



Australian Acoustical Society
Queensland Division

Technical Meeting 12 May 2009

Assessment of Low Frequency Noise

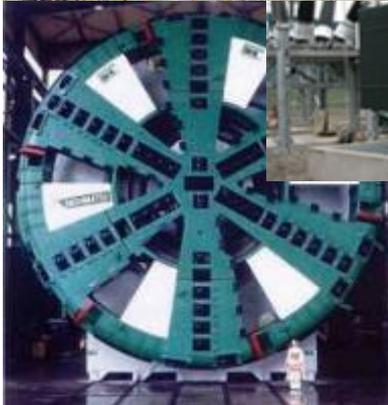
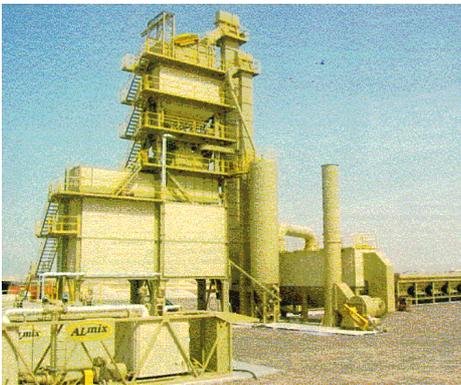
Cedric Roberts

Department of Transport and Main Roads

Low frequency noise, that is, noise where the major component frequencies occur below 100 Hz, is a widely recognised environmental noise issue. Experience has been accumulated over more than 30 years and several countries have published assessment guidelines. Typical low frequency sources exhibit a spectrum characterised by increasing sound pressure level with decreasing frequency: boilers, pumps, transformers, cooling fans, compressors, burners, foundries, washing machines, diesel engines and musical entertainment venues are examples. Generally, low frequency noise becomes annoying when the masking effect of the higher frequencies is absent. Loss of higher frequency components may occur as a result of transmission through building fabric or in propagation over long distances. An analogous effect may occur with hearing impaired individuals, where the ability to perceive higher frequencies is reduced. Annoyance may be noted in situations where mid and high frequency components are near absent and hence, the overall A-weighted level is relatively low, such as in the otherwise quiet environs of residences and offices impacted by a low frequency noise source. Hence the A-weighted level is not a valid basis for determining the justification of a complaint where the intruding noise contains most of its energy in the lower frequencies.

As a result of the incidence of complaints relating to low frequency noise and the inadequacy of A-weighted approaches when applied to its assessment, a low frequency noise guideline has been developed by the Environmental Protection Agency, most recently in conjunction with the Department of Transport and Main Roads.

Cedric is the Manager and Principal Engineer in the Noise, Air Quality and Vibration Management Section, Road Planning & Design Branch, Design, Environment & Stewardship, Engineering and Technology Division, Queensland Department of Transport and Main Roads. Cedric's early career was spent in South Africa as a scientist with the South African Bureau of Standards and then as an acoustical engineer with the Military Medical Research Institute. His subsequent career includes stints with the Western Australian Department of Health in their then, Occupational Health, Clean Air and Noise Abatement Section, with BHP and Vipac as an environmental engineer and acoustical consultant and latterly with Queensland EPA in technical specialist and managerial positions. His current interests are in low frequency noise and vibration from surface transportation and construction activities and in the prediction and assessment of noise from tunnel portals and ground vibration and regenerated noise from underground construction works.



Date & Time: 6:30pm, Tuesday, 12 May 2009

Venue: Queensland Irish Club

*The Harp Room
171 Elizabeth St
Brisbane, QLD 4000*

<http://www.queenslandirish.com/>

Refreshments will be provided

COST: Free For Members

\$15.00 Guests

RSVP: Wednesday 6 May 2009

Richard Devereaux: AAS QLD Secretary
rdevereux@acran.com.au

