PD MONITORING
FOR CONDITION BASED ASSETS

By having advanced warning of pending failures, a sound repair methodology can be implemented in a structured and timely manner resulting in significant cost savings!

To get the best answers concerning your assets, whether it be high voltage cables or switchgear / generators, you need to contact the right service provider who uses the latest equipment that enables an accurate "footprint" to be taken. To accurately record the condition of valued assets and compare this result with an updated footprint does require experience, systems in place and accurate modern equipment. How else would anyone make a financial decision without having the right facts!

RECENT CASE HISTORY

A feeder with a section of both new and old RMU was becoming unreliable, over recent years town planning zoning changes allowed more industry to shift into residential areas.

A total of 12 sections of 11kV cable separated by RMUs made up this feeder. The client in desperation had also fitted earth fault indicators on cables that allowed this type of clip-on fault indicator to assist in locating what section of cable had failed and shift the open point to restore power.

To VLF each section of cable would require isolating each section of cable and removing Raychem terminations. This was totally impractical and required too many man hours to achieve, plus the test would stress existing cable accessories leading to further failures.

The solution was to use On-Line Partial Discharge Mapping. By checking section by section using On-Line Partial Discharge, it was possible to determine which rogue sections of cable and cable accessories were causing the on-going feeder trippings. This was done in-service without any switching or client outages.

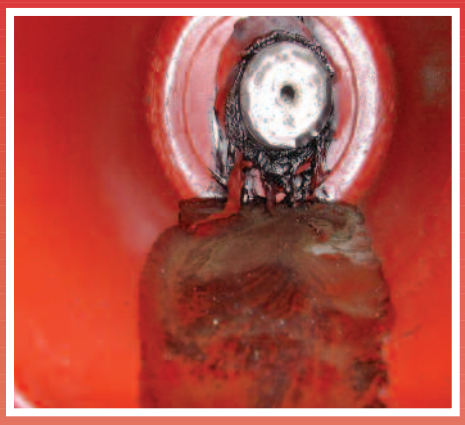
A combination of both cables and terminations were found to be causing the feeder to trip. These faults were corrected and to date, no further trippings have occurred.

BENEFITS TO THE ASSET OWNER

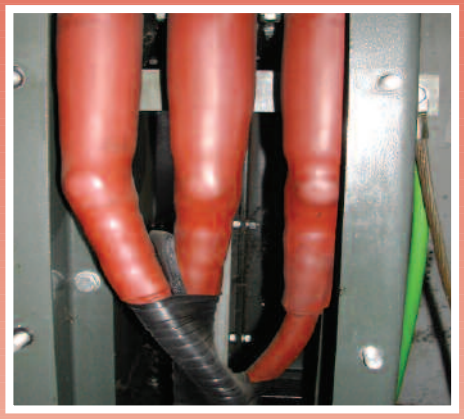
1. Direct cost savings this has resulted in extensive savings. (The original plan was to replace cables by "age")
2. Provides for higher plant availability than ever before. (Typical outage costs per hour are extremely high)
3. Allows for planned replacement/repairs rather than forced outages.
4. Allows for pre-arrangement of suitably qualified cable specialist.
5. No excessive test voltages (VLF was used in this instance) were required that would result in weakening healthy underground cable joints/terminations.

For further publications on Partial Discharge please refer to www.highvoltagesolution.com

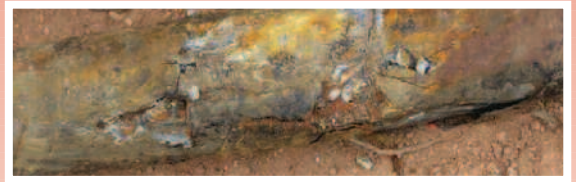
Defects found using On-Line Partial Discharge Mapping



A relatively modern 11kV switch board that was in-service had one male contact in failure mode



Incorrect termination used. Discharge occurring in "packing" between phases



Lead sheath had failed due to a chemical spill in a wood processing plant