NPCC, Inc.

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NPCC Request for Criteria Interpretation

Note: an Interpretation cannot be used to revise a Directory.

Interpretation Response
Response of the NPCC Task Force on System Protection (TFSP) to a Request for an Interpretation of Directory 3 for Hydro One Networks

The following interpretation of Directory#3 *Maintenance Criteria BPS Protection* was developed by the Task Force on System Protection – August 23, 2013 Conference Call

Directory Number and Text of Requirement

Directory#3:

5.6.2 Channel Health
For trip equipment which uses frequency shift keying (FSK) mode of communication and the channel (for example, Guard Signal) is continuously monitored, the ability to perform its intended trip function shall be verified every twelve months. Failure of the channel shall be annunciated to a 24/7 staffed Operations Center that can initiate an investigation of the problem.

Question 1

The portion of the criteria stated above requires a verification test to be performed on all frequency shift keying (FSK) mode of communication every twelve months irrespective of the telecom equipment ability to 'continuously provide verification of trip capability to an Operator'.

Hydro One Networks Inc. uses tone equipment (i.e. NSD570) that has a cyclic loop test feature which checks the integrity of the tele-protection link. This is separate from the continuous monitoring of the guard signal. The local end sends a test signal that simulates the transmission of a genuine tripping signal to the remote end. The remote end recognizes the test signal and it echoes the signal back to the local end. The local end will deem the test successful if it receives the echo. An alarm is sent to an operator if the echo is not received back after three consecutive trials.

The test “shift to trip” signal is processed in the same way as a normal tripping signal (interruption of a guard signal and transmission of a test frequency). This cyclic loop test is currently programmed to be performed on a 6 hour interval. The 12 month verification test requires field staff to manually perform essentially this same test that already occurs automatically every 6 hours.

If this FSK equipment is set-up to provide trip capability checks on a set schedule (and annunciated to a control center on test failure) can it be considered to be continuously monitored and hence not subject to any additional testing?

Response to Question 1

If the cyclic loop test is not carried out at the actual trip frequency, then the six hour verification is not sufficient to be considered continuously monitored as it does not test the actual trip function.

Question 2

Response to Question 2