ANDELECT SERIES RING MAIN UNIT FAILURE

Bus Extension Box Failure

The problem with the bus extension box was identified as poor workmanship when installing the Raychem product. All identified Andelect and ABB units were checked using ultrasonic techniques. Until a visual inspection is undertaken of the bus boxes, annual ultrasonic testing will continue. A copy of the asset owner's revised maintenance strategy was provided to the contractor, and staff were taken through TYCO training and exhibited a high standard of awareness to the Raychem installation procedure. TYCO have also type-tested another Raychem two pot product called Guroflex, which can be utilised to achieve the insulating medium.

Related Switch Failure

The ABB report identified that the Andelect unit has suffered a cable box failure and the unit has been fitted with new ABB bushings. This requires major disassembly of the switch. The fault was identified as incorrect adjustment of contact alignment when the ABB cable bushings were installed some time in the past. When closed back on to the fault, the contact bounced, drawing an arc. The asset owner made enquiries and is confident that there are no other instances of this type on the network.

Recommendations

As part of the investigation using the asset owner's international contacts, it has been identified that there are other potential issues with oil filled ring main units. As a result of this, they have taken steps (documented in the revised maintenance strategy) to perform oil sampling and analysis through TJH2B utilising EA Technology's database. This will produce a condition grading of the oil filled ring mains providing a trigger for performing a full internal inspection or asset retirement. The asset owner is also developing a live sampling technique using EA Technology procedures. From their research, no other company in New Zealand is yet using the TJH2B oil analysis techniques.

The asset owner is also reviewing equipment standards with a view to either introducing SF_6 or vacuum 11,000 volt ring main units.

Operational Procedures

Changes have been made to the operating procedures with a review of the NOAMPS procedure (Network Outage and Access Management, Permits and Switching). This includes communicating the action and expected outcome from a switching instruction. Field staff will also be supplied with "tree" style field equipment tiles as presented at the meeting. Wehre an upstream remote controlled circuit breaker can be used to remove the field operator from the vicinity of the equipment, this option will be utilised where possible.