**Q. Substations - Additions to Load Growth - Mobile Substation - p. 20 of 96 - Absent the opportunity to relocate the 17 MVA Deer Lake substation transformer to Mobile substation, would NP be proposing to replace MOB - T2 at this time based upon the single overload on peak shown at Tab 2.2, Graph 1? Please fully explain.**

A. In report *2.2 2010 Additions Due to Load Growth* in section 2.2, pages 1 and 2, the following is noted with respect to the Mobile Substation transformer loading:

*"In December 2008, it was discovered that the transformer load readings reported through Newfoundland Power's SCADA system for MOB-T2 were incorrect. This was due to an insufficiently sized current transformer, which caused saturation in the metering circuit during high load periods. With the saturated circuit, it appeared that the maximum load on the 6.7MVA transformer had not exceeded 5.5 MVA. Once the metering problem was corrected, in actual fact, the peak load on MOB-T2 in 2008 had been 8.2 MVA, and the transformer had experienced a 23% overload on peak."*

Graph 1 on page 2 of the report shows that significant saturation took place in the metering circuit over a number of years, and incorrectly reported peak load readings through the SCADA system much lower than were actually present in those years. The single peak overload shown in red on the graph was in fact the only correct peak load reading that was not subject to saturation for a number of years.[1] The plateaued peaks in the graph are characteristic of such saturation. It appears that the transformer has been overloaded on peak for a number of years.

Newfoundland Power is proposing to replace MOB-T2 at this time due to the overload condition that has occurred on peak for what appears to be a number of years.

[1] The single peak reading reported on December 27, 2008 was obtained using digital recording ammeters placed directly on the conductors of the two distribution feeders and summed together to obtain the peak load.