# A COMPARISON OF PREDICTED AND MEASURED SULPHUR DIOXIDE CONCENTRATIONS IN THE VICINITY OF UK COAL-FIRED POWER STATIONS

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All major coal- and oil-fired power stations in England and Wales have been required by the regulator, the Environment Agency, to produce Air Quality Management Plans (AQMPs) to ensure compliance with UK Air Quality Strategy objectives for sulphur dioxide, nitrogen dioxide and PM10 and to install "at least one monitoring station" to measure the station impacts. Air Quality Management Plans were produced in 2001 and are reviewed on an ongoing annual basis. In addition to consideration of future impacts, each annual review includes a retrospective analysis of actual station impacts during the previous year. This is based on both monitoring and modelling. Modelling is carried out according to a Technical Methodology agreed with the Regulator and uses the dispersion model, ADMS. At least one monitoring site is located as close as possible to the maximum impact site, identified by modelling a typical station operating scenario.

The UK Air Quality Strategy objective for 15 minute mean sulphur dioxide concentrations is substantially more demanding than the EU-based hourly and daily sulphur dioxide objectives and is the most onerous for power stations. Assessing sulphur dioxide impacts therefore comprises the main focus for the AQMP process. The Process is supported by validation studies assessing the suitability of ADMS for predicting high percentile ground level sulphur dioxide concentrations resulting from power station emissions. Sulphur dioxide emissions from power stations are particularly suited to validation studies as the source is well defined and characterised, and the pollutant does not undergo chemical transformation in the atmosphere in the same way as, for example, nitrogen oxides. In addition, large power stations in England and Wales are often located in rural areas away from other significant sources of sulphur dioxide. The paper will present a summary of recent validation studies analysing the agreement between predicted and measured concentrations. The analysis is based on the combined modelling and measurement data from all operators of coal and oil-fired power stations in England and Wales. Conclusions regarding the ability of ADMS to predict high percentile concentrations of sulphur dioxide will be presented.

**EXTENDED ABSTRACT NOT SUPPLIED**