Radiography
Reduce maintenance costs and time while verifying GIS integrity and reliability

Application
ABB is pleased to offer a fast, non-intrusive tool to inspect gas insulated switchgear (GIS). This method of non-destructive testing uses radiography, or x-ray technology, to inspect the condition of your equipment.

With radiography, the entire GIS is easily and cost-effectively inspected. Radiography allows us to view interrupter contacts, PTFE nozzles, hardware, resistor switches, rupture disks, tank castings, mechanism latches, springs, CT connections, and even the build-up of galvanic corrosion. Inspection of complete bays (rather than just the interrupter as done on a conventional internal inspection) is performed with a non-intrusive maintenance procedure to verify reliability or quickly make adjustments before a failure occurs. Typical cost savings are 50% of traditional internal maintenance with a substantially shorter outage schedule. Radiography eliminates the need to schedule a full maintenance crew, crane, manlift, SF6 gas cart, and vacuum pump, to “see” the critical, internal components in your GIS. A unique advantage of radiography is that it may be done while the GIS is energized, except where the transformer is connected to the bus.

Benefits
− Overall lower cost to discover the general condition of the GIS.
− Outage time reduced from days to hours.
− Non-invasive internal inspection.
− No disassembly required.
− Increased reliability from not exposing the internal components to the atmosphere.
− Extensive review of internal components.
− Zero risk of SF6 emissions.
− Extend internal maintenance cycles.
− Easier to plan outages as less time and resources are needed.
− Allocates financial and personal resources more effectively by pinpointing necessary repairs.

Description
Once all standard safety protocols are reviewed and implemented, the source and film are placed according to the Standard Operating Procedures in order to ensure best image quality. The image is then captured on a phosphor screen/film and scanned into a computer. Any adjustments needed are completed on the computer and additional images are then taken if necessary. Images can be stored on a CD in any image file format. Images can then be taken and compared either electronically or on hard copy.

Deliverables include:
− Labor and equipment to shoot and record all images necessary for equipment evaluation.
− Software to enhance images.
− Evaluation and recommendation of findings (On site and within final report).
Comprehensive diagnostic examination and evaluation
In order to most comprehensively maintain your GIS, other ABB-recommended, non-invasive maintenance procedures as defined by the latest instruction book, should be coupled with radiography:

- SF₆ gas decomposition analysis
- Diagnostic electrical and mechanical tests
- External visual inspection

ABB offers you the only complete and most cost-effective solution to verify the integrity of your GIS.

Utilization of radiography with a comprehensive external inspection can uncover detrimental wear and tear, abnormal conditions, and degradation of component integrity in a fraction of the time when compared to a traditional internal inspection.

Industry leaders
ABB High Voltage Service is the most experienced service organization performing radiography on all types of 38 kV to 550 kV GIS (ABB and other OEM brands). Our customers rely on this experience to pinpoint problems and suggest maintenance options to maintain or improve equipment reliability based on the diagnostic engineer’s findings.

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