritime Organization (IMO) DP equipment class 2 requirements of requiring three position reference systems of which at least two should operate on different principles.

Alteration of Course with COR Offset Causes Loss of Power – DP Incident



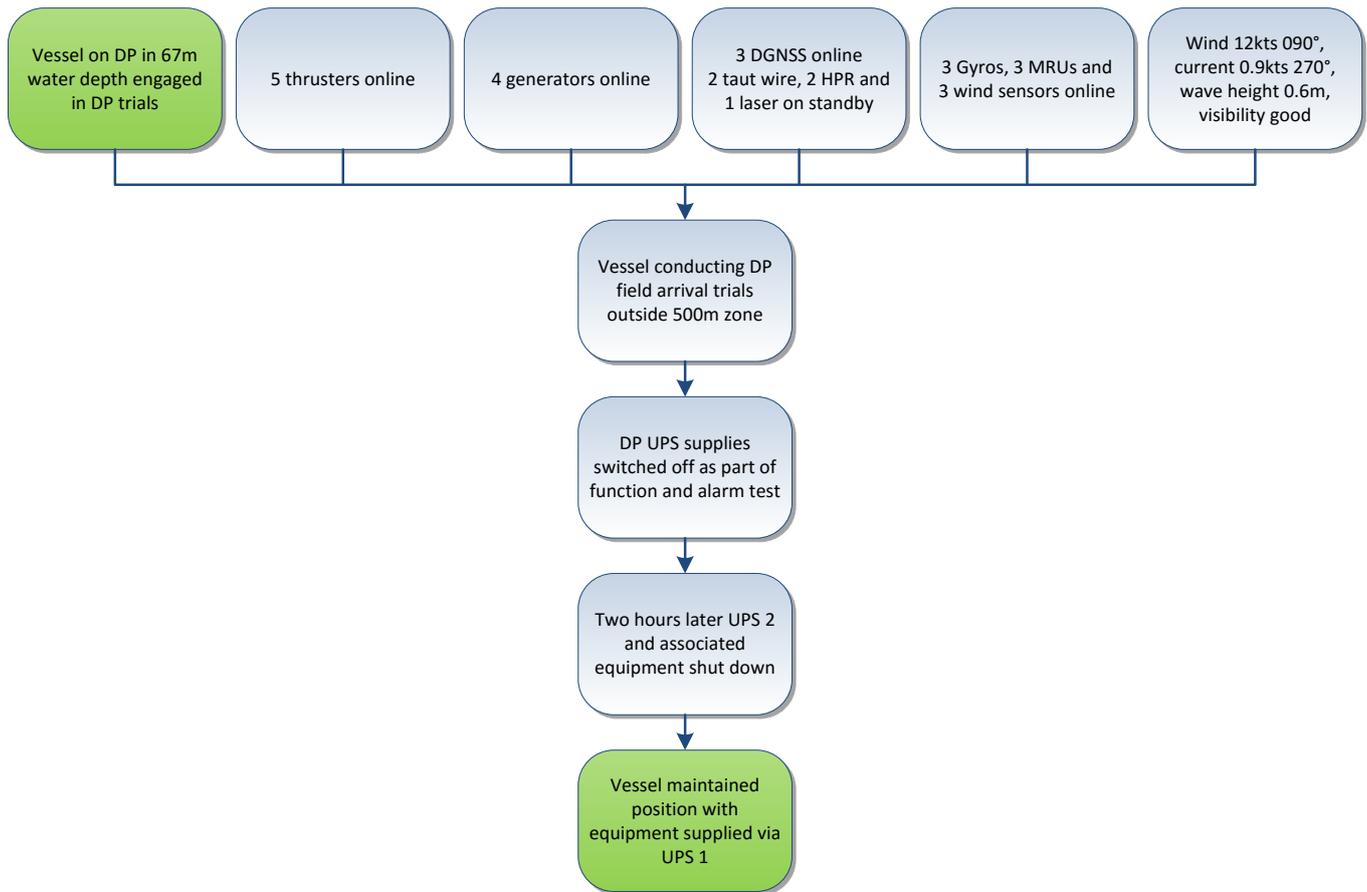
Comments:

The report discussed the set-up and mode selection for the thrusters and main engines during high power manoeuvres such as alteration of course and heading. The vessel standing orders were changed accordingly. Investigation as to why the emergency generator did not connect to the bus bar and therefore aid black out recovery was ongoing.

Considerations from the above event:

- ◆ The DPO should be aware of the vessel's DP capability taking into account the environmental conditions and in this case the additional thrust required by the centre of rotation (COR) being set at the lay chute;
- ◆ It was not clear whether the rate of turn could have been adjusted to reduce thruster demand. Considering the COR was set at the stern, it should have been set at a low rate;
- ◆ Was the power management system set up correctly as it should have reduced power demand by activating non-essential tripping as part of black out prevention?
- ◆ It should be questioned whether stopping thruster No 2 contributed to the incident as it may have been reacting as required;
- ◆ What was the problem with the set-up of the emergency generator, was it available for manual start only?
- ◆ Stresses the importance of the technical crew being adequately trained to deal with a black-out event.

DP Trial Leads to Partial Blackout – DP Undesired Event



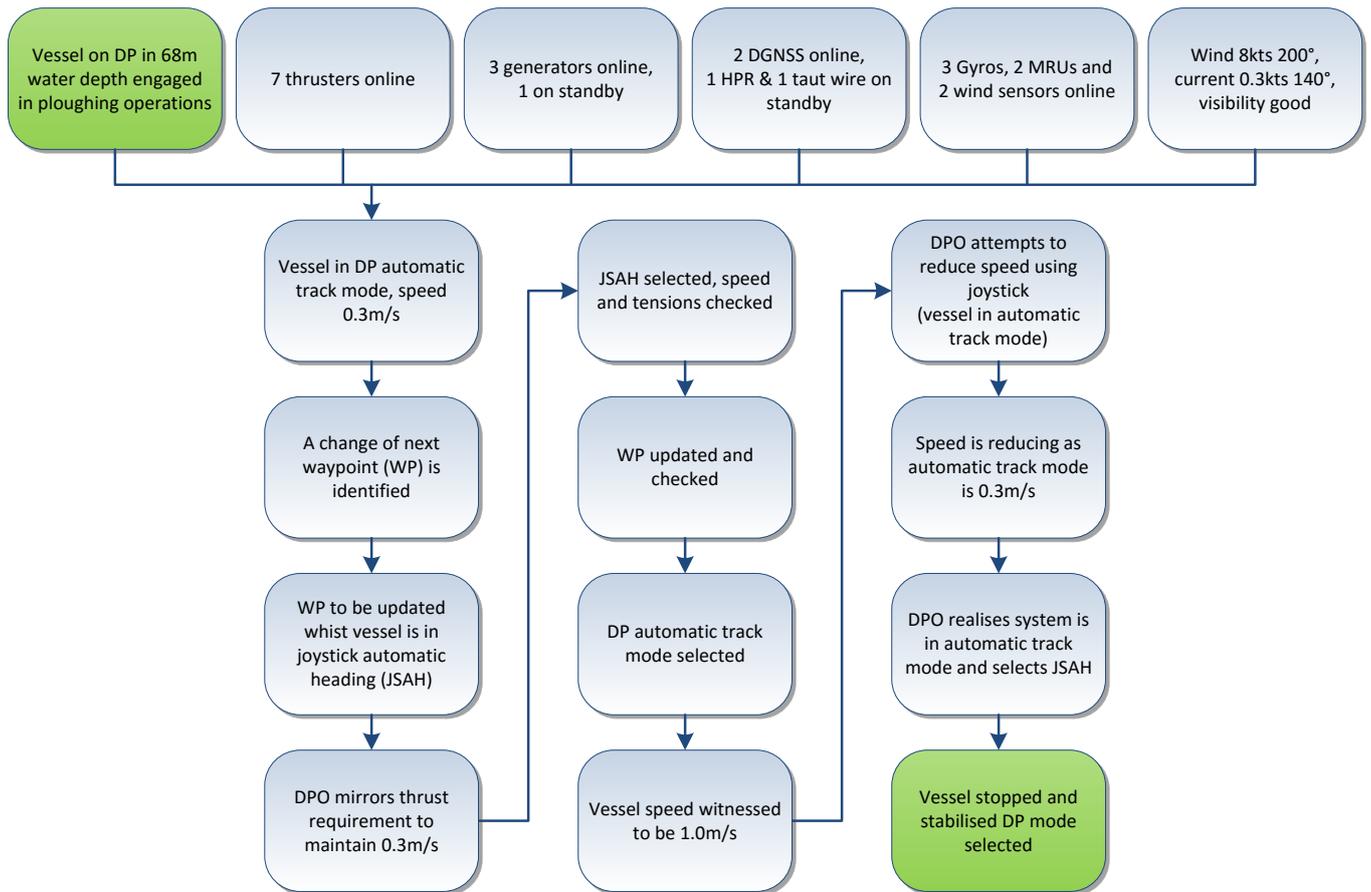
Comments:

It was discovered that the 230v supply breaker was open and the uninterruptible power supply (UPS) 2 batteries completely discharged. Warning alarms generated by the DP system regarding the condition of UPS 2 were overlooked. An additional checklist item was added to the field arrival trials to check UPS 1, 2 and 3 are clear of alarms and operating as normal. Vessel maintained position throughout.

Considerations from the above event:

- ◆ The lessons to be learnt from the above are obvious and barriers preventing such errors are essential;
- ◆ Alarms presented to operators must be acknowledged and acted on.

Procedures for Ploughing Using DP Discussed – DP Observation



Comments:

The report concluded that the DPO was conducting too many concurrent tasks so that he did not sufficiently monitor the vessel speed during the time the vessel was being controlled with JSAH. Further to this, company procedure/standing instruction have been changed so that changing the position of the targeted waypoint can be avoided except in the most necessary of cases. If it is found necessary to change the waypoint position, then the ploughing operation should be temporarily suspended by stopping the vessel and selecting automatic DP.

Considerations from the above event:

- ◆ It would be of considerable benefit if plough pulling forces, which can vary greatly, were fully integrated to the DP. It is not clear if this was the case and whether the direction of forces was interfaced;
- ◆ It appears that a proper evaluation of the operation was not made: familiarity of the system is required together with adhering to company procedures;
- ◆ A proper understanding of the relationship between position reference systems and forces is required;
- ◆ Consideration should have been given to reduce speed to the operational minimum, the slower the progress of the plough the less effect it will have on the vessel's positioning capability, as inertia becomes less effective.