Title	Wire System Ageing Assessment and Condition Monitoring (WASCO)
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Abstract

Nuclear facilities rely on electrical wire systems to perform a variety of functions for successful operation. Many of these functions directly support the safe operation of the facility; therefore, the continued reliability of wire systems, even as they age, is critical.

In this report 3 techniques for cable global ageing assessment were tested and evaluated. The EAB technique is a destructive, local technique that is often used as a reference for other methods. The indenter is a local, in-situ mechanical technique that is currently quite often used in NPPs. LIRA is an electrical method, full line, in-situ. LIRA correlated quite well with EAB and both tend to flatten when the ageing time reaches 40 years. The only cable type that was difficult to assess for all the 3 methods was the medium type in air environment. These tests considered only thermal ageing, up to 50 years and should be completed by considering also gamma irradiation ageing.

Key words

Condition monitoring, cable aging, transmission lines, hot spot detection, fault detection, frequency domain reflectometry, time domain reflectometry, standing wave reflectometry, LIRA, positron