

## **SAFETY ALERT Contractor Fatality, Egypt**

An electrical technician died after cutting through electrical cable when repairing faulty canopy lighting.

### **DESCRIPTION:**

- The Work Method required complete shutdown of site electrical system, recognizing recent heavy rains would lead to water in cable chambers.
- The cable chamber could not be kept water-free manually and an on-site decision was made to use station air pump/compressor, requiring partial power restoration. Additional backcourt circuits were later re-energized while work was in progress.
- The 380 Volt, 3-phase supply to the forecourt circuits was isolated; however the Egypt electrical system has a solid single neutral arrangement that cannot be isolated in the individual circuits.
- The technician was sitting on edge of the forecourt cable chamber, in wet environment, replacing the lighting cables, when on cutting the third of four cables he felt a “tingle”.
- Work was stopped to investigate and test the cable, but no current was detected and work continued.
- On cutting last cable, the technician (wearing only one insulating glove) received a fatal electric shock.



### **WHY DID IT HAPPEN?**

#### **Energy isolation**

- Initial plan to completely shutdown site power was changed when high water in the cable chambers led to power restoration for mechanical de-watering - increased risk for current in Neutral was not recognized

#### **PPE and body positioning**

- Worker removed protective glove from hand holding tools to conduct testing and improve grip
- Worker was sitting in a wet environment with no isolation from Earth

#### **Investigation of earlier “tingle” warning**

- equipment / method (multi meter and wired bulb) used after 'tingle' warning failed to detect current
- Risk not recognized resulting in resumption of electrical work without additional safe work measures

#### **Unidentified hazards associated with Egypt’s electrical design standard, as described above, and with the condition of the Dealer Owned Site electrical system**

- Condition of cable installation on dealer’s 380V system which led to common Neutral becoming periodically "live", was contributing factor, significantly aggravated by water presence

### **WHAT COULD HAVE PREVENTED THE INCIDENT / LESSONS LEARNED:**

#### ***Water and electricity is a lethal combination .....***

- Always isolate both the phase and the neutral of the circuits one is working on, and keep the isolation intact at all times
- Correct PPE (protecting against electric shock) to be worn at all times
- Equipment / tools with an insulation protection reading of minimum 1000V to be used
- If no Residual Current Protection is installed, the person needs to isolate himself from Earth at all times during work



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