

Case study on failure analysis of electrical components

Electrical equipment failure investigation

Electrical equipment failures can occur at the most inconvenient times. At best, companies will suffer disruption to business processes - at worst, staff or members of the public may risk potentially serious injuries.

Immediately following a company's electrical failure, its staff will be focused on the priority of restoring normal supplies, so vital clues to the cause of the failure may be lost during the restoration process.

ERA Technology offers companies an electrical equipment failure investigation service, which is undertaken by experienced staff with specialist expertise in this area. They follow up promptly with clear, comprehensive reports and recommendations that can be used to determine appropriate actions.

A recent example of the efficacy of the service was when SEEBOARD plc called on the expertise of the ERA team to investigate a potential problem with an 11kV circuit breaker. Concern was raised during normal maintenance operations by diligent SEEBOARD staff, that an electrical discharge was occurring in the spouts of a circuit breaker at their Ruxley substation. Following an initial inhouse investigation an independent, impartial opinion was sought.

ERA's failure investigation team promptly visited the site to collect data and samples for laboratory examination. Through the use of ERA's scanning electron microscope the circumstances resulting in electrical discharge were established.

SEEBOARD was advised of the initial findings, conclusions and recommendations within 48 hours of the site visit. Their management team was then in a position to take appropriate action regarding the suspect circuit breaker at the Ruxley substation. Changes to their procedures were also considered to ensure that other circuit breakers did not suffer a similar problem.

ERA stresses the value of prompt and thorough failure investigations. In responding to further requests to provide failure investigation services, ERA has constructed framework agreements to cover significant items of plant and equipment such as transformers, generators, switchgear and cable systems. These agreements are now being offered to companies with extensive electrical distribution systems who require the assurance that an experienced investigation team is available when required. Each framework agreement is individually negotiated and clearly defines the actions and response times required by both parties to maximize the benefits of this service.