



Application of H-VARB® Technology to Improve Coal Flow Balance at Nanticoke Generating Station

The power generation industry is constantly challenged with the need to improve the emissions and heat rate performance of their assets. In the case of pulverized coal fired units, poor fuel balance at the burners is a relatively common issue that impedes efforts for combustion optimization. The problem of fuel imbalance is particularly acute on units that employ splitting devices between the pulverizer's and the burners.

Ontario Power Generation's Nanticoke Generating Station employs Quadrifurcators (one-to-four splitters) on many of its units. These splitters boxes are arranged in the vertical, typically immediately downstream of a 90° elbow. The resulting fuel imbalance is exceptionally poor - baseline measurements indicate values in excess of +/- 50% (rms) from the mean. This results in a number of problems including reduced flame stability and carbon conversion. The generally poor combustion conditions also require increased levels of excess air with the expected negative impact on NO_x emissions, capacity and heat rate.

In 2006, Nanticoke GS installed a Variable Area Rope Breaker (VARB®) system supplied by **Greenbank Group Inc** on a single mill serving Unit 2. This technology was developed in the United Kingdom and has since been successfully installed on a number of large (500 MWe) coal-fired units configured with 3-way and 4-way splitters. The trial at Nanticoke represents the first application of the technology in North America. Initial testing of the system indicates a significant improvement in fuel distribution, reducing the imbalance to approximately +/- 15% (rms).

A paper on this subject will be presented at the Clearwater Florida conference in June 2007.

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