Environmental Permit for a Combined Heat and Power (CHP) Facility

Following on from the successful planning application for the installation and operation of a Combined Heat and Power (CHP) facility for a food manufacturing facility in Essex for which planning permission was granted by the Local Planning Authority in August 2012, MJCA obtained an Environmental Permit variation to authorise the operation of the CHP facility.

CHP is the generation of electrical power and usable heat in a single process. Generating electrical power and heat together in a CHP plant is more efficient than generating them separately delivering a reduction in both primary energy usage and carbon emissions.

The CHP facility comprises a spark ignition reciprocating engine connected to an electricity generator together with a waste heat recovery boiler system and is authorised under the Environmental Permit to operate using a range of fuels including natural gas, diesel, biofuels and bioliquids.

The application to vary the Environmental Permit to authorise the operation of the CHP facility included a detailed options assessment and best available techniques (BAT) assessment of the technical specification of the plant together with an air dispersion modelling assessment of the emissions from the facility.

The options assessment was based on the Quality Assurance for Combined Heat and Power (CHPQA) initiative by the UK Government carried out on behalf of the Department of Energy and Climate Change (DECC). The aims of CHPQA are to define, assess and monitor the quality of CHP schemes on the basis of energy efficiency and environmental performance. The options assessment demonstrated that the specified facility comprised the best option based on the criteria for Good Quality CHP in respect of fuel inputs, power outputs and power capacity across the range of heat loads requried for operation of the wider site.

The atmospheric dispersion of emissions from the CHP facility was assessed using the modelling software Atmospheric Dispersion Modelling System 4 (ADMS 4) version 4.2 which is a short range dispersion model accepted by the Environment Agency for the assessment of the impacts of air emissions from permitted activities. The air dispersion modelling assessment included an assessment of the emissions on ecologically sensitive sites in the vicinity of the CHP facility and demonstrated that the emissions from the CHP facility including oxides of nitrogen (NOx), sulphur dioxide, particulate matter and carbon monoxide are acceptable when compared with relevant ecological as well as local environmental quality objectives.