

Is there an explanation...?

Is there an explanation for those noise problems which are distressing to the complainant, frustrating to the investigator and often remain unsolved? The problems tend to reduce to an inability to measure the noise, often a “low frequency” noise, which is the source of the complaint. The easy response is “it must be tinnitus”, although the complainant may have been told by audiologists that they do not have tinnitus. Too often, a fall-back of “tinnitus” is an easy way of avoiding further responsibility for solving a problem.

Humans are very complex systems. We do not know enough about how the stimulated brain interacts with the body. Our hearing is a main warning sense, often operating before others (touch, taste, smell, sight) are aroused, whilst sounds continue to be processed during the night and activate our stress systems. There are some unexpected interactions between sound and the brain. For example, chronic exposure of children to night-time traffic noise leads to enhanced activation of those parts of the brain which, following long term exposure, aggravate bronchitis in children¹. Surprisingly, it is noise, not only traffic exhaust, which causes the effect.

At low frequencies, microphones are more sensitive than ears, measuring down to, say, 15dB in regions where the threshold is above 40dB². So we conclude that, if you cannot measure a noise, it cannot affect you. On the other hand, some claim that the ear is not the only detector of sound - that at low frequencies other mechanisms, for example direct effects on the body, come into operation and that these are more sensitive than the ear is at low frequencies. Although such a mechanism has not been identified, it must be of extraordinary sensitivity for its stimulus sound to defy detection with high quality microphones, and the evidence is not in its favour. Despite this we must not forget that whilst, say, 90dB is inaudible to most people at 10Hz, it is a rather loud sound at 1000Hz. But 90dB at 10Hz is easily measured and there is no mystery about it.

So the problems may be tinnitus, or it may be that when we measure noise we do this in a way which obscures important subjective characteristics, such as peaks and time variations. This is an opportunity for further studies.

¹ Ising, H., Lange-Asschenfeldt, H., Moriske, H.-J., Born, J., and Eillis, M. (2004): Low frequency noise and stress: Bronchitis and cortisol in children exposed chronically to traffic noise and exhaust fumes. *Noise and Health* 6, 21 - 28.

² The average threshold rises from about 50dB at 40Hz to about 100dB at 8Hz. Good quality microphones have a flat response to below 8Hz.

NORTON-IN-HALES WINDFARM

A proposed windfarm near Market Drayton might cause a noise nuisance or spoil the views for neighbours, council chiefs have warned. Planners from Newcastle under Lyme Borough Council say they do not object to plans for the wind turbines at Norton in Hales, but insist noise levels must be regulated. The council was consulted on the proposals by energy giant Nuon Renewables because part of the site lies in the borough area. The proposals are for seven wind turbines, each measuring 105m in height. A report from the Newcastle authority to North Shropshire District Council, which will make the final decision, says that while the council does not object conditions must be put in place to control potential problems. “There is potential for noise nuisance and detriment to the amenity of the area to be experienced by occupiers of dwellings from the proposed noise sources,” the council says.

AERODYNAMICS

For most automakers, aerodynamic design and noise reduction are taking precedence over other factors including production costs. This is simply because wind is the No.1 complaint in the closely watched J.D. Power initial quality survey. "They (automakers) really are obsessive about it and rightly so because consumers complain about it," said Dave Sargent, vice president of automotive research for J.D. Power. "No one can afford to get left behind. If you get a reputation for having very noisy cars, then the natural consequence is people stop buying."

BUFFALO AIRPORT GRANT

The next phase of the Niagara Frontier Transportation Authority's "QuietHome Program" has received a major federal boost. The U.S. Department of Transportation has allocated a \$4.65 million grant to the NFTA for its ongoing noise mitigation program for residential neighbourhoods around the Buffalo Niagara International Airport. The NFTA voluntarily began the program to help residents near the airport with noise issues related to airplanes taking off and landing. In all, the NFTA will be aiding 1,700 homes, with the work to be done in phases. However, unless further funds are found, this works out at only \$2700 per home.

KINDERGARTEN DISCO

A group of children at a kindergarten disco party were told to turn down the music or face a shut down of their party by noise control officials who raided the event. The raid - called "absurd" by one teacher - happened at One Tree Hill Kindergarten in Auckland (NZ). As parents and the gaggle of children blasted the theme song to "Bob the Builder" and the "Chicken Dance", an irate neighbour spoiled the fun by calling noise control. Teacher Jenny Skerritt said there was some noise, but not enough to disturb several babies, who slept through it all. They wound down the sound for the last half hour of the disco, which finished at 7 pm. The annual disco had never before attracted any other noise abatement complaints, said head teacher Lisa Gordon, adding "we're planning to frame the notice."

FORT WORTH COMPRESSOR REGULATIONS

Fort Worth's advisory task force on natural gas drilling have agreed on recommended noise levels for compressor stations and set a timetable to finish rewriting the city's drilling regulations. Compressors which are used to move gas from wellheads to pipelines, produce near-constant noise. Dozens of compressors are in Fort Worth already, and more are expected as the Barnett Shale drilling boom continues. The Gas Drilling Task Force recommended a series of decibel levels for compressors: 75 decibels during the day and 65 at night in industrial areas, 65 and 55 in commercial areas and 55 and 50 in residential areas. If existing noise is higher than those levels, the compressors would be allowed to produce the same level as the ambient noise. Lift compressors, which are used at wellheads, would have to be surrounded by permanent walls after operating for six months. Line compressors, which are generally larger, would be allowed only in industrial zones, unless the city board of adjustment grants an exception. They would have to be 300 feet from homes or other protected uses. Four neighbourhood representatives on the task force asked for a bigger setback in light industrial zones that are adjacent to residential areas. They were outvoted 9-4 by business and gas industry representatives on the task force.