33kV Cable & Accessories Feedback Workshop

Engineering Design and Standards (ED&S) hosted 33kV Cable and Accessories Feedback Workshops for the districts in SPM and SPD in September. The purpose of these workshops was to discuss the background to the recent high number of 33kV faults experienced by all districts this summer, the robustness and reliability of the 33kV jointing system we currently install, recent quality issues and to receive feedback of the cable and accessories that we currently use.

Faulted BICC Trif Joints

The workshop also allowed for a technical feedback discussion in regards to underground link boxes, LV, 11kV & 33kV joints and accessories and their potential failure modes. Key points can be found on the accompanying presentation pack. The content of the pack shall be communicated by team leaders at their next routine team meeting with relevant staff engaged in jointing activities. If you require a copy of the presentation pack please contact ED&S (amerrilees@spenergynetworks.co.uk).

33kV Faults

In summary, the rise in 33kV faults was caused by a manufacturing design defect in BICC cold shrink transition trifurcating joints (installed between 2002 – 2010) where a 3M cold shrink tubing component fails causing moisture ingress. A strategic replacement programme will commence in January 2019 to remove all affected BICC joints from our network (estimated SPM: 950, SPD: 1980). Logistics have increased monthly 33kV joint, resin and cable orders to ensure that stock levels shall be suffice for the replacement programme and/or should we experience a high fault rate again in 2019.

TE Connectivity Cold Applied Jointing System

SP Energy Networks use an advanced cold shrink jointing system that has a design based on 132kV stress control technologies. ED&S have maintained a stance to continue with cold shrink technology owing to its proven reliability, aiding consistency in installation and reducing installation time. It also reduces the jointers exposure to heat shrink fumes and the use of open flames on site.

TE Connectivity Cold Shrink Joint Body

Recommendations and action points

- Only joint kits that are in date shall be installed on the network (Always check the labelling).
- Jointing activities shall be carried out to the high quality standard in which staff have been trained. The design dimensions are critical in ensuring that joints and accessories are safe and reliable.
- When jointing PILC cables, the papers shall be tested to ensure that moisture is not present. An oil bath (SAP code 30982047) with paraffin wax pellets (SAP code 30980056) shall be used.
- Districts shall continue to investigate failures locally. However, should further technical support be required or quality issues raised, then please notify ED&S (amerrilees@spenergynetworks.co.uk). Please forward as much information as possible within your inquiry including kit samples, component packaging, labels and a description of any defects supported with pictures.