

# Partial discharge survey of MV switchgear and transformers at SULB Company, Bahrain



EA Technology was asked to carry out a partial discharge survey of MV switchgear and transformers at SULB, a specialised and fully integrated producer of structural steel products in the Middle East.

The survey was carried out using an UltraTEV Plus<sup>2</sup> and UltraTEV Locator. It was the first time that a PD survey had been carried out at the plant.

## Challenge

SULB wanted to incorporate online condition monitoring of their electrical assets in order to reduce the risk of insipient failures in the system.

## Findings

A significant source of ultrasonic partial discharge activity was detected within the switchgear terminations at a critical 33kV substation (Figure 1). The finding was immediately reported to the SULB operational manager, together with a firm recommendation to carry out an outage inspection of the switchgear terminations at the earliest opportunity.

## Results

Subsequent inspection of the terminations of the switchgear identified severe damage to the HV insulation and it was clear that the switchgear was close to catastrophic failure. Due to the high risk of sudden failure and flashover, the terminations were immediately repaired under an emergency outage and the equipment returned back to service.

It is understood that the remedial work involved a temporary shutdown of plant operations for over 15 hours but it was possible to co-ordinate the activity to minimise the effect on production.

## Benefits

The decision to carry out a PD survey has without doubt prevented a major electrical flashover event that would have resulted in significant damage to critical equipment, unplanned power outage across the site, high production losses and danger to operational personnel.

SULB now plan to implement partial discharge testing as a part of their routine condition assessment and maintenance activities.



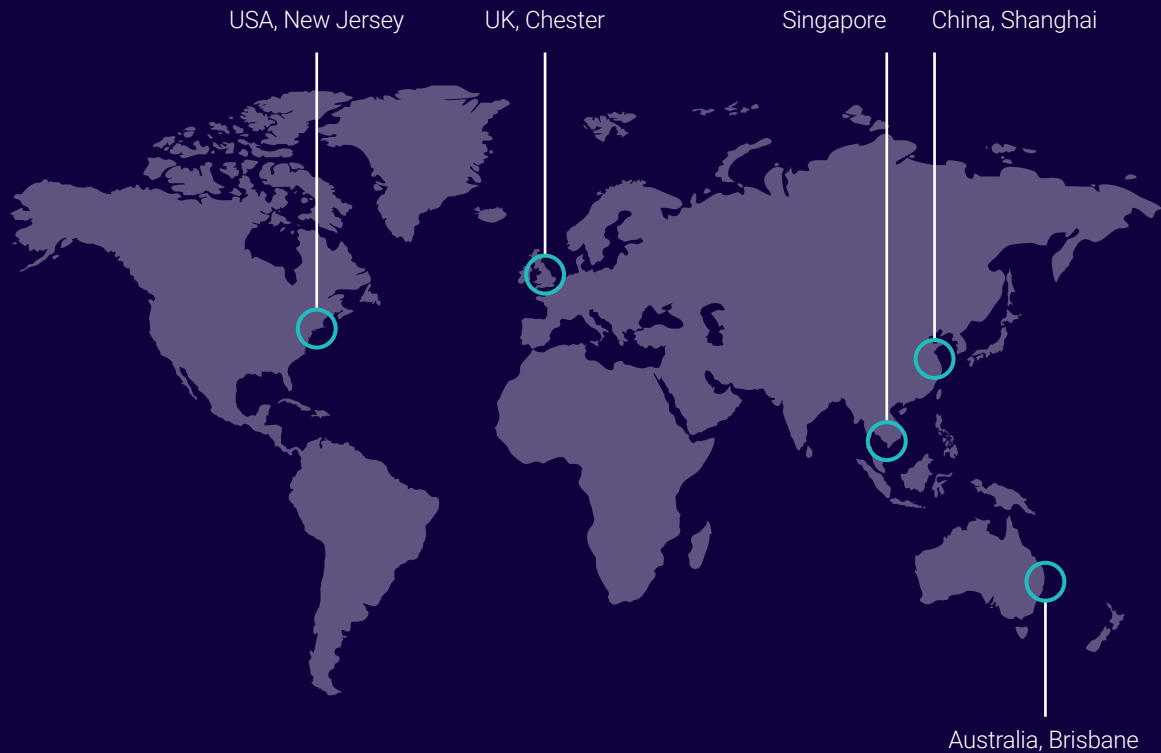
Figure 1: Screenshot of UTP2 display showing a positive indication of ultrasonic discharge activity.



Damage to the polymeric insulation of the 33kV cable termination due PD activity.

# Global Footprint

At EA Technology we specialise in asset management solutions for owners and operators of power network assets.



Founded in 1966 we have over 50 years' experience in the industry and 6 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimise cost.



Safer, Stronger, Smarter Networks

EA Technology Limited  
Capenhurst Technology Park  
Capenhurst, Chester CH1 6ES  
V2 PUBLIC 06.09.23

t +44 (0) 151 339 4181  
e sales@eatechnology.com  
[www.eatechnology.com](http://www.eatechnology.com)