

Proving Seal Failure at a Transformer Station

Abstract

It was suspected that faulty seals were the cause of water ingress at a transformer station in London's East End. RS Hydro were charged with providing a remote monitoring solution that could provide live water level data.

Equipment Used

Level TROLL 500, TROLL Link, rain gauge and Flowview online data portal.

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The Problem

A transformer station located in London's East End was subject to flooding. This water ingress was submerging the 240,000V power lines on the floor and creating an increased level of humidity throughout the building, increasing the control panel's susceptibility to moisture damage. Suspicions were raised that the water ingress was caused by faulty seals around the cable entry gland, allowing rainfall to enter the building. As well as logging the data for download at the end of the monitoring period the client also requested real time data.



pic1. Transformer Station in London's East End

Current protocol involved a 2 man inspection team once a week to check on the state of water ingress and to drain. These visits were costly and time consuming and not always necessary, as the water ingress was an intermittent problem.

The Solution

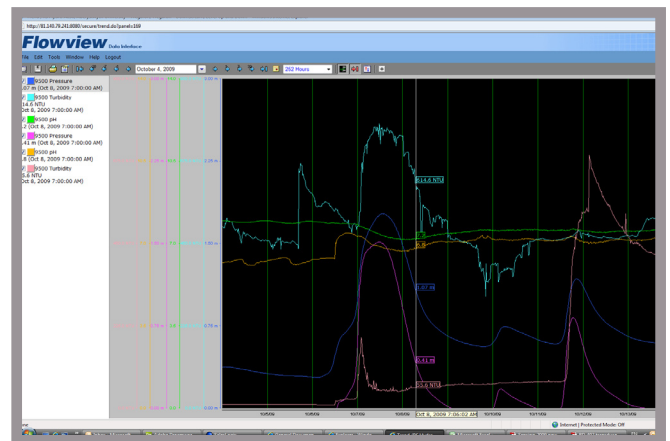
To prove a relationship between rainfall, water level in the outside cable trench and water level inside the station next to the cable glands, RSHydro brought together 3 key products.

The industry leading LevelTROLL 500 pressure transducer was selected to measure and log water level. The reliability,

accuracy, low power consumption and long battery life made this instrument the ideal choice for the application.

The Level TROLL 500's sealed titanium construction ensures that it is durable and resistant to corrosion. Integrated Modbus/RS485, SDI-12, and 4-20 mA make it simple to connect to SCADA and telemetry systems. In this application the level sensors in both the cable trench and the inside of the transformer station were linked to a TROLL Link telemetry station reading every 15mins.

The data collected by the level sensors was then streamed back to the database of RS Hydro's online data portal, Flowview. Flowview represents a big step forward in data management software. This intuitive but extremely powerful online software application provides data collection, visualisation and distribution capabilities, as well as advanced reporting and analysis tools. It is completely scalable and can be used for small projects with 1 RTU such as this application, or for monitoring large networks with thousands of RTUs and thousands of users.



pic2. Flowview Online Data Portal

In this application, individual user accounts allowed the clients to view the data and make decisions on when to send out inspection teams. This streamlined their operation providing a considerable financial saving.