

PQ Test and First 230 kV Cable System Project in Mexico

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This paper describes the PQ test procedure to qualification of 230 kV cable system by IEC and ICEA standards using the same test loop to cover the International and American standards requirements at same time, under the witnessing of the Mexican electrical company and a recognize testing research and application center in North America. This is the first cable system qualification made by a Mexican manufacturer using a power cable with smooth welded aluminum sheath.

Likewise describes the first 230 kV cable system project in Mexico named "Ayotla-Chalco" installed near to Mexico City in a zone subject to earthquake with characteristics of soil unstable that requires of engineering studies and special installation techniques to avoid mechanical damages in cables, splices, terminations and guarantee the cable trust.

The system comprises the following:

- 29.7 circuit km of 1200 mm² copper cable, XLPE insulation, smooth welded aluminum sheath, polyethylene jacket and semiconducting over layer.
- Ducts direct buried
- Horizontal directional drill
- Cross bonding grounding connection
- 39 Joints
- 6 terminations

The tests after installation includes Partial Discharge (first time requested in 230 kV system by electrical company) and Voltage test. The PD test uses an effective technique to separate the external noise and the PD detection and permit the separation between internal PD detection, corona discharges or surface discharges. This technique permits the identification and localization of PD in each accessories.

Key words

PQ Test, Cable System, Test after installation