

- 1 Q. **References: Tab 1; Volume II: Hydraulic Generation Refurbishment and**  
2 **Modernization**  
3 Hydro states on page 19, lines 10-12, *“Typically the readings should be above 500*  
4 *Mohms. When the reading is below 0.1 Mohms it will be unsafe to operate the unit.*  
5 *Table 12 lists test results that indicate a trend that the unit is approaching a critical*  
6 *operating state.”*  
7  
8 Table 12 indicates that there has been no consistent reading since the 2016  
9 measurement of 0.65 Mohms despite the acknowledgement that the level was  
10 approaching a critical operating state. Provide an update on attempts to get a  
11 consistent reading and if such a reading has been attained please provide it.

**Table 12: Test Results**

Year	Annual Test Results
2017	An inconsistent reading was listed during the outage. A work order has been entered to recheck as soon as possible.
2016	0.65 Mohms @ 500V
2015	1.28 Mohms @ 500V
2014	2.42 Mohms @ 500V
2013	5.50 Mohms @500V

- 12 A. Hydro engaged a third-party consultant, VOITH Hydro, to conduct an on-site  
13 assessment of the Hinds Lake rotor and to assist in the development and execution  
14 of an intrusive cleaning procedure. Periodic intrusive cleaning is normal industry  
15 practice to improve the condition of rotor insulation and to extend the operational  
16 life of a rotor. This intrusive cleaning was completed in July 2018.

1           As part of the outage to disassemble and clean the unit, Hydro installed a new rotor  
2           monitoring relay that allows for real-time monitoring of the resistance readings.  
3           The new monitoring will allow Hydro to trend the resistance and determine when  
4           to intervene before reaching failure. Hydro has been monitoring the unit since its  
5           return to service with the most recent reading on October 3, 2018 being 0.435  
6           Mohms, which is above the minimum allowable for safe operation (0.100 Mohms).  
7           After reviewing the historical data and comparing with the testing that occurred  
8           during disassembly, Hydro believes the current readings to be accurate and  
9           consistent.

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11           Hydro will continue to monitor the readings and plan for additional cleaning, if  
12           required, prior to the rotor rewind. Based on the current rate of change of  
13           resistance readings, Hydro expects Hinds Lake to function through the winter  
14           period.