

Electrical Short Circuit

Revision:1.00

Document No: IW-HSQE-SA-61

Approved By: Finbarr Gubbins

1. What Happened?

An electrical contractor was completing labelling to cabling within a control panel when a small set of snips, which had been placed on trunking, inadvertently slipped and caused a short between phases leading to a flash in the control panel. The injured party (IP) received burns to his hand which required hospital treatment.



Picture 1: Panel Before works commenced

The scope of the permit to work (PTW) was for survey work and hence did not cover the more investigative works that took place on the day. The panel was not isolated at the time of the incident. If the RAMS (Risk Assessment Method Statement) had included for intrusive survey works, the PTW would have required an isolation as part of the safe system of work.

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2. Immediate Actions

- First aid was administered to the IP, and the IP was brought to hospital.
- The main isolator for the Sludge Building was locked out/tagged out at the Main Building. Inspection of damage took place with removal of all damaged cables. Damaged cables were replaced, and phase testing was completed on the rest of cables in the affected area of the control panel with no further faults found.
- The Main Isolator was powered back on to the Sludge Building and monitored for any issues for an extended period after.
- The contractor involved conducted a full and thorough investigation and implemented several improvement actions on foot of the incident:
 - PTW process reviewed.
 - Safe Operating Procedure (SOP) reviewed.
 - “Hold Points” * introduced to RAMS.
 - Supervisor Training introduced.

* *“All RAMS must have a “Hold Points” to ensure where an unexpected circumstance has been encountered the work is stopped and the activity is reassessed by the contractor and the project team”.*

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3. Further Actions

- Only competent electrical contractors to carry out work on electrical systems.
- Invasive electrical work in live panels must be avoided.
- Bypassing of control panel door-handle isolating interlocks should be avoided.
- If bypassing or work on live panels is deemed necessary by a competent electrical person, this action should be risk assessed and included in RAMS.
- Relevant parties, operators and contractors must ensure full isolation, Lock and Tag Out is in place before working on panels. Good Lock and Tag Out practice must include the following steps:
 - Preparation for shutdown
 - Shutdown
 - Isolation
 - Lock out/Tag out and try to verify the isolation
 - Release of any stored energy from any capacitors, accumulators etc.
 - Verification of effective isolation
- Method statements and risk assessments (RAMS) must be prepared by contractors in advance of the works and followed throughout the duration of the works.

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- RAMS should include ‘Hold points’. At the ‘Hold-point’ operatives will be obliged to assess the works against the RAMS to ensure the RAMS is still appropriate to the work being completed.
- PPE requirements must be reviewed and in particular, the need for arc flash protective equipment where adjacent panels in a switch room may still be live.
- Use correct insulated electrical tools.
- Electricians/engineers must highlight potentially dangerous panels, or where full isolation cannot be effectively implemented. In these instances, electricians/ engineers must revert back to their supervisor/manager and the operator **must not proceed** to work on the panel until an alternative safe working plan can be developed.

4. Further Information

For further information on this safety alert please contact hsqe@water.ie

5. Distribution list

Internal		
Asset Operations <input checked="" type="checkbox"/>	Asset Delivery <input checked="" type="checkbox"/>	Asset Management <input checked="" type="checkbox"/>

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All IW Staff <input type="checkbox"/>		
Other Please Specify _____		

External		
Local Authority <input checked="" type="checkbox"/>	DBO <input checked="" type="checkbox"/>	Resident Engineers <input checked="" type="checkbox"/>
All Asset Delivery Contractors <input checked="" type="checkbox"/>		
Other Please Specify All <u>repair and maintenance framework contractors</u>		