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THE HISTORY OF CONTROLS OVER POP CONCERT AND SIMILAR EVENT NOISE

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The raver who pays £20 to spend all night ecstatically gyrating to pounding rhythms and space age warblings in a large tent wants and expects the sound to be physically loud. Naturally enough, the subtleties are lost on the family trying to sleep in their home a couple of fields away who will interpret it as an infernal racket. The conflict between those entertained by a sound and those annoyed by it is not something that arrived with Woodstock; people have no doubt hurled rotten tomatoes and bowls of washing up water or worse at the itinerant barrel organists since time immemorial. At Welling in Kent the Granada Cinema's mighty wurlitzer was silenced in the 1950s when the residents of houses to the rear of the cinema finally tired of having the organist entertain twice nightly. Disturbance of a different kind was tolerated for years by a woman whose flat shared a party wall with the Tatler Cinema in Charing Cross Road. She remarked to the author that she always knew what sort of film was showing and how well it was received by the audience, having a preference herself for the music associated with westerns. She was surprisingly sanguine about the conversion of the cinema into a new venue for the Marquee Club, one of London's best known rock venues and nurseries for future megastars, so perhaps the dense concrete block one metre cavity wall designed by the Club's acoustics consultant was superfluous!

Entertainment noise comes in many forms. Any amplified sound, from the commentary at a village gymkhana to Guns and Roses, can travel over long distances in the 'right' atmospheric conditions, while clay pigeon shooting, speedway, motor racing and the roar of a crowd are also typical of powerful entertainment sound sources. Confronted with a noise problem, environmental health officers, acoustics consultants and especially lawyers, reach for the appropriate standard, and the remainder of this short introductory review comprises a survey of the development of standards applied to pop concert noise.

Although licensing authorities and event promoters alike may be sceptical as to the value or use of standards or codes of practice they do have a place and there seems to be a consensus that they do have a useful role to play. Essentially their role is threefold:

HISTORY OF CONTROLS OVER POP CONCERTS

i) they level the playing field - the licensing authority and promoter have a common objective;
ii) they provide a framework for event planning;
iii) they provide a mutually understood benchmark for assessment and enforcement.

The impetus for a nationally agreed code from within the industry has been fuelled by frustration at the differences between the requirements of different licensing authorities. Some licensing authorities, conversely, have argued against national standards precisely because they believe their requirements to be particular to their own localities.

Among the earliest experiments with pop concert noise control known to the author was the Leeds audience exposure limit of the early 1970s. This was inspired by the view, now regaining currency as Dove has described at this conference, that attendees should be protected from the excesses of some bands and sound engineers (or perhaps from themselves). The Leeds limit was based on the 90dB L_{Aeq} mean daily exposure limit which was then enshrined in the Department of Employment Code of Practice on noise exposure at work, but took the daily limit recommendation too literally and through applying it in their own venues the City Council wiped Leeds off the major acts' touring schedules.

The GLC almost repeated Leeds' error in its Pop Code when it similarly opted for an occupational hearing damage based audience exposure limit, albeit at a higher level of 93dB L_{Aeq} (8 hours - correctable for shorter exposure times). However, it also specified environmental noise limits, responding to the problems caused by the first big outdoor pop concerts in urban locations, a new phenomenon of which some of the earliest examples were held at Charlton Athletic, Crystal Palace and Queens Park Rangers' grounds in the mid 1970s, and addressed noise breakout from indoor venues.

The important, and to date at least, enduring principle underlying the GLC limits was the concept of relating the permissible level to the 'natural background' or ambient noise level normally prevailing around the concert site with no event in progress. The idea was that the licensing authority established a baseline level before the event over a corresponding period on the corresponding day or in the area of the indoor venue when no concert was in progress. In the first (1976) edition of the Code the baseline and limit noise values were specified in terms of L_{A50}, but from the second (1978) edition the L_{Aeq} index was used in recognition of the fact that the concert noise would itself be highly variable with short term peaks and troughs, and that it

would be temporary and transient. The use of L_{A90}, the more usual indicator of background level, was considered to be inappropriate because of its explicit unresponsiveness to event noise and because it was felt that it would unduly restrict what would be, after all, a relatively short term, temporary intrusion.

The standards were, in summary:

Outdoor Venues (up to 3 concerts per year)

a) L_{A50} (15 minutes) during concert not to exceed corresponding ambient L_{A50} by more than 10dB (07.00 to 20.00), or more than 6dB (20.00 to 23.00).
b) No sound from the venue to be audible within any residential premises (23.00 to 07.00).

Indoor Venues (and outdoor venues, more than 3 per year)

a) L_{A50} (15 minute) during concert not to exceed corresponding ambient L_{A50} by more than 1dB (07.00 to 20.00).
b) No sound from the venue to be audible within any residential premises (20.00 to 07.00).

The principal impracticality of the GLC's environmental standard was that as well as step changing at 23.00 hrs, after which no entertainment noise was to be audible, it changed at 20.00 when the allowable entertainment noise contribution was reduced from 10dB(A) over background to 6dB(A) over background. This step change, coming in the middle of the average event, was impossible to enforce and of dubious practical benefit and was dropped from the second edition of the Code, but only for indoor venues. The noise chapter remained essentially unchanged in the third and final (1985) edition (1).

Subsequent proposed revisions were published as papers since the GLC Code was destined not to be revised again. Along with greater knowledge of how the guide standards worked came insight into how to enforce them. Griffiths et al published first an outline of a noise control strategy, based on the final GLC Code (2), and then a proposal was made that the 'two tier' standard should be dropped and the 10dB(A) increment accepted through to 23.00 (3).

The inaudibility criterion which the GLC Code prescribed for night time was later taken up as general policy by, most notably, Edinburgh City Council. The problem in Edinburgh, and in Scotland's cities and large towns generally, was the traditional building form of the tenement block with the public house on the corner. The problem of live entertainment and juke box noise transmission through the blocks

became even more acute when the licensing law was changed and late licences became widespread. Scottish law provided for a legal restraint in the form of a local bylaw enshrining the inaudibility principle, and this was used with great success to solve the city wide problem, providing a great deal of work for acoustic musicians and a folk revival as a by product. The application of the policy and its wider use were discussed in detail at two Institute of Acoustics meetings (4,5).

As experience was gained of the effectiveness of, and difficulties in applying, the Code, further changes suggested themselves. Most especially, the rising number of big outdoor concerts from year to year and the establishment of Wembley Stadium as a regular venue allowed for the community response to fugitive concert noise to be monitored in something approaching a methodical manner for the first time. It became clear that 10dB(A) over the normal ambient level was surprisingly widely tolerated provided that the event was special but that as the number of events at any one venue during a summer season increased, so did the level of complaint.

In 1988 the Noise Council formed a working group to draw together the lessons born of experience and draft a Code of Practice for noise control at pop concerts, which would comprise updated environmental noise standards, suggest restrictions on working hours during the stage construction and breakdown, PA testing and rehearsal, and offer practical advice on measures to reduce long distance sound propagation.

The draft proposes allowances of event noise L_{Aeq} over ambient for 1, 2-12 and more than 12 concerts per year. The 1 concert allowance of 20dB(A) had been found to be acceptable in practice and acknowledges the impracticality of carrying out special works at infrequently used venues, but has been widely queried by licensing authorities unfamiliar with such events. The more strict limits (10dB(A) and 1dB(A) respectively) on more frequently used venues reflected both reduced community tolerance and the economic practicability of actively controlling sound propagation.

At about the same time several other organisations were embarking on similar exercises, among them Westminster City Council, which set out to revise the GLC Pop Code, the National Outdoor Events Association which was industry led and which proposed to incorporate the Noise Council code in a comprehensive handbook, similar in aim but more comprehensive than the GLC Pop Code, and, of course, the Health and Safety Executive.

The HSE's definitive guidance on pop concert safety and health has existed in draft form for about a year (10) and its latest thoughts on noise aspects are described by

Dove and by Griffiths in the present proceedings. The noise section has three components, the most controversial being a return to the concept of audience exposure limits. The HSE's proposed limit of 104dB $L_{Aeq,T}$ is based on a survey of actual concert sound levels (6,7) and on some reasoned assumptions about patterns of attendance, but still represents a radical new control which some sectors of the live music business will find difficult to accept. The other areas which the HSE has addressed are the noise exposure of employees and environmental noise standards.

The first draft triggered animated debate, which was precisely the response the HSE wished to provoke, but as a result divisions have formed between supporters of alternative approaches. There was little enthusiasm among practitioners for the original proposal that environmental noise standards should take the 'background plus' form familiar from GLC days but with a L_{A90} rather than a L_{Aeq} basis. A measure of agreement emerged from debate that in some instances a single figure fixed limit was the right approach. The problems with 'background plus' are that the background, of course, changes during the day and evening, monitoring and enforcement are less simple than they could be. Some licensing authorities have fashioned their own indexes of fixed limits, as the paper from Anderson will show, to great effect.

The problem with employee noise exposure is that many in the live music industry, including the musicians themselves, have adopted the attitude that 'it can't apply to us', but the law, in the form of the Hearing Damage at Work Regulations, does apply to everyone from the musicians and sound engineers to the security and bar staff. Dibble's work for the British Entertainment and Discotheque Association (BEDA) has led to the publication of a useful, practical guide for venue managers which enables them to plan staff rosters which result in full compliance in the most unpromising of circumstances (8).

The relatively recent rave phenomenon has generated a new set of problems, most particularly that the principal object is to generate high levels of low frequency sound all night. The strict application of 'traditional' pop code guidelines which recommend inaudibility after 23.00 hrs could severely limit the rave market, and in a recent appeal case magistrates upheld inaudibility as a condition in a pre-emptive EPA notice. Dibble has proposed an objective assessment method based on the measurement of low frequency sound in 1/3- octave bands and using the L_{A10} against L_{A90} comparison as an assessment tool (9). Practically, this roughly translates into a rule of thumb that if the music is just audible outside a house it will be acceptable inside.

HISTORY OF CONTROLS OVER POP CONCERTS

There is clearly demand among licensing authorities for objective, measurable assessment regimes and a frequency spectrum based approach with perhaps an L_{A10} (other statistical indices may be even more appropriate to entertainment noise as a specific source) versus background indicator may be more flexible and fair than L_{Aeq} contribution over ambient standards in some circumstances. However, the disadvantage in the short term may be the relative complexity of the measurement and requirement for relatively sophisticated measuring equipment.

The classification of music based events between recorded and live and between indoor and outdoor venues has become somewhat scrambled as it was, indeed, in the first draft of the HSE's proposed pop concert guidelines. Whatever emerges from the continuing debate, it will be important that the scope of published guidelines is clearly defined. There may yet be scope for further discussion of the need for artificial boundaries between live and recorded sound, and of the distinctions between the problems associated with indoor and outdoor events. Certainly the problems raised by audience exposure limits and their enforcement will be observed with interest by all involved in this area of sound control and noise assessment.

REFERENCES

1. Greater London Council, 'Code of Practice for Pop Concerts. A guide to safety health and welfare at one day events. Third Edition'. (1985)
Ibid, Second Edition, (1978)
Ibid First Edition, (1976)

2. JET Griffiths, S W Turner and A D Wallis, 'A noise control procedure for open-air pop concerts', Proc. Inst. Acoustics, 8, (4) (1986).

3. JET Griffiths and S S Kamath, 'Revised environmental noise guidelines for pop concerts', Proc. Inst. Acoustics, 9, (1987)

4. Proc. Inst. Of Acoustics Vol 10, Part 3 (1988)

5. Proc. Inst of Acoustics Vol 11, Part 2 (1989)

6. JET Griffiths and J G Staunton, 'Audience exposure to sound at pop concerts and the impact of proposed guidelines', Proc. Inst. Acoustics, 13, (7) p35-45, (1991).

7. J R Hyde and JET Griffiths, 'Proposed noise criteria for the HSE guidance on pop concert safety', Proc. Inst. Acoustics, 13, (8), p390-396 (1991)

8. K Dibble, 'The BEDA noise at work method for discoteques, nightclubs and similar working environments', Proc. Inst. Acoustics 13, (8), p361-370 (1991)

9. K Dibble, 'Noise control at all-night acid house raves', Proc. Inst. Acoustics 13, (8), p371-389 (1991)

10. 'Draft proposals for guidance by the Health and Safety Commission and the Home Office. Guide to health, safety and welfare at pop concerts and other similar events', Health and Safety Executive, London (1991)