

Regulatory Experience on Safety System Instrument Uncertainty of
Wolsong Units
-Focused on Drift Problem-

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Abstract

This paper presents the regulatory experience gained from Wolsong Units 2,3 &4 - Special Safety System Instrumentation Uncertainty for Trip Setpoint and Allowable Values. The equipment diversity method for the defense against common mode failure was applied to the transmitters of shutdown system number 2. However the Units experienced an unexpected drift problem with which the performance did not meet the Technical Specification (Tech Spec) Surveillance Requirements (SR). Discussed are the background, status and corrective actions, regulatory positions and issues to be solved for the drift problem. It was an instrument uncertainty methodology that the designer of safety system should have shown when the drift problem occurred. For deeper understanding of the problem, we present the background of Tech Spec SR for setpoints in Korean PWR and in CANDU reactors. The Setpoint Verification Test(SVT) and Calibration Test(CT) shall be achieved by recording sufficient as-found data to determine the setpoint in terms of the measured process variables prior to any adjustment. We considered the problem using Canadian calibration and on-line monitoring practices with the as-found/ as-left method for drift surveillance. When an as-found value measured is between an Allowable Value and MAPS value in SVT and Calibration Test on a single channel, plant operation is acceptable with one affected channel, only if the other channels are checked and reviewed for further operation according to the Tech Spec. Measuring and Test Equipment (M &TE) accuracy, turn down factor of instrument accuracy, calibration interval, drift management program are introduced and discussed.