Q. What is the likelihood that the move to 1% sulphur will lower emissions levels such that NLH is in accordance with existing standards?

A. The use of fuel with a maximum sulphur content of 1% at the HTGS will result in significant improvements to the air emissions resulting from its operation. However, for reasons identified below, it is impossible to predict with certainty that this will result in compliance with the standards specified in the *Air Pollution Control Regulations* under all scenarios.

A reduction in sulphur content 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. The maximum ground level concentration predicted by the 2004 modeling would have to be reduced by 71% to achieve a level below the maximum permitted of 900 micrograms per cubic meter (900 ug/$m^{3\ u}$), consequently, the sulphur content required to achieve a predicted maximum ground level concentration in compliance with the standard could have to be as low as 0.6%. However, the frequency for which the 2004 modeled ground-level concentrations were predicted to exceed the government standard was very low because it assumed the concurrence of a particular combination of emission/production rates with specific meteorological conditions. Therefore, it may not be necessary to reduce the sulphur level of the fuel to that level to achieve sustained emissions at permitted levels. This will have to be tested by future modeling and monitoring of ground level concentrations over time.