

Case Study

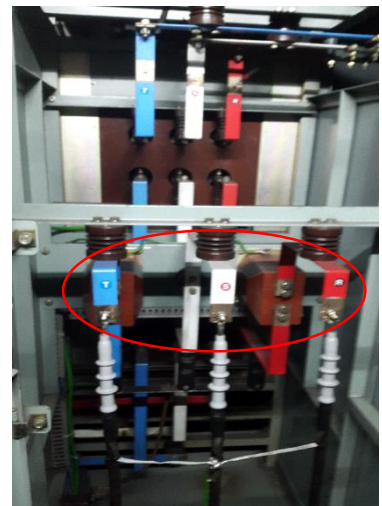
**Cable fault prevented: Seoul transport company, South Korea
February 2016**

Summary

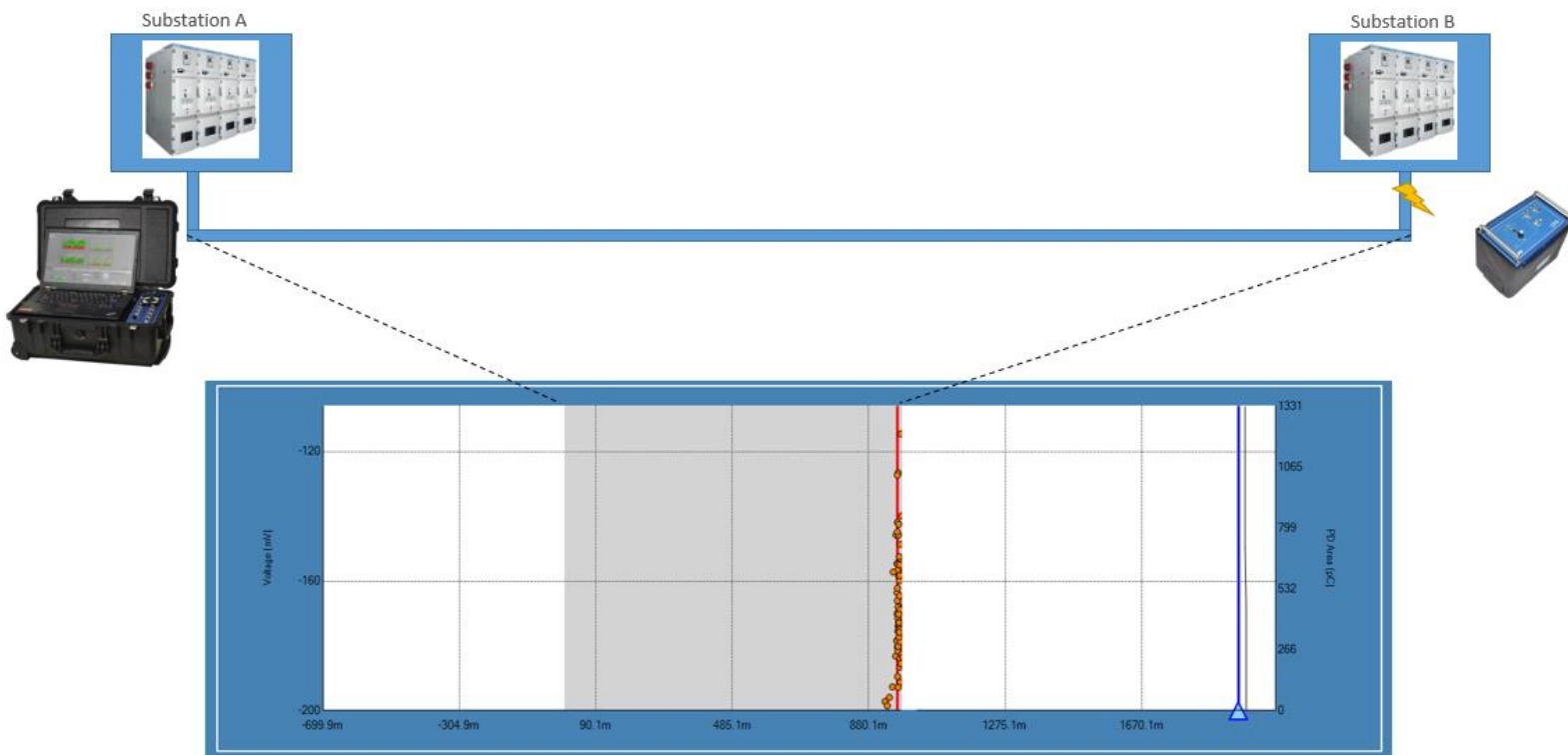
IPEC conducted cable mapping for the customer using the PrecisePD location and detection system. Results showed that there was PD present, this was confirmed via PD mapping techniques that placed the discharge source from the cable termination (shown right) in the secondary substation.

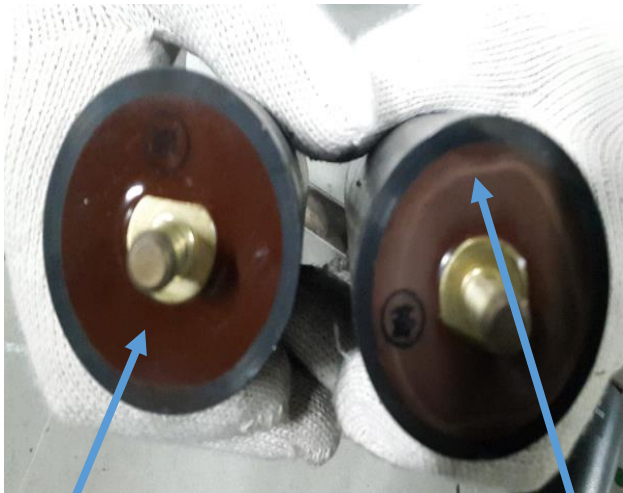
Details

A PD spot test was conducted at the primary substation that showed small magnitude PD. At the secondary substation (2km away), another spot test was performed. This map showed a higher level of activity, precedence tests indicated there was significantly more discharge present at the secondary substation. The PrecisePD was used to pinpoint the defect at the secondary substation using the PD map utility and the results showed the defect was located in the switchgear. This source was confirmed and located to the surge arrester situated at the secondary substation. The image to the right shows the location of the surge arrester and where the PD was found.



Location of surge arrester





Unaffected surge arrestor

Band of discoloration caused by PD



Conclusions

When the surge arrestor was taken apart there were noticeable bands of white discoloration on the insulation, this shows the damage caused due to the discharge. The image above shows the area affected by PD compared to what they should look like. The surge arrestor was replaced and the defect and potential failure point was removed. If left, the PD would have more than likely led to a failure, the repair prevented a power outage which could have had major consequences for the smooth running of the transportation.

About the Precise PD

PrecisePD is an on-line PD Spot Testing and PD location system for Cables and Switchgear with advanced signal processing for detection of PD in high noise environments.

PrecisePD allows users to investigate and locate Partial Discharge sources on live electrical equipment helping to prevent potential faults in high voltage assets. Designed by IPEC Ltd, the PrecisePD Spot Tester takes advantage of the many years of IPEC's field experience. Using the advanced DeCIFer algorithm which is designed to operate in high noise environments the unit offers significant advantages over many other Spot Testing systems.