



XY Route – Earth Wire Fall To Ground During 275kV OHL Refurbishment

An incident occurred on site where an earthwire came to ground on Saturday 25th June 2016 between the sections at towers XY43 and XY46 and XY47.

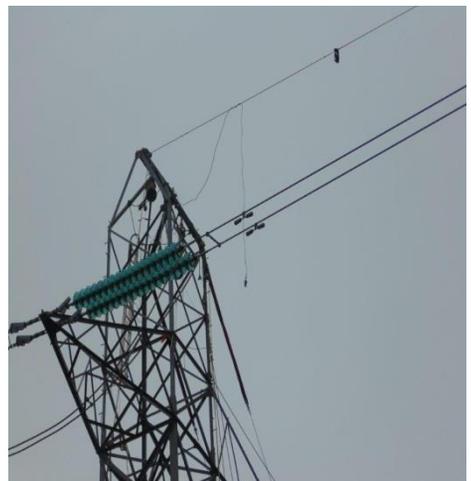
As part of the construction methodology, protection scaffolds and “Cass” systems were utilised in a number of sections including between XY44 & XY45. As a result of the protection measures the earthwire was captured in the section XY45 and XY44 and prevented the earthwire coming to ground.

A full investigation was carried out by the contractor with support from SPEN/IEC and the following conclusions were noted:

- The earthwire was moved whilst one Temporary Earth Bond was still fitted. This “shunting” of the earthwire was made intentionally as a linesman could not reach the TEB to remove it.
- This “shunting” procedure or situation is not stated or covered in the AFW RAMS nor was it approved by SPEN.
- In all probability, the incident occurred by the movement of the earthwire with a TEB attached and the unintended accelerated movement of conductor caused by the ferrule of the conductor stockings sticking in the running out wheel whilst being shunted from XY47
- The sudden release of the stocking caused the conductor to run and the TEB to hit the running out wheel, resulting in the TEB with its associated clamp damaging the outer strands of the conductor. This resulted in the stocking separating from the earthwire which came to ground in an uncontrolled manner.
- Post-safety recovery plans were implemented and worked seamlessly and without issue.



Damaged Ferrule on Stocking



Attached earthwire on Tower XY45 on Tower XY44 side

Recommendations and action points

- Tandem blocks to be used on angles greater than 30deg for earthwire installation
- Sidewinder earths at angle situations to be introduced
- Contractor to investigate their own training methods in relation to shunting and TEB removal
- Contractor to review pre-pull check sheet
- Safety stand-down to be held with contractor overhead gang to reinforce any deviation or change from approved procedures & documentation must be challenged back to site management (behavioural)
- Contractor to review RAMS for earthing of phase & earthwire
- Contractor to review RAMS for replacement of Lynx E/W with Keziah OPGW
- SPEN to review its position on the shunting method. Until this is reviewed the use of shunting on SP network is expressly forbidden unless agreed under a special procedure