A.4.5.

BC hydro's experience with a novel on-line monitoring system used on a 242 kV PPLP insulated cable system

S. Cherukupalli*, T. Kojima, A. MacPhail, R. Chore and E. Struyk, BC Hydro – Canada
Y. Kumada, T. Nakajima, VISCAS Corporation – JAPAN

BC Hydro recently commissioned two new 242 kV_{rms}, 440 MVA, PPLP-insulated, corrugated aluminum sheathed cable systems. These circuits are approximately 3.3 km in length with a section of approximately 200 meters in a tunnel 15meters below a Highway crossing. Each circuit required two hydraulic sections due to the large elevation difference along the route. These cables replaced two existing 43 year old circuits. In order to monitor the condition of the hydraulic system, parameters such as fluid pressures, remaining fluid volume in the tanks, fluid flow rates, a microprocessor based Signal Processing Panel with data acquisition and control features was developed. This system was also designed to monitor the cables' sheath currents. This Signal Processing Panel system was deployed at four locations enabling the monitoring of the two hydraulic sections along the two cable routes. All the information and principal alarms have been integrated into BC Hydro Supervisory Control and Data Acquisition System (SCADA) using fiber optic links.

This paper describes BC Hydro's experience with this fully integrated system. It also describes some of the problems experienced during the design stage, as well as during the site commissioning tests, and how the data is currently being used by System operators to operate this brand new transmission cable system in the BC Hydro network.