

Troon Biomass

The Airshed was appointed by Glennon Brothers to conduct the noise and air quality impact assessments for a proposed new boiler plant in Ayrshire using 60,000 tonnes of untreated virgin wood bark per annum for their large timber yard at Troon Harbour. The facility produces 10MW of steam and 2.5MW of electricity.

The facility is housed in a new 15m high building and includes a boiler and a steam turbine. The combustion gases are passed through a flue gas treatment (FGT) plant before being released from a 30m high stack attached to the building.

This AQIA considered the potential adverse air quality impacts from the proposed new installation and determined the likely concentration of residual pollutants at sensitive receptors, including impacts on residential areas, adjacent commercial properties and at designated ecological sites. The assessment considered the potential impacts from NO_2 and particles (as PM_{10} and $\text{PM}_{2.5}$) in accordance with the non-statutory Biomass Guidance for Scottish Local Authorities published by Environmental Protection UK (EPUK) in 2010. The air quality impacts from the process were assessed against statutory EC Limit Values and Scottish Air Quality Objectives. The significance of the impacts was assessed in accordance with non-statutory professional Guidance published by EPUK and the Institute of Air Quality Management (IAQM). The assessment had regard to best practice Guidelines for dispersion modelling and included a detailed model sensitivity analysis for meteorological data, surface roughness and buildings.

The predictions were obtained using ADMS 5 and the regulatory dispersion model from the US Environmental Protection Agency (USEPA), AERMOD. The predicted air pollution concentrations near ground level were plotted in contours, excluding background. These predictions assume the worst case meteorological conditions and maximum emission rate at all times.

Sources of noise included noise breakout through walls and roofs; noise breakout through doors; residual noise from the top of the stack; conveyor belt noise; noise from the FGT plant; and noise from yard activities. A continuous baseline noise survey was conducted at three locations around the proposed installation over a week. Noise from the process was predicted using a computer based mathematical model based on ISO 9613-2 implemented by SoundPlan. Noise was predicted assuming all fixed plant and equipment (except yard activity) operated continuously over 24 hours. The results from the noise prediction model were used to identify the main sources of noise and to inform the noise mitigation strategy for the project.

The process received planning permission and is now operational.

