

Accident Advisory: Worker collapsed during electrical cable connection

Ref: [1819070](#) WSH Alert Accident Notification dated 7 December 2018

On 2 December 2018 around 2pm, a group of workers was connecting electrical cables between two junction boxes on a vessel. When the connections were completed, a worker proceeded to turn on the main switch. Another worker, who was standing beside the junction box, suddenly collapsed. He was conveyed to the hospital where he was pronounced dead.



Figure 1: The junction box where electrical cables were being connected.

Recommendations

Persons in control of workplaces or conducting similar work activities, such as occupiers, principals and employers, are advised to consider the following risk control measures to prevent similar accidents from occurring when performing electrical works:

Trained and Authorised Personnel

- Ensure compliance to both Electricity (Electrical Workers) Regulations and Electricity (Electrical Installations) Regulations for electrical works. Electrical works shall be carried out in accordance with Regulations 5 and 12 of

Electricity (Electrical Installations) Regulations by trained and authorised personnel.

Equipment Inspection and Maintenance

- Ensure that electrical apparatus is of the requisite standards as stipulated in Regulation 13 of the Electricity (Electrical Installations) Regulations. Singapore Standards that may apply include:
 - Singapore Standard CP 5: 1998 Code of Practice for Electrical Installations.
 - Singapore Standard CP 88: 2001 Code of Practice for Temporary Electrical Installations - Part 1: Construction and Building Sites.
 - Singapore Standard CP 88: 2001 Code of Practice for Temporary Electrical Installations - Part 2: Festive Lighting, Trade Fairs, Mini-Fairs and Exhibition Sites.
 - Singapore Standard CP 88: 2004 Code of Practice for Temporary Electrical Installations - Part 3: Shipbuilding and Ship-Repairing Yards.
- Subject electrical equipment to preventive maintenance (frequency of maintenance as per manufacturer's recommendation) so that the equipment remain safe for use.

Safe Work Procedure

- Establish and implement a Safe Work Procedure (SWP) for electrical cable connections to ensure that the connections can be carried out safely.
- The SWP should include the requirement for workers to check all electrical equipment and cables prior to use to ensure that they are in good working condition and ready for use. Workers must not attempt electrical cable connections if any electrical component or cable is found to be defective or in an unsafe condition.
- Prior to carrying out electrical cable connections, it is important to verify that the power supply has been isolated, all electrical equipment have been properly grounded, and that the work area is dry.
- The SWP should cover the need to conduct physical check on all workers to ensure that they are in a safe position and not in contact with the electrical equipment or any cables before turning on the power supply to a newly connected electrical cable connection.
- Provide the necessary supervision to ensure that the SWP is strictly adhered to.

Safety Training and Personal Protection

- Ensure that workers are trained in electrical safety, equipped with knowledge to identify electrical hazards and protect themselves via safe work procedures and use of appropriate Personal Protective Equipment such as electrical-resistant/ insulated rubber gloves and rubber-soled safety boots when handling electrical equipment.

Effective Communications

- Supervisors may use the daily toolbox meeting to communicate the instructions on the flow of operations, SWP and any WSH matters. Toolbox meetings should be conducted prior to work commencement and before shift handover.

Risk Assessment

Conduct a thorough Risk Assessment (RA) for all electrical work activities to prevent any reasonably foreseeable risk of electrocution. The RA should include, but not limited to, the following areas:

- Possibility of electrical cables being live during the works.
- Possibility of a worker being in contact with the electrical equipment or any of its cables prior to switching on the power supply and/or during the works.

Further Information

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulations
3. Workplace Safety and Health (General Provisions) Regulations
4. Electricity Act
5. Electricity (Electrical Installations) Regulations
6. Electricity (Electrical Workers) Regulations
7. Code of Practice on Workplace Safety and Health Risk Management
8. Singapore Standard CP 5: 1998 Code of Practice for Electrical Installations Amendment No.1 (2008)
9. Singapore Standard CP 88: 2001 Code of Practice for Temporary Electrical Installations Part 1: Construction and Building Sites
10. Singapore Standard CP 88: 2001 Code of Practice for Temporary Electrical Installations Part 2: Festive Lighting, Trade Fairs, Mini-Fairs and Exhibition Sites
11. Singapore Standard CP 88: 2004 Code of Practice for Temporary Electrical Installations Part 3: Shipbuilding and Ship-Repairing Yards
12. WSH Council's Guide to Effective Toolbox Meeting
13. WSH Council's Activity Based Checklist for Effective Toolbox Meetings
14. WSH Council's Activity Based Checklist for Safe Electrical Maintenance Work
15. WSH Council's Factsheet on Working Safely with Electrical Equipment
16. Energy Market Authority's Handbook for Application of Electrical Installation Licence
17. Energy Market Authority's Electrical Safety at Construction Worksites
18. Energy Market Authority's Electrical Accident Case Studies & Lessons Learnt
19. Ministry on Manpower's Safety Circular on Use of Socket Outlet Assembly in Construction and Building Sites
20. UK Health & Safety Executive - Electrical Safety and You

* Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 31 December 2018. 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 any liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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