

## Blast in electrical switch room

On 23 September 2021, three workers were in an electrical switch room when an explosion likely due to an arc blast occurred. One worker was pronounced dead at the scene, while another died three days later. The third was warded in hospital for burn injuries, and has been discharged.



Overview of accident scene.

## Prevention Measures

There is always a risk of an arc flash or blast with electrical installations or equipment such as high voltage switchgears, low voltage boards or overground box units. To prevent accidents and injuries, consider implementing the following measures:

- **Housekeeping:** Ensure switch room is clean and tidy for a safe working environment, and the equipment is inspected and maintained regularly by authorised competent personnel as per the manufacturer's recommendations.
- **Competent Person:** Ensure that only competent and trained persons are allowed to carry out or supervise works on such equipment (e.g. in line with the appropriate class

of electrical worker licensed by EMA). They should be familiar with the procedures and risk control measures to protect them and their co-workers from harm.

- **Isolate:** Wherever possible, electrical equipment should be isolated from electricity supply before any work on the equipment is carried out. In specific cases where electrical isolation is not possible, follow the equipment manufacturer's engineering controls and safe work procedures strictly. Work on the high voltage electrical equipment can only be carried out after a Permit-To-Work (PTW) is issued by the Licensed Electrical Worker (LEW) in charge of the electrical installation to the competent person(s).
- **Contactless:** Where practically possible, operate (i.e. switch on/off the circuit breakers) the electrical installation remotely from a remote control panel or control system. All personnel should be cleared from the switch room before any switching operation.
- **PPE:** As a last line of defence, equip each worker with full body personal protective equipment (i.e. helmet, face shield, arc-rated protective clothing, gloves and safety boots).

For information on electricity licensing, please visit [Energy Market Authority website](#).

Further information on PPE arc-rating:

1. NFPA 70E: 2021 Standard for Electrical Safety in the Workplace
2. IEC 61482-2: 2018 Live working - Protective clothing against the thermal hazards of an electric arc - Part 2: Requirements

This WSH Alert was drafted in consultation with the Energy Market Authority.

\* Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 28 September 2021. This may be subject to change as investigations are still on-going. Please also note that the recommendations provided here are not exhaustive and they are meant to enhance workplace safety and health so that a recurrence may be prevented. The information and recommendations provided are not to be construed as implying liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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