



TRANSPOWER



FIRST ALERT

Date: 30/08/2016

Maximo Reference: 93492

MHO-PKK Dismantle – Induction Electric Shock

EVENT

While a lines crew were working to cut and remove de-energised conductors on the MHO-PRM dismantling project an employee (working aloft a pole) received induction electric shocks.



IMMEDIATE ACTIONS & INITIAL FINDINGS

- The employee descended the pole, advised Management and attended at a local medical centre where he was cleared of any injury.
- Work was stopped and specialist technical assistance was sought by the Supervisor of the work party.

Following an initial investigation process the following points have been confirmed:

- The earthing system on the pole where the employee received the electric shocks was in accordance with TP.SS 07.23, IEEE 524, the Broadspectrum Earthing Plan and Procedures.
- Ductor testing confirmed high resistance levels in the system due to the copper oxide on the surface of the conductor, the contamination of the head clamps with this oxide and the cleanliness of the driven earthing plate/rod.
- General industry understanding of the resistance of copper oxide on copper conductors is not widely understood.
- Preparation/cleaning to the standard required to achieve secure, low resistance connections is not common practise, even though this is a requirement in Service Specification TP.SS 07.23.
- Service Providers (both Management and on the ground Work Crews) must ensure that all head and tail clamp surfaces are thoroughly cleaned as part of the earthing process in line with industry best practise. In addition, copper oxides should be removed from the surface of aged copper conductors prior to application of head clamps. The need to clean aluminium conductor is less apparent, but currently being investigated.

Changes will be made to TP.SS 07.23 and 07.24 to better reflect the importance of cleaning earths, conductors (both copper, ACSR GZ/AC, AAAC, SC/AC/AL) and any other surface which tail clamps are applied to.

This incident remains under joint-investigation with further findings and learnings for the industry expected. A follow-up Alert will be issued at the completion of that investigation.



For more information please contact:

Glenn West, Project Manager – Transpower - 021 245 4426
Tim Drake, Project Manager – Broadspectrum - 027 611 8793