TRANSPOWER

QUALITY ALERT!

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Maximo REF No. n/a

33 kV Schneider GHA Cable Bushing Failures

ISSUE IDENTIFIED:

Following recent cable bushing failures at our Wilton & Bunnythorpe 33kV ODID installations, an investigation has been initiated by operational engineering in conjunction with Schneider. The investigation relates to the cable clamping assemblies and bushings, associated with Schneider GHA switchgear with the elbow type cable terminations.

The recent Wilton bushing fault occurred in the bus coupler compartment and led to the loss of the entire 33kV supply, as both arc flash and bus zone elements operated as designed.

CONTRIBUTING FACTORS:

It is suspected mechanical stress loadings are being applied to the switchboard cable bushings during installation and clamping. Axial force applied onto the bushing without cable weight being fully supported during installation can cause mechanical stress on the bushing, acting against the CT plate leading to inadvertent damage of the bushing. The resultant damage eventually manifests itself as a flashover to the nearest earth potential which in this case is the CT plate. See photo above.

ACTIONS TAKEN TO PREVENT REOCCURENCE:

Cable Clamp Assembly – Note cable supported in one location only in the basement. It is recommended a minimum of 3 cable clamping assemblies to provide cables in the vertical alignment support but also to prevent mechanical movement during short circuit force conditions.

Schneider and operational engineering are currently in the process of visiting sites identified with high failure risks to review the cable alignment and clamping assemblies, and will issue a report with findings and recommendations in due course.

In the meantime, the cable clamping assemblies of the panels associated with the failed bushings at Bunnythorpe and Wilton have been modified and greatly improved, with a plan to address remaining clamp assemblies over the medium term.

Transpower is in the process of procuring additional spares to manage the risk while the investigation is progressed.

The clamping arrangements and installation methodologies are being reviewed for future installations. This will require more input from Schneider during the installation phase.

LEARNINGS FROM THIS

- **Transpower & Schneider to review cable clamping assembly designs at all sites affected**
- **Service Provider and Transpower to improve installation procedures, with a view to minimising mechanical stress loading on bushings during installation**

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