

**Title:** Enhanced Blackout Recovery Testing of DP Vessels

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### **Abstract**

Total blackouts have occurred on vessels that operate either with a common power system configuration or with the power system split into two or more independent power systems. It is more prevalent in the former configuration. In the latter configuration, internal and external common cause failures are often the cause rather than individual equipment failures.

Not all causes of vessel blackout can be recovered from – i.e. there may be some scenarios where recovery will not succeed even if it operates correctly. Success depends on whether the common cause failure that initiated the blackout remains active.

Where recovery includes restart of generators, drives, major consumers and auxiliary services, the success of blackout recovery often depends on the absence of active lockout functions on the Main Switchboards, thruster drives restart time etc.

The primary aim of this paper is to:

- Review the various blackout recovery test procedures that are sometimes performed as part of annual trials and to evaluate their effectiveness in replicating a real blackout condition
- Present an additional test procedure that could be performed to improve the effectiveness of Blackout Recovery Testing
- Investigate the impact that any additional blackout recovery tests would have on equipment longevity
- Identify system components and methodologies that could be incorporated into existing and future designs to facilitate blackout recovery tests – **Build To Test**.

The additional test proposed herein is considered as an enhancement of the existing tests that may already be performed as part of blackout recovery testing. Furthermore, the tests are not aimed specifically at any particular equipment manufacturer as the tests aim to replicate failures that could be experienced on any vessel regardless of equipment manufacture and design. However, the implementation of the test circuit may vary depending on the equipment type.

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