Performance Scrutiny

Performance Scrutiny is a series of online and offline tests to establish the performance of the asset under normal or fault conditions. Congru Solutions offers customers onsite testing and diagnostic, predictive and prescriptive analytics of the test results. Over the last 20 years the technical team have pioneered onsite testing and has developed a trust relationship with major utility, mining houses, heavy industry etc within Africa. Congru Solutions employs the latest technology available for online and offline test methods to ensure reliable and accurate results.

Performance Scrutiny is recommended for the following:

- After a fault trip to assess if an asset can be returned to service safely
- To assess the severity and location of an incipient fault
- As part of a routine testing program
- Before and after maintenance
- Insurance and warranty claims
- Investigating a failure mode
- Finger printing or obtaining a baseline
- End of life decisions

Performance Scrutiny has proven for decades to be a value tool but requires expert diagnostics through sound engineering theory and extensive experience. The conclusions draw from the test results must provide a condition of the asset and not merely indicating Pass or Fail. Below is a series of online and offline test we offer:

Plant	*Transformer*	*Metal Clad Switchgear*	*Surge Arrestors*	*Instrument Transformers*
Online	• Visual inspection • Oil Analysis • DGA, Oil quality and Furans • Infrared Scanning • Partial Discharge	• Visual inspection • Partial Discharge	• Visual Inspection • Partial Discharge • Infrared Scanning • Leakage Current	• Visual Inspection • Partial Discharge • Infrared Scanning
Offline	• Power Factor (Tan Delta) • Voltage Ratio • Exciting Current • Leakage Reactance • Winding Resistance • Insulation Resistance • Frequency Response Analysis	• Vacuum Integrity • Timing • Coil current • Power factor	• AC watts loss	• Power factor

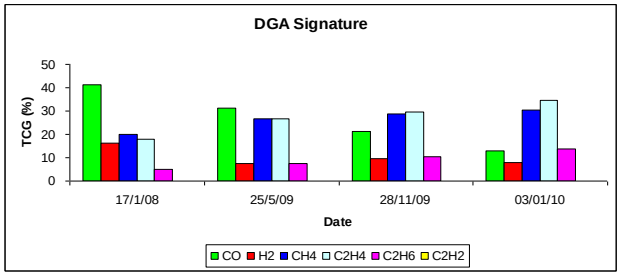
Our technical team have established a database of thousands of assets within the African continent. This has proven to be effective tool in understanding asset failure modes within our local conditions and providing the optimum solution to customers. Congru Solutions relies on our tried and test five (5) step approach for incipient fault:

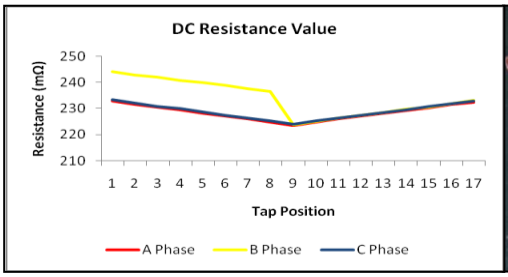
Step 1: Evaluation of the fault
Step 2: Performance Scrutiny need by selecting the appropriate test/s
Step 3: Perform analytics based a diagnostic, predictive and prescriptive outcome:
Step 4: Prepare detailed report on the condition
Step 5: Discussion with customer and planning of intervention

Case Study: Effective use of Congru's five (5) step approach

Transformer details 2005 - 275/132/11 kV - 315 MVA. The transformer tripped on Buchholz. Congru Solutions engineers were asked to evaluate the serviceability of the transformer. Our 5 Step approach was used as follows:

Step 1: DGA indicated a Thermal Fault that only involving metal (not paper)
Step 2: Key tests are winding resistance and insulation resistance of the core (other tests not required)
Step 3: *Diagnostic*: Poor contact in selector and core is clear
Predictive: If remains in service will trip again Buchholz and must operating on fix tap
Prescriptive: Remove transformer from service and inspect selector of the B phase
Step 4: The report indicated the location of the fault (B phase Selector and contact, intervention require and highlighted that the transformer is dielectrically and mechanically healthy but thermally unfit
Step 5: The customer decided to conduct an internal inspect onsite and Congru's engineers were correct to the contact number. A great success and a huge cost saving to the customer.





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