

IMCA Safety Flashes summarise key safety matters and incidents, allowing lessons to be more easily learnt for the benefit of all. The effectiveness of the IMCA Safety Flash system depends on Members sharing information and so avoiding repeat incidents. Please consider adding safetyreports@imca-int.com to your internal distribution list for safety alerts or manually submitting information on incidents you consider may be relevant. All information is anonymised or sanitised, as appropriate.

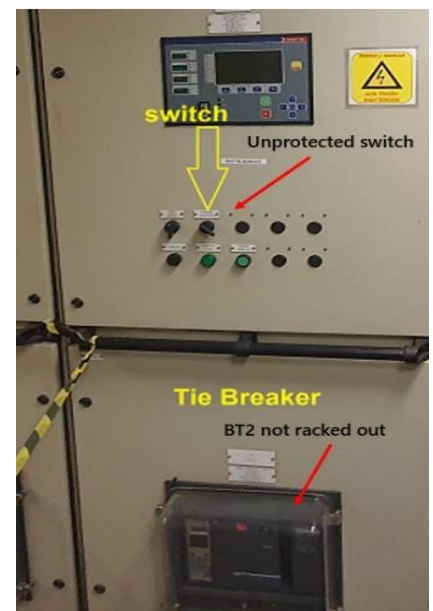
Electrician suffered flash burn to hand

What happened

A third-party electrician on a vessel in dry dock got burnt whilst verifying the integrity of insulation on a 690 Volt bus bar. A voltaic arc was created resulting in a flash burn to his hand. Following medical treatment and a period of restricted duties, he returned to work.

What were the causes?

- The switchboard was energized / live.
The bus-tie status switch had been moved to “auto” from “off” and an [as yet] unidentified function of the Power Management System commanded bus-tie breaker 2 (BT2) to close;
- The crew ‘racked out’ most of the circuit breakers, therefore physically isolating them. BT2 was not physically ‘racked out’ because the crew mistakenly believed that this would cause the vessel to blackout. ‘Isolation’ was made using the status switch which may have been considered sufficient had the switch been effectively guarded (locked and tagged), but it wasn’t, and no further action was taken to prevent access.



Lessons learned

- **Planning** – the vessel/shipyard interface document identified that the shipyard permit-to-work system should be used, however the shipyard management system did not specifically address electrical work and did not specifically require a task risk assessment or lock-out tag-out controls;
- **Supervision** – The required level of supervision of shipyard personnel and contractors was underestimated in the planning phase of the dry docking leading to insufficient crew being allocated and/or available to supervise critical activities;
- **Communication** – Changing the status of the bus bar switch (which was not locked out and tagged) occurred during lunch break and was not communicated nor identified prior to resuming work;
- **Monitoring** – Gaps in the shipyard Permit To Work system were not identified earlier.

Actions taken

- Additional crew were mobilised to enable adequate supervision and support of activities for the remainder of dry dock;

- The existing shipyard Permit To Work system was augmented with task risk assessments, lock-out tag-out control processes and emergency response instructions and toolbox talks;
- The circuit breaker switches were modified to facilitate effective lock-out tag-out;
- A functionality test of the vessel main power management system was conducted, and documentation / manuals and training updated.

Members may wish to refer to:

- HSSE 032 *Guidance on safety in shipyards*
- [Shipyard worker receives electrical shock](#)
- [Crisis Management: Rail Industry High Potential Near Miss](#)
- [Electrician received electric shock from a bare cable](#)
- [Electric Arc Incident](#)