Weightmans

# Legal update

## David Evans v Secretary of State for the Department of Energy and Climate Change (1) JJ Maintenance Limited (2)

### NIHL causation: hearing loss when measured at over 2, 3 and 4 kHz was "both significant and appreciable".

### Facts

The claimant alleged that he had developed Noise Induced Hearing Loss (NIHL) as a consequence of his employment with both defendants. Breach of duty was admitted and it was also "agreed" that the claimant's cumulative Noise Immission Level was in the region of 104 dB.

The case turned on a dispute between the medical experts – Mr. Singh for the claimant and Professor Lutman for the defendant as to whether the claimant's hearing loss was "significant" or whether it should be treated as "*de minimis*" and not compensatable.

Mr. Singh argued that the claimant's overall hearing loss should take into consideration the claimant's hearing loss at 4 kHz whilst Professor Lutman's view is that measured over 1, 2 and 3 kHz the Noise Induced component was just 1.1 dB and as such, it would not have a noticeable effect over the claimant's ability to hear.

The claimant's largest hearing loss was at 4 kHz which if ignored Mr Singh argued would lead to the claimant's overall hearing loss being distorted. Mr Singh pointed out his previous criticism of the **Lutman Coles Guidelines** – a position which was seemingly accepted in principle by Professor Lutman in a joint statement prepared on a previous case in 2014.

His Honour Judge Bidder QC held;

> *"It seems to me that must be taken as a concession.....that the paper needs refinement.....*
>
> *Whilst it is I accept a peer/reviewed paper in a respected journal.....the authors refer to the paper as a "proposal".*

Further, at paragraph 19

> *".....I do not consider it necessary for me to conclude on a balance of probabilities that the paper must be accepted as a gold standard for the quantification of NIHL".*

### The battle ground

The case turned upon the significance or not of the hearing loss at 4 kHz.

Mr. Singh relied upon a 2016 paper undertaken by Professor Brian Moore of Cambridge University whose conclusions within the paper were;

> *"That the audiometric threshold at 4 kHz and possibly at 6 kHz should be taken into account when considering compensation for occupational Noise Induced Hearing Loss in a medico-legal context".*

Weightmans

Mr. Singh accepted firstly that when measured over 1, 2 and 3 kHz, the Noise Induced component was no more than 2.3 dB and that this would not cause "an appreciable disability". Secondly, he accepted that a measurement over these frequencies was the traditional method but argued that in this case it did not lead to a just result.

Professor Lutman placed reliance on his previous collaborative work with Professor Moore which he said led to the conclusions of an absence of any statistically significant effect of additional hearing loss. This was rejected by the Judge on the basis that Professor Moore's own paper was published 2 years later and because Professor Lutman accepted the earlier work was not suitable for publication.

## The Judgment

Judge Bidder preferred to Mr. Singh's evidence over Professor Lutman's holding that the original **2000 Coles Guidelines** supported an average taken over 2, 3 and 4 kHz in certain circumstances.

Further, that the claimant's hearing loss at 3, and 4 kHz at this case producing an average of just over 11 dB would cause the claimant;

> *"An appreciable and measurable difference in both the audibility of sound and the resolution of speech".*

Judge Bidder stated (paragraph 51) that he preferred the clinical experience of Mr Singh;

> *"Who was used to seeing the effects of such sensorineural loss on patients he treated".*

## Implications

We recommend that the judgment should be treated cautiously – it is not a wholesale rejection of the **Lutman Coles Guidelines [2016]** but is a case which turned on its own facts – namely the measurement of hearing loss over the "conventional frequencies of 1, 2 and 3 kHz did not reveal any appreciable loss and "under estimated" the contribution that noise had made to the claimant's overall hearing loss when the loss of 4 kHz was taken into account.

Handlers should be aware of the arguments here however. There was fairly significant criticism of Professor Lutman's attempt to walk back from a concession made in a prior joint report prepared by him and Mr. Singh that quantifying over 2–4kHz could be appropriate. That concession should now be regarded as being in the public domain and is likely to arise in medical reports in the future.

Measurement of hearing loss over 1, 2 and 3 kHz remains "the norm", and this judgment does not alter that position.

If you would like to discuss any of the issues in this update please do not hesitate to contact us:


- Jim Byard, Partner, at **jim.byard@weightmans.com** or call on 0116 242 8914
- Peter Tyler, Solicitor, at **peter.tyler@weightmans.com** or call on 0121 616 6560

**Weightmans LLP**
**December 2017**

Weightmans



Data Protection Act

Pursuant to the Data Protection Act 1998, your name may be retained on our marketing database. The database enables us to select contacts to receive a variety of marketing materials including our legal update service, newsletters and invites to seminars and events. It details your name, address, telephone, fax, e-mail, website, mailing requirements and other comments if any. Please ensure you update our marketing team with any changes. You have the right to correct any data that relates to you. You should contact James Holman, our Data Protection Officer in writing, at 100 Old Hall Street Liverpool L3 9QJ.




# De Minimis and The LCB Guidelines – An Update

*Introduction*

We discussed the issue of de minimis in NIHL claims in editions 3, 93, 108, 133 and 161 of BC Disease News i.e. does NIHL of a magnitude of only a few decibels, or, outside of the key frequency range for hearing, materially affect the claimant?

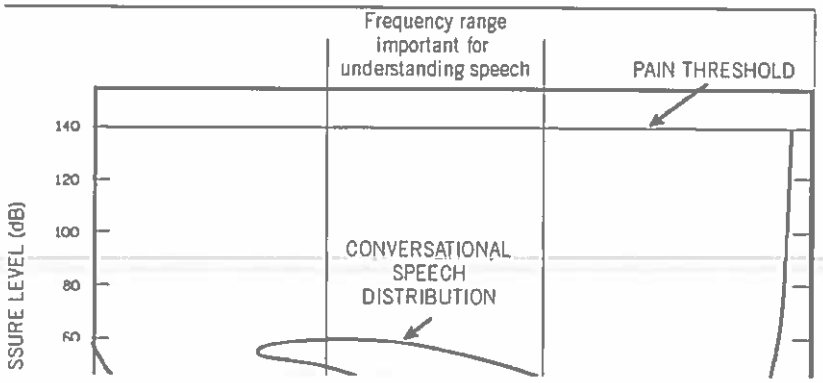
This week, we revisit the topic in light of the recent decision in *Evans v Secretary of State for the Department of Energy & Climate Change and JJ Maintenance Limited* (12th December 2017, Cardiff County Court), in which the LCB Guidelines (2016) for the quantification of NIHL were utilised, alongside a de minimis defence.

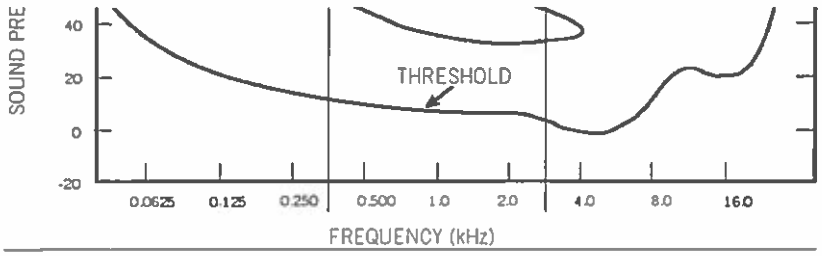
*Background to De Minimis*

For the purposes of this article, it is worth revisiting the topic of human hearing. The human range of hearing is between in the region of 20 Hz and 20 kHz in children and young adults but with the high range frequencies at 8 kHz and above fading with age.

The human voice produces sound within a frequency range of about 60 Hz-7 kHz but most human speech falls within a range of 250 Hz-3 kHz. The primary importance of sound within the human speech frequency range of 250 Hz-3 kHz is internationally recognised in the transmission of speech through telecommunications networks with circuitry designed to capture sound within that range only.

However, sound at 4 kHz can also play a part in speech recognition. According to an Irish Expert Hearing Group 'each individual frequency supplies a different quantity of information for understanding speech. All frequencies between 250 Hz and 4,000 Hz contribute to speech comprehension, but some are more important than others. The most important frequency for understanding speech in a quiet environment is 2,000 Hz. The other frequencies, e.g. 250 Hz, 500 Hz and 4,000 Hz, are less important'.[1] Importantly the same Expert Hearing Group concluded that 'frequencies of 6,000 Hz and 8,000 Hz carry no information for speech comprehension'. This is reflected within the figure below reproduced from the Group's report showing the frequency ranges important for understanding speech.






*De Minimis NIHL?*

With the nature of human hearing in place, we can now ask how the legal principles are to be applied in NIHL cases. Is hearing loss of only a few decibels actionable? Similarly, is more significant hearing loss outside of the key frequencies for human hearing – that is 250 Hz-3 kHz – actionable? We posed these questions in earlier editions of BCDN – where did we leave this topic?

*Case Law Thus Far*

To our knowledge there have now been 8 County Court decisions which address de minimis arguments in NIHL claims (there are no doubt other decisions out there). Defendants have succeeded in 3 of these cases which we summarise below:

| | *Hughes v Rhondda Cynon Taff CBC* (August 2012) | *Holloway v Tyne Thames Tech Ltd* (7 May 2015) | *Hinchliffe v Cadbury UK Ltd* (12 May 2015) | *Lomas v London Electric Wire Company & Smiths Ltd* (22 June 2015) | *Briggs v RHM Frozen Food Limited* (July 2015) | *Roberts v Prysmian Cables and Systems Limited* (Wrexham CC, 30 October 2015) | *Childs v Brass & Alloy Pressings (Dentend) Ltd* (Birmingham CC, 21 December 2015) | *Harbison v The Rover Company Limited* (Birmingham County Court, 13 October 2016) |
|---|---|---|---|---|---|---|---|---|
| THE NIHL | No disability within 1-3 kHz frequency range<br><br>5dB NIHL at 4kHz | NIHL of up to 1.6 dB averaged between 1-3 kHz. 11dB NIHL at 4kHz in the right ear and 16 dB NIHL in the left ear | 3dB NIHL averaged over 1-3 kHz. 10-15 dB loss at 4kHz | 3 dB NIHL averaged over 1-3 kHz bilaterally. No losses at 4 or 6kHz | Little or no NIHL at 1-3kHz. Loss of up to 15dB at 4kHz | Average of between 3-5dB NIHL over 1-3 kHz and 'some damage' at 4 and 6 kHz | 2.02dB NIHL averaged over 1-3 kHz | Measured across 1, 2 and 3 kHz NIHL was 1dB. Loss of up to 15dB at 4kHz |
| TINNITUS | NO | NO | NO | SLIGHT and noise induced | SLIGHT not noise induced | SLIGHT not noise related | NO | NO |
| HEARING AIDS | No Hearing Aids | No Hearing Aids | Need accelerated by 2-5 years | No Hearing Aids | Accelerated need for Hearing Aids | No Hearing Aids | Need accelerated by 5 years | No Hearing Aids |
| CL SOL / COUNSEL | ? / David Harris | Roberts Jackson Limited / Timothy Grace | Roberts Jackson Limited / Alistair Wright | Michael Lewin Solicitors / Joe Wynn | Roberts Jackson Limited / Mr Vanderpump | Slater & Gordon / Elizabeth Marshall | Roberts Jackson Limited / Mr Vanderpump | Isaac Abraham/Joseph Wynn |
| DF SOL / COUNSEL | Dolmans / Doug Cooper | Clyde & Co/ Doug Cooper | DAC Beachcroft /Doug Cooper | Weightmans / Richard Seabrook | DWF/Miss Sutton | Clyde & Co / Paul Higgins | DAC Beachcroft / Mr Gregory | BLM/Matthew Boyle |
| CLAIMANT EXPERT | Mr Tomkinson | Professor Homer | Mr Zoltoun | Mr Lloyd | Professor Homer | Mr Tomkinson | Mr Manjaly | Mr Sharma |
| DEFENDANT EXPERT | Mr Jones | Professor Lutman | Mr Jones | Professor Lutman | Mr Jones | No Expert | No Expert | No Expert |
| DE MINIMIS? | YES | YES | NO | YES NIHL BUT DAMAGES AWARDED FOR TINNITUS | NO | NO | NO | YES |

*Evans v Secretary of State for the Department of Energy and Climate Change*

Let us turn to the facts of the case in *Evans*.

The claimant claimed damages from 2 of his former employers for NIHL, including for the provision in future years of hearing aids and for the maintenance of those aids.

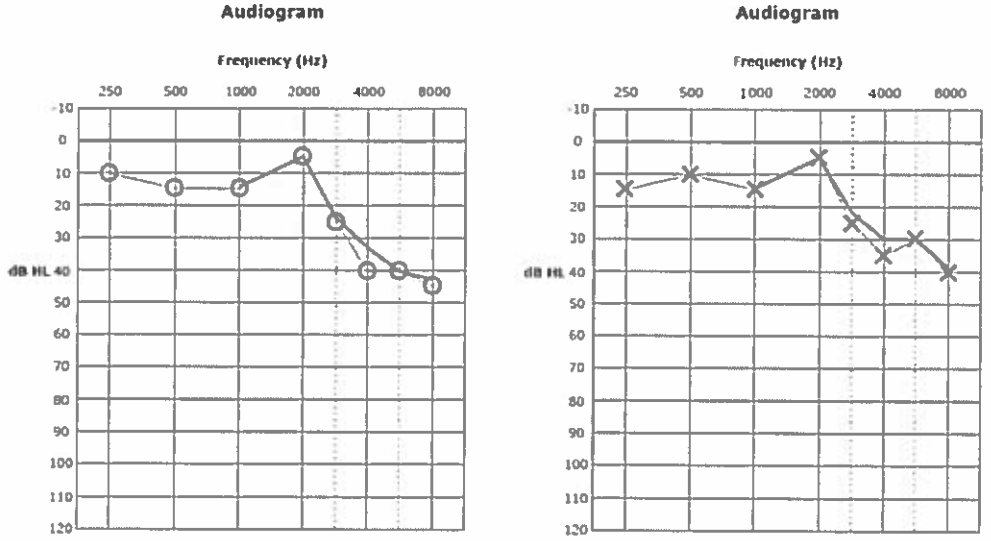
He was employed by the 1st defendant, NCB, from 1975-1979 and by the 2nd defendant as a general labourer from 2000-2010. It was estimated by an acoustic engineer that the claimant's Noise Immission Level (NIL) was in the region of 104 dB and this was accepted by both parties. This took into account any hearing protection worn by him. Both defendants conceded breach of duty and neither advanced a limitation defence.

The parties also agreed, applying the criteria in Coles 2000 Guidelines, that the claimant had suffered NIHL as a result of his exposure to noise in his various employments. The agreed NIL satisfied R2 requirement of the Guidelines. The audiogram showed a high-frequency hearing loss in both ears consistent with the R1 requirement of the Guidelines and the experts agreed that there was a bulge at 3 and 4 kHz in both ears consistent with the R3 requirement.

However, the defendants disagreed about the quantification of that hearing loss and about whether the loss was significant or appreciable and so submitted that unless the claimant could prove, on the balance of probabilities, that his hearing loss was significant or appreciable that it should be treated as '*de minimis*' or non-compensable.

The expert for the claimant was Mr Singh and the expert for the defendant was Professor Lutman. The claimant was examined by Mr Singh in February 2013 and complained that he had hearing difficulties for around 1 to 2 years. His right ear was subjectively his worst hearing ear and he found his hearing loss to be problematic in domestic and social situations e.g. having to turn up the volume on the television and struggling to hear conversation. He did not report suffering from tinnitus.

Two audiograms were carried out by Mr Singh on the claimant with the results as follows.




Mr Singh, relying on figures in the 'Black Book[1]', assessed the claimant's average hearing loss over 3 and 4 kHz as 11.2 dB. Professor Lutman, however, relied upon the recent LCB Guidelines (2016), to quantify the claimant's loss over 1, 2 and 3 kHz, which he assessed to be 1.1dB which he argued was too small to have a noticeable effect on the claimant's day-to-day hearing ability.

The LCB Guidelines (2016) assume that the 'anchor point' threshold values, typically at 1 and 8 kHz, will to some extent be affected by NIHL. To assume that the thresholds at the anchor points are purely down to AAHL will under-estimate the NIHL component. The new guidelines offer a method for estimating the NIHL at the anchor points and obtaining AAHL data against which to better compare the claimant's hearing thresholds and most accurately quantify the NIHL.

Mr Singh did not agree with Professor Lutman's use of the LCB guidelines which he referred to as '*illogical and unfair*'. In support of this he relied upon a joint statement in a previous case from 2014 in which Professor Lutman appeared to accept Mr Singh's suggestion that the logical problems with the LCB guidelines could be avoided by assessing the binaural loss at 2, 3 and 4 kHz.

Professor Lutman in the present case conceded that if LCB 2016 was strictly used with 1 kHz as the lower anchor point, the estimation of NIHL, might be distorted.

In relation to this HHJ Bidder QC, stated at para 18 of the judgment:

*'It seems to me that that must be taken as a concession by one of the authors of the 2016 paper that that paper needs refinement. While it is, I accept, a peer-reviewed paper in a respected journal, it should be noted that the authors specifically describe it within the paper as a "proposal". While Miss Williams for the Defendants tells me, and I accept from her, that LCB 2016 has been accepted by some 1st instance judges (and, no doubt, rejected by others) it has not been considered at an appeal level.*

He also went on to point out that the parties had not cited any responses by experts in this field to the proposals in the 2016 Guidelines. As such, in relation to the Guidelines HHJ Bidder concluded:

*'Given that Prof Lutman accepts, in this case, that strict adherence to the paper by use of the 1 kHz level as an anchor point may distort the estimation of NIHL in this case, I do not consider that it is necessary for me to conclude, on a balance of probabilities, that that paper must be accepted as some sort of "gold standard" for the quantification of NIHL.'*

Professor Lutman, accepting the distortion caused by taking 1 kHz as the lower anchor point, made an adjustment recommended in the 2016 Guidelines where there is a steep fall off at 8 kHz and he replaced the measured thresholds at 1 kHz with a value of 7 dB (instead of the measured value of 15dB). 7 dB corresponds with the 50th percentile for age associated hearing loss at 1 kHz. Once that procedure was adopted, the NIHL was then assessed as 2.3 dB (binaural 1, 2, 3 kHz average). Professor Lutman, again contended that this loss was too small to be noticeable and in cross-examination, Mr Singh agreed with this.

However, Mr Singh, argued that hearing at 3 and 4 kHz are also very important in terms of speech intelligibility. He submitted that in the Black Book, there is an acknowledgment that the adoption of the 1,2 and 3 kHz frequencies for conventional noise loss should not imply the absence of any disability in some individuals with hearing losses restricted to frequencies outside that rage – with there being a significant loss at 3 and 4kHz in this case.

He also relied on a paper written by Professor Moore of the Cambridge Neurosciences Department in July 2016, published in the International Journal of Audiology. This paper summarises a large amount of research material which, Mr Singh contended, supported the importance of hearing loss at 4 kHz. In particular it states at page 131:

*'There are many studies showing that frequency components above 3 kHz contribute to speech intelligibility for people with normal hearing'*

The paper goes on to use the example of a man aged 55 assessed using the LCB 2016 guidelines to which he said:

*'The mean estimate of the NIHL at 1,2 and 3 kHz is only 2.4 dB which would usually be considered as of not importance. The mean estimate of the NIHL at 1, 2 and 4 kHz is more substantial, at 11.7 dB…This example illustrates how the noise-induced component of the hearing loss at frequencies above 3 kHz can lead to some increase in difficult in understanding soft speech in quiet and a marked increase in difficult in understanding speech in background noise'.*

Professor Moore, also presents research which alleges that hearing the voices of women and children and certain bird song may be compromised by hearing loss at 4 kHz and above and that the ability to determine whether a sound is coming from in front or behind.

Finally, the following statement of Professor Moore was also relied upon:

*'Therefore the audiometric threshold at 4 kHz and possibly also at 6 kHz, should be taken into account when considering compensation for occupational NIHL in a medico-legal context. A major complaint of people with NIHL is difficulty in understanding speech in noise. A good predictor of the ability to understand speech in noise for people with NIHL is the average audiometric threshold at 2 and 4 kHz'.*

Professor Lutman rejected this analysis and contended that the loss of 11dB at 3 and 4 kHz could not be taken to be significant because of the lack of published research as to whether such losses at those frequencies have any impact. He relied upon his previous collaborative work undertaken with Professor Moore in which they were unable to find a statistically significant effect of that additional hearing loss and moreover, that any trend showed minimal effect. Indeed the specific finding (as written by Moore) was that:

*'Similar to what was seen in the multiple regression analysis above, there is a trend (not statistically significant) for the additional "bulge" in the audiograms shown above to confer a small decrement in performance on the speech recognition in noise test. From a scientific point of view, the trend should not be relied upon, as it is not statistically significant: in other words there is a chance that a repeat study might not show the same thing'.*

HHJ Bidder QC addressed this argument as follows at para 45:

*'Clearly I must give weight to that scientific view of the significance of the evidence. That experiment did not show to scientific probability, the appreciable impact of the higher frequency losses. However, that analysis was in 2014. The larger scale survey which was clearly needed to establish statistical significance, if it could do so, has not taken place and what followed was the Moore survey in 2016 which, in my judgment, on balance of probabilities does establish the real significance of 4 kHz and above to those suffering from an established NIHL at that frequency'.*

Professor Lutman also relied on 2 studies carried out in 2015 and 2016 by McShefferty which consider the 'just noticeable difference' in speech to noise ratio and points out that there is no benchmark for what is a 'just noticeable difference' in speech to noise ratio (SNR). The studies suggested that noise reduction schemes might need to achieve a benefit of greater than 3 dB to be reliably discriminable. In the later paper, the 'just meaningful difference' in SNR was considered. They found that the mean difference for more clinically relevant tasks was 6-8 dB regardless of hearing ability.

However, on the facts of this case, HHJ Bidder QC, rejected these findings as unhelpful, he said at para 50:

*'Mr Singh, at page 119 criticises the limitations of the 2 studies – and I do not believe that Professor Lutman has disputed those limitations, but in my judgment, more significantly, he contends that if those papers are accepted, all I am able to conclude is that 3 dB and 6 dB are likely to be of significance in terms of just noticeable and just meaningful levels in terms of speech to noise rations when considering a relatively broad*

*speech spectrum. Here, however, it is not in dispute between the experts that there is a binaural noise loss of 11.2dB averaged at 3 and 4 kHz and, even accepted the McShefferty research that cannot be regarded as insignificant'.*

As a result, the judge concluded that:

*'In my judgment, there is support in the Coles 2000 paper for taking an average of 2,3 and 4 kHz to assess NIHL in certain circumstances and I prefer the conclusions of Mr Singh to those of Professor Lutman in relation to the correct anchor point, for reasons I have given above. There is agreement between the experts that there is an 11.2 dB NIHL averaged binaurally at 3 and 4 kHz and I consider the weight of the expert evidence favours that as being likely to cause a material and appreciable difference for this claimant in both audibility of sound and resolution of speech. In particular, I prefer the clinical experience of Mr Singh, who is used to seeing the effects of such sensorineural loss on patients he treats'.*

It was found therefore that the claimant had proved, on a balance of probabilities, that the noise he was exposed to during his employment with the defendants contributed to the NIHL and it made a material, significant and appreciable difference to his capacity to hear and understand sounds. Therefore, he said, the damage was *'unquestionably compensable'*. Applying the JC Guidelines for NIHL, the judge categorised the claimant's hearing loss as moderate but towards the bottom of the bracket and as there was no tinnitus, the award for general damages was £7,500. As to the need for hearing aids, an award of special damages was made in the sum of £4,067.49. The total award of damages was therefore £11, 567.49, this was apportioned so that the first defendant was liable for the sum of £1,272.42 and the second defendant for £4,279.97.

*Conclusion*

We predicted in our guide to the new LCB Guidelines (2016) (here), that as these guidelines were adopted, de minimis arguments would become an increasing feature of NIHL claims. In this Guide, we analysed some 10,000 audiograms and the impact of the LCB Guidelines was that around 50% of claims broadly fell within a de minimis categorisation.

So what can be taken from this most recent judgment?

Whilst there is nothing in this judgment which specifically rejects the LCB Guidelines (2016), and the use of the frequencies of 1, 2 and 3kHz are still the norm – it is fair to say that Professor Lutman's concession, in which he appears to accept Mr Singh's suggestion that the logical problems with the LCB guidelines could be avoided by assessing the binaural loss at 2, 3 and 4 kHz, was detrimental to this case.

It is likely that in future cases where there is a loss at 4kHz, that this argument and studies in support will be utilised by claimants, however, this does not alter the fact that quantifying hearing loss over 1, 2 and 3 kHz and its impact on hearing remains the usual approach.

[1] Guidelines for Medicolegal Practice, Assessment of Hearing Disability-King, Coles, Lutman & Robinson, Whurr Publishers, 2003

[1] Hearing Disability Assessment, Report of the Expert Hearing Group, Department of Health and Children (Ireland) 1998.

**BC Legal, Birmingham**
Grosvenor House
Bennetts Hill
Birmingham
B2 5RS

**BC Legal, Ipswich**
Friars Courtyard
30 Princes Street
Ipswich
IP1 1RJ

**BC Legal, Cardiff**
20 Cathedral Road
Cardiff
CF11 9LJ

Case No: B25YM658

IN THE CARDIFF COUNTY COURT

Cardiff Civil and Family Justice Centre
2 Park Street,
Cardiff
CF10 1ET

Date: 12/12/2017

**Before :**

**HIS HONOUR JUDGE BIDDER QC**

---

**Between :**

| | |
|---|---|
| **Mr. DAVID EVANS** | **Claimant** |
| **- and -** | |
| **SECRETARY OF STATE FOR THE DEPARTMENT OF ENERGY AND CLIMATE CHANGE** | **First Defendant** |
| **-and-** | |
| **JJ MAINTENANCE LIMITED** | **Second Defendant** |

---

---

**Christopher Johnson (instructed by Imperium Law Solicitors) for the Claimant**
**Joanne Williams (instructed by Nabarro, Solicitors) for the Defendants**

Hearing dates: 13, 14th November 2017

---

# JUDGMENT

**His Honour Judge Bidder QC :**

1. This is a fast track trial of the Claimant's claim for damages against 2 of his former employers for noise induced hearing loss ("NIHL"). It was listed for 2 days.

2. The Claimant was employed by the NCB, for whose fault, if any, the 1st Defendant is responsible, from, it is alleged, 1975 to 1979 and by the 2nd Defendant as a general labourer from 2000 to 2010.

3. There was an issue as to the length of the Claimant's employment with the 1st Defendant as a miner, but that is no longer of significance as the parties do not dispute the report of the single joint engineering expert who has assessed the Claimant's exposure to noise in his employment as a miner, his employment as a labourer with the 2nd Defendant and his other employments in which he was exposed to noise. Neither party has disputed the conclusions of Mr Nelson, whose report begins at page 245 of the trial bundle, and therefore I can accept those findings. Thus, on the basis of his findings, summarised at page 272, Mr Nelson concludes that his best estimate of the Claimant's Noise Immission Level ("NIL") - that is, the measure of his lifetime noise "dose" which is dependent on his daily personal noise exposure level and the number of years of exposure at that level - is in the region of 104 dB. That takes into account the likely effect of any hearing protection worn by him. He also has made an apportionment of the contribution made by the 1st and 2nd Defendants and by 2 other employers who are not before me to that NIL. He assesses the 1st Defendant's contribution at 11% in the 2nd Defendants at 37% with the contribution of 2 other employers at 52%. It is, therefore, unnecessary for me to

reach a finding as to the length of the Claimant's employment with the 1st Defendant.

4. Both Defendants have conceded breach of duty. Neither contend for any further reduction of any award of damages I may make for contributory negligence. Neither advances now any defence of limitation.

5. The Claimant was sworn to give evidence and confirmed the truth of his witness statement (but not the belated answers he made to questions which were asked of him, to which answers, as objection was taken to them, I have paid no attention). No questions were asked of him and, thus, I can accept the contents of his statement. As there was also no challenge to the Claimant's factual instructions to Mr Vivian Singh, consultant otolaryngologist, I also accept the accuracy of those instructions.

6. The 2 witnesses whose evidence has been explored before me are Mr Singh on behalf of the Claimant and Prof Lutman, Emeritus Professor of Audiology.

7. They agree that on the basis of the NIL assessed by Mr Nelson that the Claimant has suffered NIHL as a result of his exposure to noise in his various employments including VAT by the 1st and 2nd Defendants. However, they disagree about the quantification of that hearing loss and about whether the loss is significant or appreciable. If the Claimant does not establish on a balance of probabilities that his hearing loss is significant or appreciable it is submitted on behalf of the Defendants that it should be treated by me as "de minimis" or non-compensatable.

8. Quantum of both general damages for pain and suffering and loss of amenity is, therefore, also in issue as is the Claimant's claim for special damages, which is for the provision in future years of hearing aids and for the maintenance of those aids.

9. Prof Lutman relies on and does not challenge the reliability of audiograms taken on behalf of the Claimant and analysed by Mr Singh. On that basis he agrees with Mr Singh's assessment that if an average is taken over 3 and 4 kHz of the Claimant's NIHL, then that hearing loss, applying the figures in the "black book" is 11.2 dB.

10. However, Prof Lutman has used recent "proposed" guidelines in a paper he co-authored in 2016 with Dr R. R. A. Coles and Mr J. T. Buffin (the "L C B" paper) and, using those guidelines to quantify the Claimant's loss, he assessed it to be (at least initially) in the order of 1.1 dB which he considered too small to have a noticeable effect on the Claimant's day-to-day hearing ability.

11. The experts' very long joint statement begins at page 101. It is a most helpful and detailed document, but it is a document which is in the main taken up with setting out in considerable technical detail the profound areas of "disagreement" between them.

12. Mr Evans, was born on 23 February 1959, and is now 58 years old, was examined by Mr Singh on 27 February 2013. He complained to Mr Singh at that examination of problematic hearing difficulty for around 1 to 2 years. His right ear was subjectively his worst hearing ear. He found his hearing loss to be problematic in several domestic and social situations. For example, he had to turn up the volume of his television to a high level and he struggles to hear the

conversation, particularly in the presence of background noise. He not infrequently has to ask others to repeat themselves or to speak up, which he finds frustrating and embarrassing. He does not suffer from tinnitus. He reported finishing his shifts with both Defendants and with other employers on numerous occasions having a temporary muffled hearing sensation associated with a high pitched ringing sound in his head which would often last several hours before resolving.

13. Both experts applied the various tests in the Coles 2000 guidelines when reaching their joint conclusion that there was, here, NIHL. The NIL estimated by Mr Nelson, the acoustical engineering expert, satisfies the R 2 requirement of the Coles guidelines. The audiogram shows a high-frequency hearing loss in both ears consistent with the R1 criterion of the guidelines. They agree there is a bulge at 3 and 4 kHz in both ears consistent with the R3 criterion. Thus, they agree, as I have indicated, that on a balance of probabilities there is a noise induced hearing loss as a result of the Claimant's employments.

14. Their disagreement lies in quantification.

15. Mr Singh corrects in the joint statement an obvious typographical mistake in his original report which is not of any significance. He does not agree with Prof Lutman's use of the LCB guidelines, which he considers illogical and unfair. He relies on a joint statement in a previous case in 2014 in which both he and Prof Lutman had been experts in which statement he suggested to Prof Lutman that what he contended were logical problems with the LCB guidelines could be avoided by assessing the binaural loss at 2, 3 and 4 kHz. Mr Singh appends a copy of the anonymized joint report at appendix A of the joint statement. The

case was similar to this but not identical. The relevant paragraph from the joint statement is worth quoting in detail:

> *"The Claimant's noise induced hearing loss when averaged at 2, 3 and 4 kHz = audiometric bulge size with weighting given to the least noise damaged ear = {(5+3+17)+(-2+5+19) x 4}/5 = 7.5dB. This is likely to lead to a small but tangible hearing disability."*

16. In that case the Claimant, like the instant Claimant, had the largest hearing loss at 4 kHz (17 and 19 dB respectively). In this case, in comparison, the hearing loss at 4 kHz is 10 and 13 dB respectively, placing the weaker ear last.

17. It should be noted that Prof Lutman has, after discussion with Mr Singh in this case, accepted (see paragraph 39 of the joint statement at page 122) that Mr Singh has a valid point that, if LCB 2016 is strictly used with 1 kHz as the lower anchor point, the estimation of NIHL in this case may be distorted.

18. It seems to me that that must be taken as a concession by one of the authors of the 2016 paper that that paper needs refinement. While it is, I accept, a peer-reviewed paper in a respected journal, it should be noted that the authors specifically describe it within the paper as a "proposal". While Miss Williams for the Defendants tells me, and I accept from her, that LCB 2016 has been accepted by some 1st instance judges (and, no doubt, rejected by others) it has not been considered at an appeal level.

19. Nor have I been cited any responses by experts in this field in other peer-reviewed papers to the "proposals" in that paper. Given that Prof Lutman accepts, in this case, that strict adherence to the paper by use of the 1 kHz level

as an anchor point may distort the estimation of NIHL in this case, I do not consider that it is necessary for me to conclude, on a balance of probabilities, that that paper must be accepted as some sort of "gold standard" for the quantification of NIHL.

20. If the 2016 paper were applied strictly, Mr Singh accepts Prof Lutman's arithmetic as producing an NIHL of 1.1 dB (binaural averaging over 1, 2 and 3 kHz).

21. Professor Lutman, faced with what he accepted was the distortion caused by taking 1 kHz as the lower anchor point, made an adjustment recommended in the LCB guidelines where there is a steep fall off at 8 kHz and has here applied the adjustment by replacing the measured thresholds at 1 kHz with a value of 7 dB (instead of the measured value of 15 dB). 7 dB corresponds with the 50$^{th}$ percentile for age associated hearing loss at 1 kHz. That can be seen by looking at a diagram set out at annex 2 to Prof Lutman's main report (trial bundle page 89). If that procedure was adopted then Prof Lutman re-assesses the NIHL as 2.3 dB (binaural 1, 2, 3 kHz average). There is no issue between the experts about these calculations.

22. Prof Lutman considers that those figures for NIHL are too small to be noticeable and in cross examination by Miss Williams for the Defendants, Mr Singh agreed with that conclusion.

23. I hope I can now try to summarise the 2 experts respective arguments.

24. Mr Singh considers that the agreement between him and Prof Lutman in the 2014 case materially weakens Prof Lutman's approach in this case. Prof Lutman

told me that Mr Singh misunderstood his position. He said that in the paragraph that I have quoted above (trial bundle page 128 paragraph 11) the word "This" does not refer to the previous sentence but to his conclusion that his assessed NIHL in that case was likely to lead to a small but tangible hearing disability. I am afraid that I simply cannot accept that. I do not accept that an experienced, expert and precise scientist used to giving evidence in many cases such as these would have allowed paragraph 11 to stand as it was if it did not reflect what it so obviously, on its face, means.

25. In my judgement, Prof Lutman was in 2014 making a number of concessions in that paragraph, namely, that it was appropriate in certain circumstances to quantify NIHL using an average at 2, 3 and 4 kHz and that 7.5 dB was likely to lead to a small but tangible hearing disability. In addition, it also seems to me that he was conceding, in that case, that there was real significance in hearing loss at the 4 kHz frequency. That is true in this case as well. I take the view, having heard both Prof Lutman and Mr Singh in relation to this issue that I should prefer Mr Singh and that this concession undermines the arguments of Prof Lutman.

26. Mr Singh also contends that, having in the 2014 case accepted a 7.53 dB binaural disability averaged at 2, 3 and 4 kHz, where initially he had taken the conventional Coles 2000 average of 1, 2 and 3kHz and reached a conclusion of an NIHL of only 3dB, it is "remarkable" that here Prof. Lutman takes the view that the same technique used by Mr Singh which would produce a loss of 11.2dB averaged binaurally at 3 and 4 kHz is either incorrect or not significant.

27. He also correctly states that Prof. Lutman has apparently used 2 kHz as the better placed anchor to use when arriving at his diagnosis of NIHL.

28. Next he argues that the LCB guidelines state that the Coles 2000 guidelines will always underestimate the true magnitude of the noise loss because there will often be some NIHL at the anchor points which are usually at the 1 and 8 kHz frequencies. If that is correct, he argues that to use the LCB guidelines where a loss of about 11 dB at 3 and 4 kHz is accepted, to produce (as it does in his main report and also in his revision of that report in the joint statement) a negligible or non – appreciable loss is illogical.

29. When looking at what frequencies to take as averages for the assessment of NIHL against Age Assessed Hearing Loss ("AAHL"), while Mr Singh acknowledges that the 1, 2 and 3 kHz frequencies are the most important in terms of speech intelligibility he also contends that hearing at 3 and 4kHz is also very important. First, in support of that he compares the losses in this case with that of the Claimant in the 2014 case and the concession apparently made by Prof. Lutman and points out that, at the higher frequencies this Claimant is worse off.

30. Additionally he argues that in the black book (King, Coles and Lutman "Assessment of Hearing Disability") there is an acknowledgment that the adoption of the 1, 2 and 3 kHz frequencies for conventional noise loss should not imply the absence of any disability in some individuals with hearing losses restricted to frequencies outside that range – with there being a significant loss here at 4 kHz as well as at 3.

31. That acknowledgment is supported by the recognition by other countries (such as Ireland) of the importance of the 4 kHz frequency for noise damage.

32. Most importantly, Mr Singh relies on an important review by Professor Moore of the Cambridge Neurosciences Department in the July 2016 International Journal of Audiology which summarises a large amount of research material supporting the importance of hearing loss at 4 kHz. That review is at appendix B to the joint report and I have noted in particular the abstract (page 131) and the summaries under various headings of research work. For example, also at page 131 under the heading "Evidence for effects of audibility at high frequencies on speech intelligibility" Professor Moore writes:

> "*There are many studies showing that frequency components above 3 kHz contribute to speech intelligibility for people with normal hearing*".

> Again, under the heading: "Effects on speech intelligibility expected from the Speech Intelligibility Index", Professor Moore cites an example in the second column on page 133 of a man of 55 assessed using the LCB 2016 guidelines. He points out that on that basis:

> "*The mean estimate of the NIHL at 1,2 and 3 kHz is only 2.4 dB which would usually be considered as of no importance. The mean estimate of the NIHL at 1, 2 and 4kHz is more substantial, at 11.7dB.*"

> That is very similar to this case. In the same section, and using the Speech Intelligibility Index, Professor Moore also states (at 134):

> "*This example illustrates how the noise-induced component of the hearing loss at frequencies above 3 kHz can lead to some increase in difficulty in*

*understanding soft speech in quiet and a marked increase in difficulty in understanding speech in background noise."*

Under the heading "Other deleterious effects of high-frequency hearing loss" Professor Moore notes research suggesting that hearing the voices of women and children and certain bird song may be compromised by hearing loss at 4 kHz and above and that the ability to determine whether a sound is coming from in front or behind, but use of "pinna cues", that is, reflections from the outer ear, as Professor Lutman explained to me in his evidence may be reduced by 4kHz and above frequency loss.

Finally, in his conclusion section at page 136 of the Trial Bundle Professor Moore states:

*"Therefore the audiometric threshold at 4 kHz and possibly also at 6 kHz, should be taken into account when considereing compensation for occupational NIHL in a medico-legal context. A major complaint of people with NIHL is difficulty in understanding speech in noise. A good predictor of the ability to understand speech in noise for people with NIHL is the average audiometric threshold at 2 and 4 kHz"*

33. Professor Lutman considered that the Moore paper failed to consider the work of Professor Dobie and that that was a defect in the review. In fact there are 2 papers from Dobie cited in the Moore paper and he specifically thanks "Bob Dobie" for contributions to his paper. Professor Lutman also told me that he had been one of the original reviewers of the paper and had recommended it for rejection. That is not an uncommon step in peer reviewed research. Professor Lutman had to step aside from further reviewing of the paper and it is clear that

whoever then reviewed the Moore paper thereafter on its resubmission did consider it worthy of publication. While I defer, of course, to Professor Lutman's eminence in the field, it is difficult not to be struck by the breadth of the Moore paper and the weight of expert evidence reviewed in it stressing the importance of 3 and 4kHz sounds to intelligibility of speech, particularly speech in noise.

34. Professor Lutman considered the conclusion at the top of the second column on page 132, namely:

> "*Overall, the results clearly indicate that speech intelligibility is influenced by the audibility of frequency components above 3 kHz. It follows that reduced audibility of frequencies above 3 kHz, produced by NIHL, has adverse effects on the ability to understand speech in background noise.*"

to be a false syllogism. His opinion was that the conclusion did not follow from the premise. I hardly think that Professor Moore is unaware of the dangers of false syllogisms and it seems clear to me that he was, in the second sentence, expressing his expert conclusion from the evidence which he had reviewed, though it might appear to be the conclusion of a syllogism.

35. The Moore paper did, in my judgment, add very considerable weight to the views of Mr Singh.

36. Moreover, Mr Singh points out that, in his report, Professor Lutman offers no other explanation for the claimant's hearing difficulty. Both experts agree that the Claimant has relatively good hearing at and above 2 kHz and I agree that, in the absence of any positive conclusion in the Lutman report (his evidence is, in

substance, a critique of the Singh conclusions) it is difficult to see an explanation for the accepted problems described by the Claimant other than NIHL at 3 and 4 kHz.

37. In his oral evidence to me, Mr Singh summarised his position by stating that he felt that the audiogram bulge was a reflection of noise loss. He stresses the acceptance in the 2016 LCB paper of the fact that taking the traditional anchor points will more often than not underestimate the amount of NIHL. He correctly points out that Coles 2000, while stating that normally the best frequency to use as the lower anchor point is 1kHz recognises that occasionally 2 kHz will be more appropriate (see page 368 of Trial Bundle, first column). The use of the 1kHz anchor point is illogical as it causes the bulge entirely to disappear in this case. As Coles 2000 suggests, the Hearing Threshold Level ("HTL") here is at least 5dB better here than at 1kHz. In the 2014 case the 2 experts agreed to use 2, 3 and 4 kHz and also agreed on a 7.5 dB loss which was small but significant. Here the Claimant's audiogram is worse than that of the Claimant in 2014.

38. In cross examination, Mr Singh agreed with Miss Williams that on Professor Lutman's reworking of the 1, 2 and 3 average the calculation of NIHL was 2.3dB and he also agreed that that would not cause an appreciable disability or significant impact (he agreed those phrases were synonymous) on this claimant. He also agreed that the 1,2 and 3kHz average was the traditional method but in this case he considered that that did not lead to a just result. Nor did he accept that Professor Lutman, in his recalculation of the 1, 2 and 3 kHz average was right to correct for the 50$^{th}$ percentile of AAHL because he considered that the Claimant's hearing was better than the 75$^{th}$ percentile (which it is at the 2kHz

frequency). Thus he argued that using the 50th percentile would penalise the Claimant.

39. He agreed his method was not one that was peer reviewed. He was then taken to his suggested compromise at paragraph 33 of the joint statement, at which he suggests that, if the 1, 2 and 3 kHz average must be taken, given the above 75th percentile hearing at 2 kHz it would be fairer to assume 0 dB loss at both 1 and 2 kHz. That calculation led to an average NIHL of 4.93dB, a small, but in his opinion, appreciable hearing loss. He was not putting that forward as his view of the NIHL in this case but merely stating that if the conventional approach was used and fairly reflected the Claimant's better than average hearing at 2dB then even then there was an appreciable loss.

40. I have to say that I find that to be a useful check on whether Mr Singh's main conclusion is correct.

41. In the joint statement, as I have stated above, Professor Lutman acknowledges the validity of Mr Singh's criticism of a purist application of LCB 2016 (see para 39 page 122). However, his adjustment of the measured thresholds with a value of 7dB still produces an insignificant loss, not only too small to be noticeable but also too small to advance the claim for future hearing aids.

42. He criticises Mr Singh for his use of the "speech banana". I do not think that is a valid criticism. Mr Singh merely uses it as an aid to comprehension of the significance of certain frequencies and explicitly acknowledges its inaccuracies.

43. He contends that the agreed loss of 11dB or so at 3 and 4 kHz cannot be taken to be significant because of the lack of published research as to whether such

losses at those frequencies have any impact and he relies on his collaborative work with Professor Moore in the case of Hunt v India Mills in which they were unable to find statistically significant effect of that additional hearing loss and, moreover, that any trend showed minimal effect.

44. The key finding, I believe, is set out at page 242 in the bundle after the experimental analysis suggested by Moore and is stated as follows:

> *"Similar to what was seen in the multiple regression analysis above, there is a trend (not statistically significant) for the additional "bulge" in the audiograms shown above to confer a small decrement in performance on the speech recognition in noise test.*
>
> *From a scientific point of view, the trend should not be relied upon, as it is not statistically significant; in other words there is a chance that a repeat study might not show the same thing."*

45. Clearly I must give weight to that scientific view of the significance of the evidence. That experiment did not show to scientific probability, the appreciable impact of the higher frequency losses. However, that analysis was in 2014. The larger scale survey which was clearly needed to establish statistical significance, if it could do so, has not taken place and what followed was the Moore survey in 2016 which, in my judgment, on balance of probabilities does establish the real significance of 4 kHz and above to those suffering from an established NIHL at that frequency.

46. Professor Lutman accepts that the incremental hearing loss at 3 and 4 kHz means that there is a small window of sounds which are inaudible to the

Claimant that would be audible but for the probable NIHL (between about 15 and 25 dB at 3 kHz and between about 25 and 35 dB at 4 kHz. At intensities somewhat above those levels, sounds at those frequencies will be less loud, but in his opinion, as the intensity increases, the difference in loudness will diminish and be minimal when intensity exceeds about 60dB (normal conversational speech has an intensity of about 60 dB(A). This phenomenon is referred to as loudness recruitment.

47. Mr Singh contends that there is nothing in the medical literature of which he is aware to suggest that recruitment of hearing mitigates against the disability of hearing loss and he suggests that the phenomenon is considered by most ENT Consultants in clinical practice to be far more commonly associated with problematic symptomatology than being a boon and he does put forward 2 articles in the medical literature to support his views. On balance, I prefer the view of Mr Singh, the clinician, with his day to day experience of individuals with hearing loss, to that of the academic Professor Lutman, particularly given the literature support for Mr Singh's views.

48. Professor Lutman gives his opinion not only on audibility of sound but on reduced resolution and audibility associated with sensorineural hearing loss. He again refers to the joint analysis in *Hunt v India Mills* and the lack of a statistically significant effect found there, although a small trend was revealed. He also doubts that the lack of pinna cues will make a material difference. That seems to me to be directly contrary to the later Moore review.

49. Professor Lutman also relies on 2 recent studies , in 2015 and 2016 respectively by McShefferty (and others) (set out in trial bundle B). The earlier study

considers the "just noticeable difference" in speech to noise ratio and points out that there is no benchmark for what is a just noticeable difference in speech to noise ratio ("SNR"). The authors' experiments suggested that noise reduction schemes might need to achieve a benefit of greater than 3dB to be reliably discriminable. In the later paper, the authors considered the "just meaningful difference" ("JMD") in SNR. They found that the mean SNR JMD for more clinically relevant tasks – willingness at least 50% of the time to swap devices or attend the clinic for a change in SNR (achievable via adjustment of hearing devices) – was 6-8 dB regardless of hearing ability.

50. Mr Singh, at page 119 criticises the limitations of the 2 studies – and I do not believe that Professor Lutman has disputed those limitations, but, in my judgment, more significantly, he contends that if those papers are accepted, all I am able to conclude is that 3 dB and 6 dB are likely to be of significance in terms of just noticeable and just meaningful levels in terms of speech to noise rations when considering a relatively broad speech spectrum. Here, however, it is not in dispute between the experts that there is a binaural noise loss of 11.2dB averaged at 3 and 4 kHz and, even accepted the McShefferty research, that cannot be regarded as insignificant. Mr Singh also concludes that the Hunt v India Mills research falls far short of what he would expect to be of a standard worthy of publication and that was accepted by Professor Lutman in cross examination.

51. In my judgment, there is support in the Coles 2000 paper for taking an average of 2, 3 and 4kHz to assess NIHL in certain circumstances and I prefer the conclusions of Mr Singh to those of Professor Lutman in relation to the correct

anchor point, for reasons I have given above. There is agreement between the experts that there is an 11.2 dB NIHL averaged binaurally at 3 and 4 kHz and I consider the weight of the expert evidence favours that as being likely to cause a material and appreciable difference for this claimant in both audibility of sound and resolution of speech. In particular, I prefer the clinical experience of Mr Singh, who is used to seeing the effects of such sensorineural loss on patients he treats.

52. I therefore find that the Claimant has proved on a balance of probabilities that the loud noise to which he was exposed in his employments with the First and Second Defendants contributed to that NIHL as the experts find exist and that that makes a material, significant and appreciable difference to his capacity to hear and understand sounds. In my judgment, that NIHL explains his reported symptoms and is unquestionably compensatable and I do not need to consider the authority of Rothwell and others [2007] UKHL 39 which would have been relevant for me to look at and follow had this been a marginal loss of hearing.

53. I have considered the Judicial College guidelines. There is no tinnitus here but I would categorise the NIHL as moderate but very much towards the bottom of the bracket (d) (ii) and for the total NIHL I consider an award of general damages of £7,500 would be appropriate.

54. As to the need for hearing aids, because of my findings above I accept Mr Singh's opinion that the Claimant's need for hearing aids has been brought forwards by 5 years as a result of the NIHL. On that basis I see no reason why the Claimant should not, as a direct result of the hearing loss caused by his employments claim for the type of hearing aid which founds the basis of the

schedule on page 28 of the Trial Bundle and although I have considered the counter schedule, the evidence is that the NIHL has brought forward the need for hearing aids by 5 years. The contention that the cost of hearing aids will reduce over time is speculative and not established on balance. I therefore make an award of special damages in the sum of £4,067.49.

55. The total award of damages is in the sum of £11,567.49 but I must apportion the damages in accordance with Mr Nelson's table and I therefore give judgment for the Claimant against the First Defendant in the sum of £1,272.42 (11% of the total award) and against the Second Defendant in the sum of £4,279.97 (37% of the total award).

56. As I have indicated to counsel I shall cause my draft judgment to be sent to the parties in the usual way requiring counsel to send to me by email any minor corrections and I then propose formally to hand down my corrected judgment on the 11th December at the Cardiff Civil and Family Justice Centre. If the parties are able to agree ancillary matters and an order I will make an agreed order at the same time. No one need attend on me on the 11th December. If the parties are unable to agree ancillary matters and an order I shall ask the listing office to list a short telephone hearing before me, taking into account the convenience of counsel, preferably on or before my last sitting day before Christmas, namely, the 20th December.

His Honour Judge Bidder QC