CASE STUDIES

High Voltage Testing Services
Quarry

CRITICAL ASSET REPLACEMENT

Condition assessments of critical assets are integral to maximising their performance and lifespan. Assets such as switchgear, transformers and motors are expensive to replace and operational losses caused by unplanned shutdowns can be catastrophic.

PROJECT DESCRIPTION

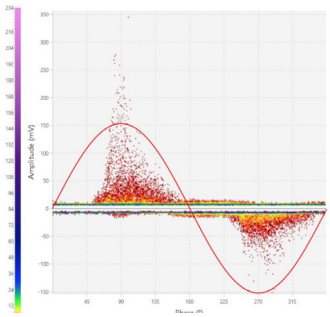
As part of site wide REFCL high voltage compliance testing, the integrity of a critical 22 kV switchboard was assessed with offline Partial Discharge (PD) testing. PD testing is one of the best tools for assessing HV switchgear as the insulation performance can be accurately measured without placing unnecessary stress on the asset.

SWITCHBOARD FINDINGS

PD was detected from the switchboard which was high in magnitude and incepting below service voltage. Using time-of-flight techniques, the PD was identified as emanating from the bus section. Withstand testing on the switchgear was not performed as it was considered likely to fail during this procedure.

Along with high magnitude PD, the critical factors here are the inception voltage and location. Having PD inception below regular service voltage shows that the asset will be discharging during regular service conditions and be continually deteriorating. The location was also critical, being the bus section of a sealed unit the best option in this case was full replacement of the asset.

The switchgear was placed back into service with a recommendation that it be replaced as soon as a new asset could be sourced. Remote online PD monitoring was set up to continuously trend the asset's rate of degradation so the customer could be alerted if any significant rise in PD was detected. The customer was able to plan for contingencies should the equipment have failed in the interim.



Discharging Switchgear

Remote Monitoring

THE OUTCOMES

- Destructive PD identified below service voltage drastically shortening the switchgear's lifespan
- Remote online PD solution installed to monitor the asset while a replacement was sourced
- Contingencies planned for should asset failure occur during 6-month replacement lead time
- Following commissioning and required testing, the site was deemed acceptable to place into service with an active REFCL system
- As a result of testing the customer obtained new equipment which is easier to maintain with an extended lifespan
- Unforeseen, costly shutdown prevented, REFCL compliance obtained at a lower cost than alternative options

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