CASE STUDY

CCS Network (ME) Ltd

Aberthaw 275 kV — wall bushings and voltage transformers

SITE:

Aberthaw power station, 275 kV Upper Boat 2

CUSTOMER:

National Grid

DATE OF APPLICATION:

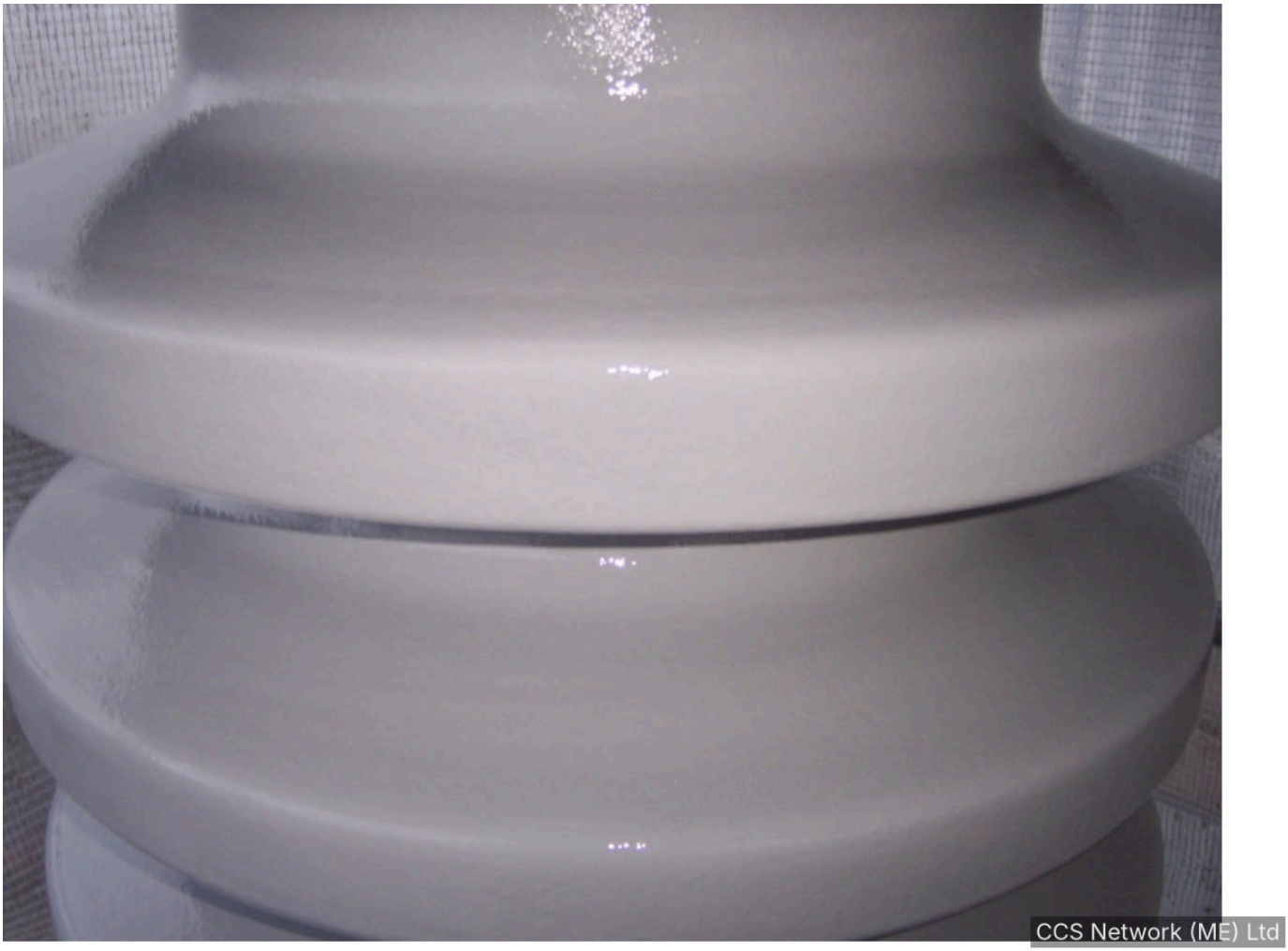
October 2009

POLLUTION TYPE:

Coal dust, salt and cement

EQUIPMENT:

3 wall bushings and 3 voltage transformers, 275 kV



After

The challenge

The wall bushings and voltage transformers on the Upper Boat 2 circuit had previously been coated with hydrocarbon grease as protection against pollution-induced flashover. Aberthaw is a coal-fired station close to the coast, so the porcelain collects coal dust, salt and cement. The grease had become saturated with surface contaminants and was no longer effective.

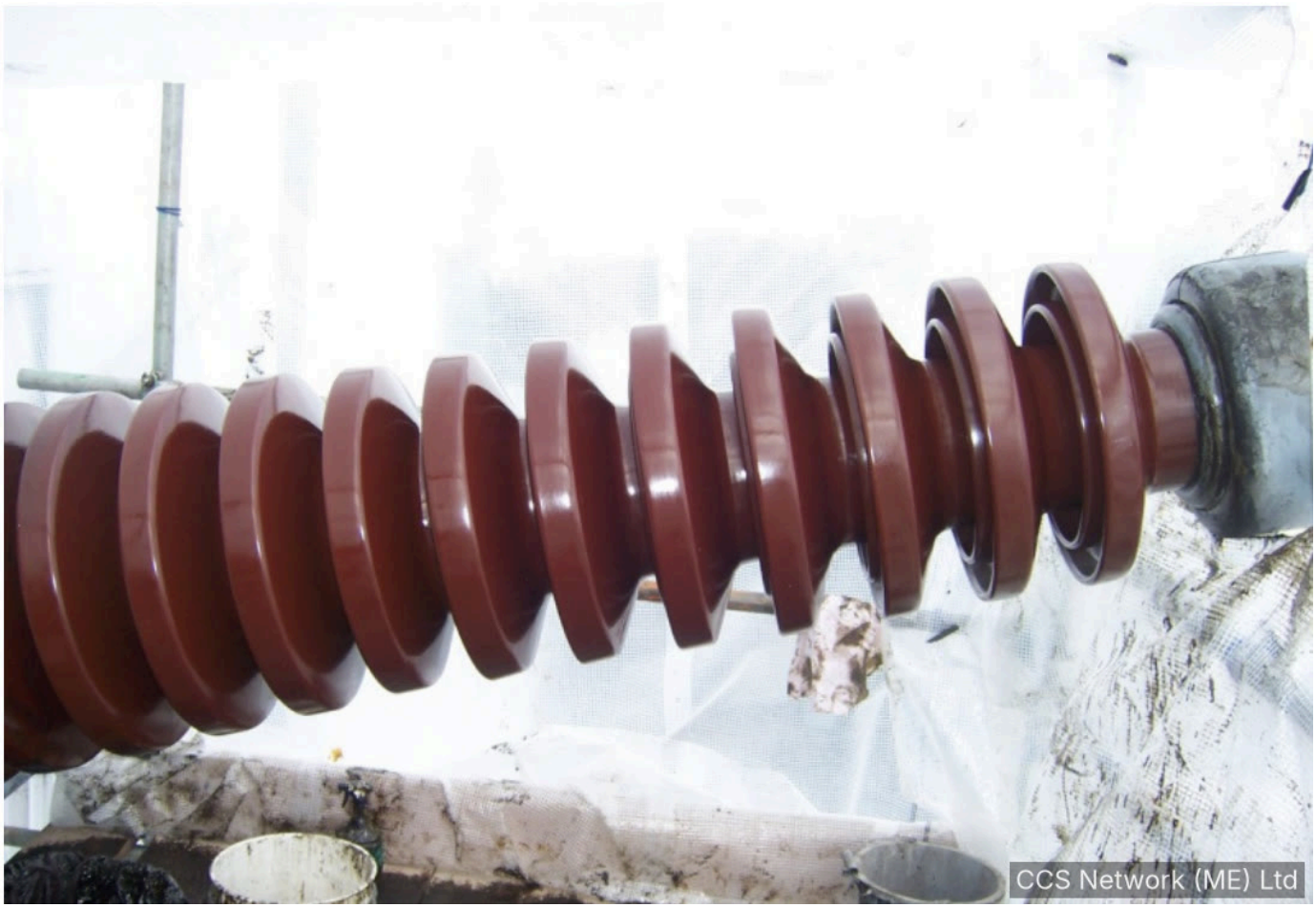
A polluted porcelain surface becomes hydrophilic. In heavy moisture or rainfall it wets, which can lead to leakage current, arcing and tracking, and ultimately to flashover.

The solution

In October 2009, working from a scaffold that was already enclosed, CCS removed the hydrocarbon grease from three wall bushings and three voltage transformers. RTV silicone HVIC was then applied by spray while the circuit was out of service, in place of the previous cycle of greasing and washing.

The result

The bushings were returned to service with a hydrophobic RTV silicone coating. The hydrophobic surface is designed to make water bead and run off, so that pollution is less able to form a continuous conductive path. Routine washing and regreasing are not required for as long as the coating remains in service.



Before

Long-term performance

SURVEY DATE:	CUSTOMER:	POLLUTION TYPE:
21 June 2022	**National Grid**	**Saline, with coal stores still on site**

EQUIPMENT:

132 kV and 275 kV insulators

On 21 June 2022 CCS surveyed National Grid's Aberthaw substation. The coal-fired station is no longer active, so coal-dust pollution is much lower, although exposed coal stores remain and the site is still on an exposed coast. Most of the equipment is coated with RTV silicone HVIC. That original coating has provided reliable, maintenance-free protection for more than 10 years. CCS recommended cleaning and an overcoat of RTV silicone HVIC.