



Noise Assessment for an Extraction System at a Biotechnology Manufacturing Facility

Background

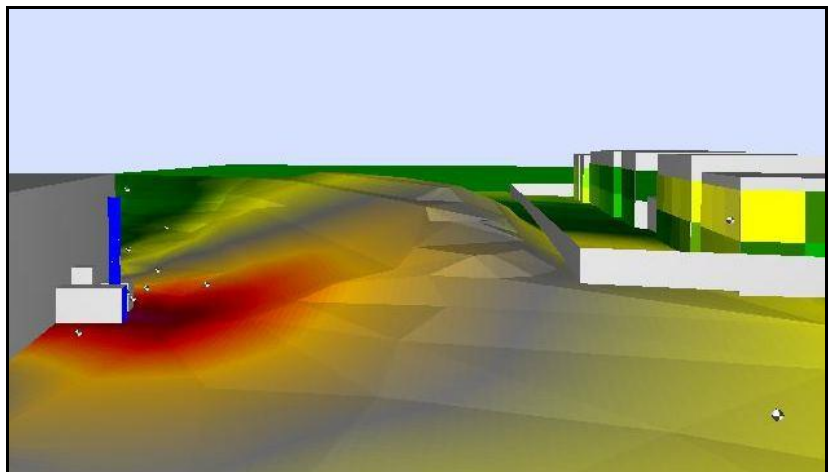
Miller Goodall Ltd (MGL) was appointed by a biotechnology firm in St Helens to investigate a noise complaint relating to an extraction system and exhaust stack located close to a nearby housing estate. Although noise control measures in the form of an acoustic enclosure had already been installed around a noisy extract fan, it was evident that gaps between panels were allowing noise to escape from the enclosure. Furthermore, noise from the exhaust stack propagated freely to nearby dwellings.

Action Taken

Discussions were held with St Helens Council regarding the scope and extent of the assessment. It was agreed that an assessment in accordance with the guidance provided in BS 4142: 1997 was the most appropriate method for assessing noise from the extraction plant, and a target Rating Level was agreed. Background noise level measurements were undertaken at the location of the nearest dwellings during daytime periods, with plant both operational and excluded from the dataset to enable the current impact to be assessed.



Measurements were taken of the noise generated by the extraction fan unit and stack exhaust. These indicated that there was a high degree of regenerated noise due to turbulent air flow within the stack, which would need to be addressed.



Noise modelling was undertaken to test the efficacy of potential noise control solutions in reducing the noise impact on nearby houses to the satisfaction of the Local Authority. The dominant noise source was found to be radiated noise from the stack body, in conjunction with the exhaust from the stack. A combination of in-line attenuators with good low frequency performance and enhancements to the stack body was recommended, in addition to taking measures to improve the sealing of panels forming the enclosure around the extraction unit.

Summary of Findings

Following consultation with its M&E engineers, the client decided the most cost effective solution was to incorporate the noise control measures within a replacement stack. This resulted in significant reductions to the noise generated by the system, and subsequently reduced the impact on neighbours to acceptable levels.

For more information about us, visit our website at www.millergoodall.co.uk. If you would like to discuss how we can help your project, please contact Miller Goodall on 01204 596166 or email info@millergoodall.co.uk.