

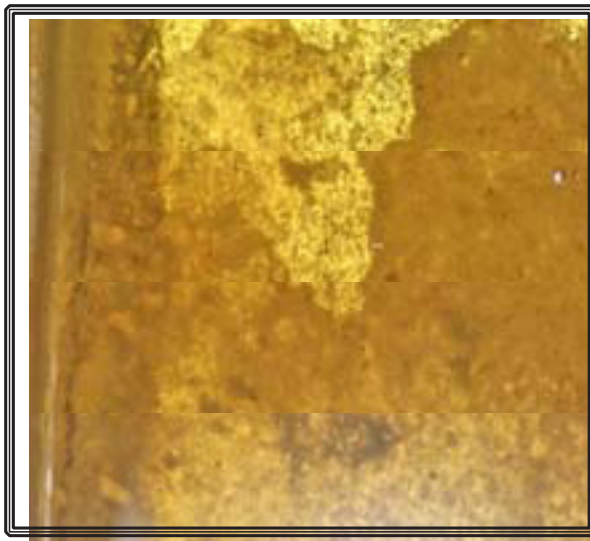


## R&D Fund Project

### Study on Capacitor Voltage Transformer Failures



Heavy sludge contamination on the insulator surface



Heavy sludge& free water found at the bottom of inductive

#### Project Overview

Twenty-six (26) units of 275KV and thirty-three (33) units of 132KV Trench Capacitor Voltage Transformer (CVT) have been reported to have failed in TNB since 1990. Measurements carried out showed the absence of voltage at the secondary side of most of the CVTs. This failure investigation work is aimed at determining the root causes of these failures.

Three malfunctioned Trench Capacitor Voltage Transformers were examined by the Failure Analysis Group of TNB Research. The units were subjected to physical inspections and examinations and various electrical tests and oil analysis.

#### Deliverables

Failure investigation report detailing out the following :

- a) Failure investigation methods and procedures
- b) Tests set-up, procedures and results
- c) Test results analysis
- d) Failure root cause

#### Benefits

- a) Reduced risks of failures of similar CVTs in the future
- b) Increased reliability of power supply
- c) Increased quality of CVTs for TNB in the future
- d) Reduced financial losses as a result of the reduced number of CVT failures