



## NEWFOUNDLAND AND LABRADOR HYDRO

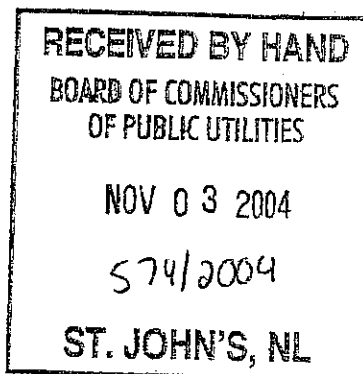
Head Office: St. John's, Newfoundland P.O. Box 12400 A1B 4K7  
Telephone (709) 737-1400 • Fax (709) 737-1231 • Website: www.nlh.nl.ca

File No. \_\_\_\_\_

INFO #1  
May 8, 2006.

November 3, 2004

Board of Commissioners of Public Utilities  
Prince Charles Building  
120 Torbay Road  
P.O. Box 12040  
St. John's, Newfoundland & Labrador  
A1A 5B2



**ATTENTION: Ms. G. Cheryl Blundon**  
**Director of Corporate Services & Board Secretary**

Dear Ms. Blundon:

***Re: Sulphur Content in No. 6 Fuel Oil –  
Holyrood Thermal Plant***

### **Introduction**

The purpose of this letter is to provide information on the requirement for Hydro to reduce the sulphur content in No. 6 fuel used at the Holyrood Thermal Plant as a result of the Air Pollution Control Regulations, 2004 passed under the Environmental Protection Act (the "Regulations"). These regulations require Hydro to reduce the sulphur content in fuel from the current 2.2% to 2% in 2005. While there will be an additional cost for the purchase of such fuel, the differential between the price to be paid for 2% sulphur fuel and the price of fuel used in setting the rates by Order No. P.U. 14 (2004), will be accounted for through the Rate Stabilization Plan. This letter also provides, for information purposes, a summary of other environmental issues that may require other action to be taken at the Holyrood Thermal Plant in the future.

### **Background**

The first phase (Units 1 and 2) of the Holyrood Thermal Plant was completed in 1971 prior to environmental control legislation in the Province. At the time of completion of the second phase (Unit 3) in 1980, there was environmental legislation which required approval of new air emission sources. Phase two was not subject to an environmental impact statement or environmental preview report process. The only requirement at the time was the construction of a higher stack for Unit 3 than for Units 1 and 2 to provide for greater dispersion of air emissions.

Since the 1970's environmental legislation has changed significantly such that it would now be impossible to construct a facility such as the Holyrood Thermal Plant without installing the best available emission control technology. While the Holyrood Thermal Plant currently is not required to install such equipment, there have been changes in environmental requirements over the years which affect the operation of the plant. As well, the new Regulations require Hydro to take certain steps to address atmospheric emissions from the plant.

In addition to changing legislative requirements, there are other factors affecting atmospheric emissions from the Holyrood Thermal Plant. The first is that the plant now operates at higher annual plant capacity factors than back in the 1970's and 1980's. As well, the population density near the plant has increased significantly. Hydro has experienced an increase in the number of complaints concerning the air emissions from the Holyrood Thermal Plant. In 2000, there were seven public complaints, in 2003 there were 56 public complaints, while in 2004 to the end of October there were 53 complaints. The changing regulatory and operational requirements, along with the greater public awareness with respect to environmental issues, have increased the need for improving environmental performance at the Holyrood Thermal Plant.

Hydro installed ambient air monitoring equipment at several sites near the Holyrood Thermal Plant in the early 1990's and has expanded its monitoring capabilities in recent years to provide real data with respect to determining actual ground level concentration for various substances and to determine the level of compliance with regulatory limits. The primary issues of current environmental concern associated with the Holyrood Thermal Plant are sulphur dioxide (SO<sub>2</sub>), particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>), opacity and heavy metals (vanadium and nickel). The air-monitoring enhancements which Hydro have installed to measure most of these emissions are as follows:

<b><i>Air Monitoring Enhancements</i></b>		
<b><i>Year Completed</i></b>	<b><i>Description</i></b>	<b><i>Total Measured Parameters Added</i></b>
1994	Ambient Air Monitoring Stations	SO <sub>2</sub> and Total Suspended Particulate ("TSP")
1998	MET Station	Meteorological Data
2000	Opacity	% Opacity (in stack)
2003	Continuous Emissions Monitoring System	SO <sub>2</sub> , NO <sub>x</sub> , CO, CO <sub>2</sub> , O <sub>2</sub> (in stack)
2003	Mobile Ambient Air Monitoring Station	SO <sub>2</sub> , NO <sub>x</sub> , Fine Particulate PM (2.5), TSP
2004 (Installation Ongoing)	Ambient Air Monitoring Stations – Enhancements to 1994 Installation	NO <sub>x</sub> , Fine Particulate (PM 2.5)

Vanadium and nickel are done through in-situ testing on a bi-annual basis.

Air dispersion modeling undertaken in the early 1990's indicated the potential for exceedences of ground level concentration limits of SO<sub>2</sub> at higher elevation terrains to the south, southeast and east of the Holyrood Thermal Plant which were outside of residential areas. More recent air dispersion modeling

indicates the potential for exceedance of the SO<sub>2</sub> regulatory limits within a forty square kilometer area surrounding the plant with higher maximum projected ground level concentrations occurring at the property boundary diminishing with distance from the source.

The majority of emission-related complaints received from the public have related to particulate matter. To respond to this, Hydro has modified procedures over the years to reduce acid smut formation. However, such complaints are still received when there is an upset in operations which results in abnormal heavy particulate releases deposited as soot on nearby properties.

Opacity is a measure of the light transmittance of emissions from the source. The opacity or darkness of air emissions has been of concern to residents in the communities. The in-stack opacity monitoring system, completed in 2000, indicates that there have been occasions when the regulatory limit has been exceeded. Hydro also reports the quantities of vanadium and other heavy metals bi-annually.

Hydro undertook a human health risk assessment in 1999 with respect to the air emissions from the plant and is undertaking a second study this fall.

#### **2005 Action on Sulfur Content**

The new Regulations specify limits for sulphur dioxide, particulate matter, opacity and heavy metals. Action is required at this time to meet the limit for sulfur dioxide. Section 14 of the regulations specify that the maximum sulphur content in No. 6 fuels must be limited to 2.2% at any one time with the average annual sulphur content being a maximum of 2%. In order to comply with this new regulatory limit, Hydro must reduce the amount of sulphur content in the fuel which it purchases. At present, Hydro purchases fuel with a specified sulphur content of 2.2% and has the ability under the current contract to reduce the

specified sulphur content. An additional premium is payable for the lower sulphur content fuel, depending on the amount of sulphur specified.

In order to comply with this new provincial regulatory limit, Hydro will purchase No. 6 fuel for the Holyrood Thermal Plant with a sulphur content of 2%, commencing in 2005. The additional premium to be paid for this lower sulphur content fuel is currently estimated to be approximately \$0.65 Cdn/bbl., at a total additional annual estimated cost of \$1.8 million for 2005. The amount of the premium can vary from time to time, as can the overall cost which is tied to the hydraulic inflows and utilization, as well as fuel prices and foreign exchange rates. As the price for this No. 6 fuel oil will exceed that used in setting rates in the 2004 test year, any differential in price will flow through to the Rate Stabilization Plan ("RSP") and be accounted for through the RSP.

#### **Federal/Provincial Regulatory Environment**

Hydro would also like to point out that the Federal Government has released a discussion paper looking at reducing the allowable levels to 1% sulphur content equivalency in No. 6 fuel by 2009. If that were to occur, Hydro would propose to gradually reduce the sulphur content in fuel so that it would achieve the new regulatory limit within the identified timeframe. Given the uncertainty surrounding the reduction in the sulphur content and the timing, Hydro does not currently propose taking any further action, other than what is required in 2005 to meet the current provincial regulatory limits for sulphur content.

The Provincial Department of Environment and Conservation is considering issuing a certificate of approval for the Holyrood Thermal Plant. They have forwarded to Hydro a proposed draft certificate that contains a number of conditions, all of which are still under discussion with the Department. The current proposed conditions for the certificate of approval would require

additional measures to be taken by Hydro with respect to air emissions from the plant.

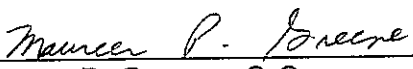
In light of the increasing regulatory requirements and the level of public concern with respect to the emissions from the Holyrood Thermal Plant, Hydro has been reviewing the technologies available to meet identified emission targets for each of the air emissions. The work that has been undertaken to date has identified that the lowest cost alternative to meet currently anticipated future environmental requirements is to reduce the sulphur content in fuel to 1% which will also reduce particulates. Depending on the results of the monitoring program over time, there may be a need to reduce the sulphur content to less than 2.0% to bring the emissions to an acceptable level.

### Conclusion

Given the uncertainty with respect to the future of both federal and provincial regulatory limits and the timing for implementation of such limits, Hydro does not currently propose taking any action in 2005, other than reduce the sulphur content in No. 6 fuel to 2% as required by the new Regulations.

Hydro will keep the Board and other stakeholders advised of any developments in this area and will, by the Fall of 2005, provide an update with respect to the current state of environmental regulation and any future required actions.

Yours truly,

  
\_\_\_\_\_  
Maureen P. Greene, Q.C.  
Vice-President & General Counsel

MPG/mgw

c.c. Mr. Paul Coxworthy  
Stewart McKelvey Stirling Scales  
Cabot Place, Suite 1100  
100 New Gower Street  
St. John's, NL  
A1C 6K3

Mr. Joseph Hutchings, Q.C.  
Poole Althouse  
Western Trust Bldg.  
49-51 Park Street  
Corner Brook, NL  
A2H 6H7

Mr. Peter Alteen  
Vice-President Regulatory Affairs & General Counsel  
Newfoundland Power  
55 Kenmount Road  
St. John's, NL  
A1B 3P6

Mr. Thomas Johnson  
Consumer Advocate  
O'Dea, Earle  
Law Offices  
323 Duckworth Street  
P.O. Box 5955  
St. John's, NL  
A1C 5X4