MANAGING POWER STATION AMBIENT AIR QUALITY COMPLIANCE

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In many countries, operation of industrial plant is subject to compliance with ambient air quality limits. In the UK, the Air Quality Strategy (AQS) objectives for 2004 include the SO2 limit values from the first EU AQFD Daughter Directive and, from 2005, the first Daughter Directive limit values for NO2 and PM10 and the additional UK SO2 objective of ≤35 15-minute periods p.a. >266 mg m-3 (100 ppb). This additional SO2 objective is the most demanding for many industrial plants. The potential for air quality impact management using dispersion modelling and forecast meteorology was trialled but conclusively shown not to be an effective management methodology. The Air Quality Management Plan approach has been adopted by all major coal- and oil-fired power stations in England and Wales. These place the responsibility on operators to ensure compliance using a combination of modelling and measurement:

• Demonstration that the anticipated generation scenario and anticipated fuel sulphur for future years are compliant with air quality objectives by dispersion modelling using 5 years of representative meteorology.

• A continuous comparison of the number of exceedances monitored at sites close to maximum impact locations with the number anticipated for the planned compliant operational scenario and an assessment of the implications for year-end compliance.

• The development of a number of tools and methodologies to judge compliance and to investigate the risks to potential exceedance associated with load and fuel-sulphur options. These have included a validation of dispersion modelling for predicting high percentile SO2 concentrations.