Cable Management Program

Addressing ageing in I&C and low- and medium-voltage power cables

There is growing concern about electrical cables being subject to ageing phenomena, based on experience with cable failures in safety-sensitive industries. ENGIE Laborelec provides a targeted cable management service to industrial site operators, allowing them to identify the I&C and low- and medium-voltage power cables at risk and establish a plan to adapt maintenance strategies and boost reliability.

WHY

RISING INCIDENCE OF CABLE FAILURES

Experience gathered over the past decade has revealed a rising incidence of electrical cable failures in safety-sensitive industries. This has highlighted the fact that some cables at industrial sites are subject to accelerated ageing, despite positive system-level operating test results. Cables situated in aggressive environments are most at risk. In such circumstances, the cable insulation can degrade rapidly, leading to unwanted events such as short-circuiting or even fire. Industries can't afford to let that happen.

WHAT

IDENTIFYING RISKS AND DEFINING MAINTENANCE ACTIONS

ENGIE Laborelec offers a targeted service, assisting industries to identify their cables at risk and develop a cable monitoring plan tailored to each situation. The service involves plant walkdowns, with an expert visual inspection of the I&C and low- and medium-voltage power cables, to identify aggressive areas and record cable defects. The health and expected remaining lifetime of the selected cables is then assessed based on experience of similar installations all over the world. Measurements are also carried out on selected power-voltage cables to assess their condition. The resulting cable ageing management plan outlines preventive and corrective maintenance actions.

BENEFITS AND ADDED VALUE

- **Risks reduced**
  Targeted health assessment of cables subject to aggressive environments prompts timely maintenance planning and reduces risks.
- **Aligned with best practice**
  The service also allows plant operators to align their cable management program and decision-making with industry best practice.
- **Worldwide experience**
  ENGIE Laborelec has many years of experience with cable ageing management at conventional and nuclear power plants and industrial sites all over the world.

How it works

ENGIE Laborelec's Cable Management Program is a three-step process.

- **Site walkdown**
  Site walkdowns are carried out in close cooperation with site management. The locations to be inspected are selected, focusing on those representing harsher environments. During the walkdowns, local temperature and humidity levels are measured to identify aggressive areas. The cables at each location undergo visual inspection, with all the observed cable defects noted. The results are recorded in a database in a standardized format.

- **Measurements**
  A series of electrical measurements is carried out on selected power cables, prioritizing those in aggressive areas or underground. This includes offline and online measuring of insulation resistance, dielectric spectroscopy and partial discharges. The findings are recorded in a database in a standardized format.

- **Analysis and ageing-management plan**
  The recorded data are analyzed and compared with cable ageing data from industrial sites worldwide. This allows our experts to reliably assess the health and expected remaining lifetime of each of the inspected cables. Based on these findings, we develop a targeted cable ageing management plan, which includes recommended preventive and corrective maintenance actions aligned with industry best practice.

- **Additional services**
  ENGIE Laborelec also performs cable-ageing tests to simulate specific environments according to customer's request. In addition, we provide guidance on purchasing and installing new cables with a view to optimizing the cable load.

Like to know more?

Please feel free to contact us via e-mail.

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Five reasons for you to choose ENGIE Laborelec

- Wide-ranging technical expertise in electricity generation, grids, and end-use
- Customers enjoy enhanced profitability and sustainability of energy processes and assets
- Unique combination of contract research and operational assistance
- Independent advice based on certified laboratory and field analysis worldwide
- More than 50 years of experience