PROCESS INDUSTRY PRACTICES

March 2021

Electrical

PIP ELTFT05
Switchgear Maintenance

PURPOSE AND USE OF PROCESS INDUSTRY PRACTICES

In an effort to minimize the cost of process industry facilities, this Practice has been prepared from the technical requirements in the existing standards of major industrial users, contractors, or standards organizations. By harmonizing these technical requirements into a single set of Practices, administrative, application, and engineering costs to both the purchaser and the manufacturer should be reduced. While this Practice is expected to incorporate the majority of requirements of most users, individual applications may involve requirements that will be appended to and take precedence over this Practice. Determinations concerning fitness for purpose and particular matters or application of the Practice to particular project or engineering situations should not be made solely on information contained in these materials. The use of trade names from time to time should not be viewed as an expression of preference but rather recognized as normal usage in the trade. Other brands having the same specifications are equally correct and may be substituted for those named. All Practices or guidelines are intended to be consistent with applicable laws and regulations including OSHA requirements. To the extent these Practices or guidelines should conflict with OSHA or other applicable laws or regulations, such laws or regulations must be followed. Consult an appropriate professional before applying or acting on any material contained in or suggested by the Practice.

This Practice is subject to revision at any time.

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1. Scope

This Practice covers minimum requirements for the maintenance of switchgear. While the maintenance procedures herein can be applied to all types of switchgear, manufacturer instructions should be reviewed for equipment specific maintenance requirements.

This Practice does not cover the calibration, settings, or programming of protective devices such as molded case circuit breakers, protective relays, etc.

2. References

Applicable parts of the following industry codes and standards and publications shall be considered an integral part of this Practice. The edition in effect on the date of contract award shall be used, except as otherwise noted. Short titles are used herein where appropriate.

Industry Codes, Standards, and Publications

- International Electrotechnical Commission (IEC)
  - IEC 60270 – *High-voltage test techniques – Partial discharge measurements*
- InterNational Electrical Testing Association (NETA)
  - MTS – *Standard for Maintenance Testing Specifications for Electrical Power Equipment and Systems*
- National Fire Protection Association (NFPA)
  - NFPA 70B – *Recommended Practice for Electrical Equipment Maintenance*
  - NFPA 70E – *Standard for Electrical Safety in the Workplace*
- Publications
  - [1] *The New Weibull Handbook* – Dr. Robert B. Abernethy, Fourth Edition 2002
  - [2] *Top Five Switchgear Failure Causes and How to Avoid Them* – Don A. Genutis, NETA World, Summer 2010 Issue
  - [3] *A Stitch In Time, The Complete Guide To Electrical Insulation Testing* – Megger, 2017
  - [4] *Electrical Power Equipment Maintenance and Testing* – Paul Gill, CRC Press, Second Edition
  - [5] *A Guide to Low Resistance Testing* – Megger, 2017
  - [6] *Getting Down to Earth* – Megger, 2018
  - [7] *Applying Temperature Standards to IR Inspections of Electrical Systems* – Paul Grover, Maintenance Technology, October 1993
  - [8] *General Guidelines for Partial Discharge Condition Assessment Program for Medium Voltage Electrical Assets* – EA Technology, February 2016
  - [9] *Critical Maintenance for Circuit Breakers* – Jim White, NETA World, Summer 2007
  - [10] *Circuit Breaker Lubrication in the Field* – Tony Demaria, NETA World, Summer 2007