Q. What actual emission levels would have to be achieved at a minimum in order for Hydro to deem the change to 1% sulphur fuel oil to be effective, and what specific period of time would be required to monitor the emission results in order to definitively conclude whether the switch to the 1% sulphur fuel oil meets the aforesaid effectiveness test?

A. This was partially answered by the previous response to PUB 9 NLH which stated in part:

> "The Department of Environment and Conservation's Guidance Document GD-PPD-009.2 *Determination of Compliance with the Ambient Air Quality Standards* specifies that where the maximum predicted ground-level concentration under all operating scenarios is below the associated ambient air quality standard for the given timeframe, the facility will be deemed to be compliant for that particular pollutant. Therefore all modeled scenarios for sulphur dioxide would be required to have resultant ground-level concentrations below 900 ug/m^3 for a one-hour period. The completed air dispersion modeling for the Holyrood Thermal Generating Station's 2004 emissions indicated a maximum one-hour ground-level concentration of 3147 ug/m^3 for sulphur dioxide.
>
> The Department of Environment and Conservation has specified that, in calculating volumetric emissions of sulphur dioxide from HTGS, a 98% conversion of sulphur concentration in fuel to sulphur dioxide in emissions must be used. Assuming this relationship, then a reduction

in maximum sulphur content in the fuel burned from 2% to 1% would result in a near 50% reduction in the sulphur dioxide emission rate for any individual production rate. In air dispersion modeling algorithms the emission rate has a direct proportional affect on the resulting predicted ground level concentration. As the maximum ground level concentration predicted by the 2004 modeling would have to be reduced by 71% to achieve a level below 900 ug/m^3, the sulphur content required to achieve a predicted maximum ground level concentration in compliance with the standard would have had to be as low as .6%. However, the frequency for which the 2004 modeled ground-level concentrations were predicted to exceed the government standard was very low, indicating that the combination of emission/production rates with meteorological conditions that result in such maximum ground-level concentrations may be relatively infrequent. Therefore, it may not be necessary to reduce the emission rate to the maximum projected if the infrequent meteorological condition is avoided. This will have to be tested by future modeling and monitoring of ground level concentrations over time."

The Department of Environment and Conservation's Guidance Document GD-PPD-009.2 *Determination of Compliance with the Ambient Air Quality Standards* specifies that monitoring to determine compliance must occur over a 2-year period.