

March 31, 2005

Mr. Frank Jakob  
Manager – Stations & Telecom Programs  
Hydro One Networks Inc.  
483 Bay Street  
15th Floor - North Tower  
Toronto, ON M5G 2P5

Dear Mr. Jakob:

***Carling TS – Replacement of T1 & T2 Rod Gaps with New Surge Arresters***  
***Hinchinbrooke SS – Replacement of 10SS1 Rod Gaps with New Surge Arresters***  
***Notification of Approval of Connection Proposal***  
***CAA ID Number: 2005-EX218***

Thank you for the information that you provided on Hydro One's proposed rod gap replacement work at Carling TS and Hinchinbrooke SS.

Based on the information provided, the existing Carling T1 and T2 rod gaps and the existing Hinchinbrooke 10SS1 rod gaps will be replaced with new surge arresters. The IESO has determined that this work will not have a material impact on the reliability of the IESO-controlled grid.

The IESO is therefore pleased to grant **conditional approval** for the proposed work. Any material changes to your proposal may require a re-assessment by the IESO in accordance with Market Manual 2.10, and may nullify your conditional approval.

**Final approval** to connect the generation facility to the IESO-controlled grid will be granted upon successful completion of the IESO Facility Registration process. During facility registration you will be expected to demonstrate that the project you have installed is materially unchanged from the proposal assessed by the IESO.

For further information, please contact the undersigned.

Yours truly,

Bob Gibbons  
Manager - Long Term Forecasts & Assessments  
*Telephone: (:905) 855-6482*  
*Fax: (905) 855-6129*  
*E-mail: [bob.gibbons@ieso.ca](mailto:bob.gibbons@ieso.ca)*  
cc: IESO Records

## ASSESSMENT SUMMARY

Hydro One has been carrying out a program to address inadequate transformer protection by replacing existing rod gaps with new surge arresters. This assessment addresses Hydro One's proposed work at Carling TS and Hinchinbrooke SS.

### *SPECIFICATIONS*

#### A) CARLING TS

115 kV transformers T1 & T2 – Specifications for the new surge arresters:

Number & Location:	6 phase to ground arresters (one per phase). To be connected as close as practical to the 115 kV terminals of the T1 and T2 transformers
Type:	Metal Oxide gapless – station class
Minimum MCOV:	80 kV (rms)
Front-of-wave impulse protective level:	Maximum Equivalent Front-of wave not more than 465 kV crest
Maximum discharge voltage for 8x20 $\mu$ sec at 10 kA impulse current:	Not more than 423 kV crest
Maximum switching surge protection level:	Not more than 380 kV at 1 kA
TOV capability:	The arrester is to be capable of withstanding a power frequency overvoltage of not less than 140 kV for 0.5 sec after the rated energy absorption
Maximum energy dissipation per arrester:	As recommended in ANSI/IEEE C62.11 1993 standard for a single column arrester
Press relief capability:	As recommended by ANSI/IEEE C62.11 1993 and not less 40 kA

This work is scheduled to be completed during 2005.

## B) HINCHINBROOKE SS

230 KV station service transformer 10SS1 – Specifications for the new surge arresters:

Number & Location:	3 phase to ground arresters (one per phase). To be connected as close as practical to the 230 kV terminals of the 10SS1 transformer
Type:	Metal Oxide gapless – station class
Minimum MCOV:	150 kV (rms)
Front-of-wave impulse protective level:	Maximum Equivalent Front-of wave not more than 761 kV crest
Maximum discharge voltage for 8x20 $\mu$ sec at 10 kA impulse current:	Not more than 632 kV crest
Maximum switching surge protection level:	Not more than 622 kV at 1 kA
TOV capability:	The arrester is to be capable of withstanding a power frequency overvoltage of not less than 180 kV for 0.5 sec after the rated energy absorption
Maximum energy dissipation per arrester:	As recommended in ANSI/IEEE C62.11 1993 standard for a single column arrester
Press relief capability:	As recommended by ANSI/IEEE C62.11 1993 and not less 40 kA

This work is scheduled to be completed during 2005.

### ***ASSESSMENT***

The replacement of the rod gaps with surge arresters will be beneficial and will have no adverse impact on the IESO-controlled grid.