

from the Waukesha Service

CASE STUDY FILE



Reconditioning of Three Single-Phase Transformers at Four Points Substation in Dyersburg, Tennessee

PROJECT SCOPE:

Life extending refurbishment of three single phase 30/40/50 MVA, 154kV transformers. Encase segmented tanks, regasket all gasketed surfaces, dry out transformer insulation and recondition / reclaim oil. All work to be completed within 21 days per unit.

PROJECT DETAILS:

- Perform pre- and post- advanced non-invasive diagnostic testing
- Encase segmented tank seams by welding steel channel around each section
- Regasket all transformer openings and devices; supply and field cut all gaskets for transformer and other equipment including radiators; high and low voltage bushings; LLG, PRD, PVD, all temperature gauges and mechanical relief devices
- Remove moisture from transformer insulation
- Recondition and reclaim transformer oil
- Supply and install Auto Recharging Dehydrating Breathers (ARDBs)
- Encapsulate/Paint transformers
- Flow Coat radiators

KEY ISSUES & SOLUTIONS:

Dyersburg Electric consulted with Waukesha Service to dissect their DGA and general chemistry oil analysis which indicated increasing moisture and decreasing dielectric strength in the transformers' oil. Based on the results of this analysis, Waukesha Service began the process of reconditioning the oil and drying out the transformer insulation.

Once work began, this standard process expanded into a significant undertaking as the tanks' lack of structural integrity became an issue. Their significant deterioration resulted in the units' inability to hold pressure (or vacuum) and was the cause of the moisture intrusion. Waukesha expeditiously developed a plan to encase the transformer tank segments with steel and regasket all gasketed surfaces. Upon completion of these two major overhauls, the units underwent a rigorous dryout process, were high pressure-washed and completely repainted before being tested and re-energized.



AFTER



BEFORE



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