

Asset End of Life Management

Power Transformers and Reactors

PS3 – 3.6 What are the factors to determine the need of varistors in the regulating winding and how is their long-term reliability and what is their condition monitoring during service life?

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Response

- Varistors are employed in transformers to reduce voltage stresses across the regulating winding and to optimize the associated insulation requirements.
- Our organization has received many transformers with ZnOs since 2007 and no transformer failure due to varistors so far – high reliability
- DGA is viewed as the cost-effective way of monitoring their in-service performance.
- It is often that units that are highly gassing are electrically tested and then opened and inspected. The hope is that a defect in ZnOs' assembly may cause discharges.

Case Study

- A brand new 40MVA 132kV transformer gave a Buchholz alarm within hours of being first energized at site.
- Chains of inspections revealed that part of the defects in that unit was inadequate crimping on the ZnOs' lead connection.
- This, however, was not responsible for the detected gassing.

