

# HOW SAFE IS YOUR SWITCHBOARD?

– life extension and cannibalism –



An example of the environment that a Mining substation has to operate in.

*To assist mining clients who are considering replacing switchgear or just wanting to know the actual condition of their HV switchgear, High Voltage Solution.Com (HVS) has developed an on-site audit process called Risk Based Inspection program.*

A certain amount of nervousness is still present within the industry, particular the mining sector, on whether to spend capital on replacing aged switchgear (which is perceived as an asset that returns nothing to the shareholder) or just replace the switchgear based upon other factors such as the number of operations, availability of spare parts, or availability of contractors with knowledge to correctly maintain asset, or the ability to open or close remotely with a SCADA interface and the safety to personnel.

#### RISK BASED INSPECTION PROGRAM

Having independent advice on End of Life decisions, Life extension and Cannibalism will assist the asset owner in making the right technical and business decisions when considering replacing switchgear or underground cables.

A Risk Based Inspection program (RBI) combines a number of disciplines to rank clients' switchgear into low / medium / high risk groups. Note: this can be also be applied to cables.

By having an RBI in place using advanced non-invasive tools such as On-Line Partial Discharge and infrared camera inspection, along with extensive experience, it is possible to rank switchgear into risk groups. In summary a list of approximately 27 areas are looked at, depending upon type of switch concerned.

#### SAFELY CARRY OUT TESTING

One of the cornerstones to High Voltage Solution.Com is its ability to safely carry out testing of high voltage cables and switchgear while the installation is in service. Using this methodology allows the high voltage asset to be tested and surveyed under real operating conditions, rather than simulated off-line testing where the results do not reflect actual working conditions.

#### END OF LIFE CURVE

Circuit Breakers that have arrived at the far end of the "bath tub curve" or in the "wear out" region (sudden increase in failure rate) or where a gradually increasing failure rate has reached an unacceptable level.

#### EXTENSION OF THE LIFE

The extension of the life of old circuit breakers has to consider a number of technical and organisational aspects. Fault rating / number of operations / availability of spare parts / contractors with knowledge to correctly maintain asset / ability to open / close remotely / SCADA interface.

#### CANNIBALISM HAS DRIED UP

The source of unused parts has now dried up and we now rely upon rebuilding original parts or shifting circuit breaker trucks from a lightly loaded feeder to a feeder that has a high load in a bid to extend the life of the substation.

By having this forward information on the condition of your assets it is possible to stagger capital projects and/or alter your maintenance program to suit duty change and ultimately reduce outages.

*For further information please contact Peter Rhodes direct or through our website at [www.highvoltage.com](http://www.highvoltage.com)*

# RISK BASED INSPECTION

www.highvoltagesolution.com

...prevent catastrophic outages and expensive loss of equipment

High Voltage Solution.Com DETECTS and LOCATES PARTIAL DISCHARGE FAULTS and Provides Specialist On-Line Testing of...

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