SHERIFFDOM OF LOTHIAN AND BORDERS AT EDINBURGH

IN THE ALL-SCOTLAND SHERIFF PERSONAL INJURY COURT

[2023] SC EDIN 10

PIC-PN268/21

JUDGMENT OF SHERIFF K J CAMPBELL

in the cause

MARGARET DENNY

Pursuer

against

CHIVAS BROTHERS LIMITED

Defender

Pursuer: Pilkington, Advocate; D J Mackay & Partners LLP, Glasgow
Defender: J Thomson, Advocate; DAC Beachcroft Scotland LLP, Glasgow

Edinburgh, 28 February 2023

Findings in fact

1. The pursuer, Margaret Denny, is 63. She is employed as a line operator by the defender. She has worked for the defender and its predecessor business, Allied Distillers, since 1990.

2. The pursuer's HMRC employment history (5/1 of process) lists her employers prior to the defender, from the tax year 1975-76 onwards.

3. The pursuer was not exposed to injurious levels of noise in the course of her employment prior to 1990.

4. The pursuer has no history of middle ear surgery, childhood ear disease, or meningitis.

5. In the course of her employment with the defender, the pursuer worked as a line operator in the defender's Newton bottling hall from 1990-2000.

6. In the course of her employment with the defender, the pursuer has worked in the defender's Kilmalid bottling plant since 2000. From 2000-2018, she mainly worked as a line operator in the Leven bottling hall there. She worked occasionally as a line operator in the Clyde bottling hall. Since 2018, the pursuer has worked in an office at the plant, where she is not exposed to significant noise.

7. The bottling line is a partly manual and partly mechanised process. The process in Leven and Clyde halls at Kilmalid is substantially more mechanised and automated than was the case in Newton hall. In both plants, machines included rinser and filler machines, labellers, and packer machines. In the halls at Kilmalid, there are also depalletisers, case erectors and case sealers. These machines all generate noise.

8. In both plants, bottles travel from one step on the line to the next along conveyor belts. Bottles on the conveyors knock against each other. The frequency of that contact depends on the spacing of bottles, and the speed of the line. Such contacts produce noise.

9. Bottles on the bottling lines break for a number of reasons, including falling off the line, and damage during the process of being loaded on to the line from the pallets on which they are delivered to the plant. Breakage of bottles occurred at least weekly. Such breakages add to the overall noise level. The noise caused by collapse of a layer of bottles on a pallet would be likely to exceed the peak noise value prescribed by law.

10. Hearing protection was not provided to the pursuer or other line operators when the pursuer started work for the defender at Newton hall in 1990. Hearing protection was first provided in 1995 or 1996. The hearing protection took the form of yellow plastic foam ear-plugs.

11. From the time it was introduced, it was mandatory for the defender's employees to wear hearing protection in the bottling halls. The pursuer wore the hearing protection with which she was provided.

12. The pursuer and other line operators found the original ear-plugs itchy in use. The pursuer had to take out the ear-plugs from time to time to scratch her ear. The ear-plugs would sometimes work themselves out of one or other of the pursuer's ears. Her ears were unprotected from noise while there were no ear-plugs in her ears.

13. At the time hearing protection was introduced in 1996, the defender provided no formal instruction as to its use. Instructional videos were provided when a new form of ear-plugs was introduced in 2015-16.

14. There was no assessment by the defender of the sufficiency of the protection afforded by the hearing protection introduced in 1996.

15. The defender took no engineering measures to reduce the noise level on the line the pursuer worked on in Newton hall. The defender took no engineering measures to reduce the noise level on the line the pursuer worked on in Leven hall.

16. The defender carried out no noise survey in Newton hall during the time the pursuer worked there. The defender carried out no noise survey in Leven hall until 2006. The defender's survey contained insufficient contextual information about the operations carried out there.

17. The defender carried out no risk assessment for noise in Leven hall until May 2008. That indicated the noise level was above 85dB(A), and specified that ear defenders were to be mandatory.

18. There are no extant records of noise levels in Newton bottling hall. Noise levels in similar bottling halls in the period 1990-2000 were frequently in the range 85dbA-95dBA. The noise levels in Newton hall are likely to have been in the range 85dBA-95dBA.

19. The Pursuer was potentially exposed to noise levels of between 80-93 dB(A) when she worked in Clyde Hall and between 79-81 dB(A) when she worked in Leven Hall. Depending on how long she worked at or near the noisier processes, it is possible her 8 hour time-weighted average noise exposure (LEP,d) could have been above 90 dB(A), when she worked in Clyde Hall.

20. On audiogram testing of the pursuer by the defender on 18 February 1991, there was no indication of hearing loss.

21. Audiogram testing of the pursuer by the defender on 15 February 1996 showed early evidence of bilateral notching consistent with noise-induced hearing damage. The defender did not refer the pursuer for further medical investigation.

22. Audiogram testing of the pursuer by the defender in March 1999, March 2003, October 2006, January 2010, March 2013, March 2015, August 2016 and August 2018 showed further evidence of bilateral notching consistent with noise-induced damage, with a deteriorating pattern evident from 1996 until 2015. The defender did not refer the pursuer for further medical investigation until 2015.

23. Following an audiogram carried out by the defender's occupational health department in 2015, the pursuer was referred to the ENT Department at Gartnavel General Hospital, Glasgow, where she was seen as an out-patient on 23 July 2015.

24. The pursuer has high frequency hearing loss. This is 50dB in the right ear and 40dB in the left ear, with an overall binaural loss of 42dB.

25. The pursuer's hearing loss is partly noise-induced and partly age-related. The noise-induced component is 29dB, and the age-related component is the remaining 13dB.

26. The pursuer has worn hearing aids provided by the NHS since 2019. They sit outside each ear. Before that, she had the TV at high volume in order to hear, and did not use the radio because she was not comfortable with loud music. The pursuer would benefit from digital hearing aids. The pursuer's hearing aids are likely to require to be replaced every 5-10 years.

27. The pursuer no longer enjoys being out in social situations because she cannot make out all of the conversation if it is not a one to one setting.

28. The pursuer has moderate tinnitus. She experiences this as a buzzing sensation.

Findings in fact and law

1. The pursuer has developed noise-induced hearing loss and tinnitus as a result of the defender's fault and negligence.

2. The pursuer has suffered a loss as a result of the defender's fault and negligence.

Finding in law

1. The pursuer is entitled to damages for her losses caused by the defender's fault and negligence in the sum of £45,494.13, together with interest at 8% per annum from 11 October 2022.

Introductory

[1] This action concerns damage to the pursuer's hearing, which she says was occasioned by exposure to injurious levels of noise in the course of her employment with the defender in the years since 1990.

[2] I heard proof in this case on 11-14, 18-20 October and 1 November 2022. The proof was conducted in a hybrid manner, with some witnesses giving evidence in court in person, and others giving evidence by webex videoconference to the courtroom. The pursuer gave evidence, and led evidence from Steven Clissett, James Sartain, Sandra Diamond, Angela Baillie, Martin Dippnall, Jonathan Newton, and Craig Murray; the last four of whom gave evidence by webex. For witness availability reasons, it was necessary to hear Mr Dippnall's evidence in two parts, with Mr Newton and Mr Murray interposed. Parties were content so to proceed. The defender led evidence from Anna Brown, by webex, and James Garry. With the leave of the court, Mr Dippnall and Mr Garry, who were parties' experts on noise exposure, sat in for the evidence of the factual witnesses.

[3] Parties tendered a Joint Minute on the first morning (26 of process). In addition to agreeing the provenance of medical records, and the pursuer's employment history, the Joint Minute contained a helpful glossary of terms associated with noise-induced hearing loss. I have not made findings in fact about the content of the glossary, but it is included as an appendix to this judgment, as a number of those terms feature in the evidence of the skilled witnesses. I have referred to the copious documentation before the court by the pages numbers in the Joint Bundle (JBxx).

[4] By the time parties came to make submissions at the close of the proof, quantum of damages was agreed in the sum of £45,594, plus interest from 11 October 2022, the first day of the proof.

Pursuer's evidence

Margaret Denny

[5] The pursuer, Margaret Denny, is 63. She is a line operator employed by the defender. The pursuer's HMRC employment history (5/1 of process, JB5) listed her employers. She could not recall what she did at Moores/Wrights, possibly electronics. Electrochemical Finishers was an electronics company. At Hiram Walker she had worked in a whisky bottling hall. She could not recall what she did at Strathclyde Regional Council. Butlins was office work. Talkey was testing computer equipment. Suffolk Glass was quality control in an office. None of these was a noisy work environment.

[6] The pursuer has worked for the defender and its predecessor Allied Distillers since 1990. She worked in a number of bottling halls until 2018. She now works in an office. The pursuer first worked in Newton Hall, in Dumbarton. Newton was a manual process: bottles were loaded on a conveyor belt by hand, and packed by hand. In the bottling hall, there were five or six bottling lines, then a wall running part the length of the hall, then another five or six lines on the other side. There was a gap in the wall for forklift trucks to pass through. The whole hall was about the size of a football pitch or possibly more. The pursuer worked full time. Initially her shifts were 07.40-16.30 Monday-Thursday, and 08.00-12.00 on Friday. There were 20 minute breaks in the morning and afternoon, and a 40 minute lunch break. After about six months, the pursuer went on to the back shift: 16.00 or 16.20 – 22.30 Monday- Thursday, and 12.00-16.00 on Friday. There were two 20 minute tea breaks. Sometimes "double day" shifts were available as holiday or long-term illness cover. The pattern would then be 06.00-14.30 then 14.30-22.00. Overtime was often available and the pursuer did that most weeks, and at the weekend when it was her turn. At the weekend

it would be a normal day shift, perhaps finishing at 15.00. The backshift started at 13.00 rather than 16.00.

[7] Bottles were loaded onto the conveyor by hand by operators including the pursuer. The bottles came in on pallets moved by forklifts. There would be between 300-800 bottles per pallet, depending on size; there could be 80-100 bottles per layer. There would be four or five layers of bottles per pallet. About a year before Newton closed in 2000, a depalletiser machine was installed which took bottles from the pallets automatically and put them on the conveyor. The bottles moved to a rinser machine, then a filler, capper and labeller. At the bottom of the line, the bottles were packed by hand into cases containing 6 or 12 bottles. The process was noisy, particularly loading bottles onto the line. There were four operators, two on each side of the line working on this. The operators were right beside each other. Bottle clanked together. The line ran all day or until an order was completed. It only stopped at the lunch break. Operators would rotate after 30 minutes, so they would spend about three hours at the top of the line and two at the bottom. Those trained on the filling or labelling machines would rotate to those tasks. Sometimes bottles were loaded by hand directly, other times they came in boxes which were turned upside down and "dumped" on the line. That was very noisy since a box of 6 or 12 bottles was being shaken to ensure the bottles were all free and on to the lines. The work was manual, heavy and noisy, which was one of the reasons operators moved round the line. It was noisy at the bottom of the line where the packing took place, but it was noisier at the top with the dumping. Bottles on the conveyor would come into contact with each other, making noise. In normal circumstances, you could have a normal conversation with a person close to you. You would have to raise your voice, and sometimes shout to be heard in speaking to other workers, more than 3-4 feet away.

[8] In 2000, the pursuer was transferred to the defender's new bottling hall at Kilmalid, and Newton closed. There process was quicker and more automated, with new machines, including a depalletiser and an auto-packer. The pursuer thought Kilmalid was noisier than Newton because of the additional machines. The pursuer recalled there were 8 lines in the Leven bottling hall at Kilmalid. She worked on line 11. Noise on that line depended on what area you were working on. The depalletiser was very noisy. The rinser/filler/capper, which had one operator, was very noisy. The auto-packer was noisy if bottles dropped. The pursuer said she could be working on the depalletiser for weeks on end. She was involved in training others to use it. There might be 4 operators working on the depalletiser for quite a long time. The pursuer had occasionally worked in Clyde hall at Kilmalid, if they were short staffed there. She had worked on the line and in an office; her main task was in an office controlling spirit flow, but she would work on the line if they were short of staff. She was on the line perhaps twice a week. She had worked for about a year not long after moving to Kilmalid, and then for a few times on and off over the years since for perhaps 4-6 weeks in a year. There were 8 lines in Clyde hall, and it was pretty noisy because there was more machinery on the lines and because of the speed of the lines. You definitely had to raise your voice to communicate there. In Leven hall, line 11 generally handled larger bottles: 1l, 1.5l, 1.75l and 2l. The line speed was 80-100 or 120 bottles per minute. The faster the line went, the nosier it would be. The pursuer thought line 11 was running slower than normal at the time of the site inspection in March 2022, even though it was filling 2l bottles. She thought there were a lot of gaps on the line.

[9] The pursuer witnessed glass breaking by bottles falling off the line, in some of the machines on the lines, by falling off the platform at the top of the line, and falling from pallets. There was not a de-palletiser in Newton hall until almost the end of the pursuer's

time there. Bottles falling off the platform at the top of the line was common; that was due to the pressure of adding bottles at the top of the line by "dumping" from boxes. There were glass bins beside the line, and broken bottles were picked up and thrown in there. The bins were about the size of household wheelie bins. It was noisy if a lot of bottles broke at once, and it was noisy putting bottles in the bin. You could still hear it even with ear plugs in. The line was stopped and it was necessary to remove a few around the broken bottle to guard against contamination. No records were kept of glass breakage in Newton, but in Leven there were daily checks. Another source of glass breakage would be if a pallet collapsed. That would require a bigger bin to dispose of the glass. Sometimes the de-palletiser would smash a layer of bottles rather than lifting it if the pallet was slightly misaligned. That might happen once a day or 2-3 times per week or 3-4 times per month; it was hard to say on average. The sound of that could be heard at the other end of the hall.

[10] Hearing protection was not provided by the defender when the pursuer started work at Newton hall. At some point around 1995-96, possibly a bit later, hearing protection was provided, and the pursuer wore it. The hearing protection was small yellow foam earplugs. Some people wore them, others did not. The pursuer was not sure whether wearing earplugs was compulsory at that stage. Similar earplugs were used at Kilmalid, and were eventually replaced by blue plastic plugs on a string, which sat better in the ear. There was no training in the use of earplugs. The pursuer inserted the yellow earplugs by pulling down on her ear lobe and squeezing the plug in as far as felt comfortable. The pursuer felt the yellow earplugs popped out too easily and felt the blue plastic ones were better. Both types made the ear itchy, and you had to take the plug out, scratch and put it back in. The foam plugs were in a box on the bottling line. Sometimes the box was empty and you had to ask the supervisor for more. Sometimes it might take a day for the box to be refilled.

[11] The pursuer did not recall being made aware of the results of the audiograms carried out by the defender in 1991, 1996 or 1999. She did not recall any indication being given of a deterioration in her hearing in 1996 or 1999. She did not recall any indication or advice being given that her hearing was impaired following the audiograms carried out by the defender in 2003, 2006, 2010, or 2013. The only thing she recalled was being asked if she wore hearing protection. She recalled seeing a dip on one of the charts, possibly in 2013. She asked if this was a problem and was told it was not. Following the 2015 audiogram she was asked to make an appointment with her GP, which she did. She was referred to ENT and after a further audiogram there, she was told she had slight hearing impairment due to noise. She was told to go back to the defender's occupational health department and ask if they had more suitable ear defenders. She spoke to Anna Hutchison, who said there were no alternative ear defenders. In 2018, the pursuer was removed from the bottling hall and redeployed to an office job.

[12] The pursuer has worn digital hearing aids provided by the NHS since 2019. They sit outside each ear. The pursuer was initially self-conscious of them. Before that, she had the TV at high volume in order to hear, and did not use the radio because she was not comfortable with loud music. It was difficult using a landline telephone, and she preferred a mobile phone which could be put on speaker. If her partner called her from another part of the house, the pursuer would her him shout but not what he was saying. The pursuer no longer enjoys being out in social situations because she cannot make out all of the conversation if it is not a one to one setting. The pursuer also has tinnitus. She described that as a buzzing sound, and it is particularly bad when she takes out her hearing aids at night. It goes away by itself, but does affect her getting to sleep.

[13] In cross-examination, the pursuer accepted that until the bottles were on the conveyor belt, they were not in contact with each other. The line was filled up and then started. The top of the line was never empty. She did not agree that hearing protection might have been available in 1993 or 1994, and thought it was later. In 2015 the pursuer was seen by the defender's occupational health department, and told to see her GP. She was shown an audiogram with a dip in her hearing. They did not say she had hearing loss, and the pursuer wondered why.

Steven Clissett

[14] Steven Clissett is the pursuer's partner. They have lived together for 22 years. He estimated he had first been aware of the pursuer having problems with hearing about six and a half years ago – somewhere around 2016. The pursuer was not hearing sentences in conversation, and she turned the TV sound up. Mr Clissett was comfortable with the volume at 10, whereas the pursuer needed it be at 15. The pursuer found missing conversation frustrating. The couple no longer socialise in places with background music or other noise. Mr Clissett was aware the pursuer experiences tinnitus. She described it as a buzzing sound; she did not experience this all the time. She has worn hearing aids since 2019. Mr Clissett was not cross-examined.

James Sartain

[15] James Sartain (62) works for the defender, and has done for around 30 years. He was a bottling line operator for 30 years until he was redeployed to other work earlier in 2022 as a result of his developing hearing problems. Mr Sartain worked in Newton hall from about 1993 till 2000. He worked on the line beside the pursuer. He recalled the noisiest part of the

line was when the bottles were "dumped" at the start of the line. The bottles were together and not separated, they were clanking; when they went through the machines, the bottles were separate and they were quieter. Mr Sartain said staff who were not operating machines rotated between "dumping" glass, and packing. He thought they did an hour or two before taking a turn on the other task. It was necessary to raise your voice to speak to fellow employees while on the line. There were 12 lines in Newton hall, and most of them had "dumping" of bottles at the top of the line. Newton hall was very loud and very noisy. There was glass breakage on the line. It could happen anywhere. Broken bottles had to be removed along with a certain number round about. They were thrown into a glass bin. That was noisy. That might happen two or three times in a shift. No record was kept of breakages in Newton, but that had come in later in Kilmalid. There could also be breakages as a result of pallets collapsing. That might happen a couple of times a week, and was very noisy.

[16] Mr Sartain had transferred to Kilmalid in 2002. He had initially worked for three months in the barrels area, then he had been put on line 17. In about 2012, he was transferred to line 12, which was similar to line 11, except that line 12 filled smaller bottles (20-50cl as against 75cl-2l). Line 11 was much louder as a result of there being bigger bottles, and a lot of smashes. There was a depalletiser on line 12, and it was loud, because it was sweeping off about 300 bottles at a time. There could be problems with its operation if the mechanism caught something on the layer below; a lot of bottles could break. That happened regularly: it could happen with every layer, or there might be a run of good pallets without any breakage. Mr Sartain thought Kilmalid was noisier than Newton. That was because of it was more automated. The rinser and filler area was another noisy part of the line. That was the noise of bottles on the line touching each other. There might be

breakages there too; perhaps one every couple of hours. Mr Sartain did not recall having to wear ear plugs at Newton. It was not forced on people as it is now. He did not recall them being there to use. He did wear them at Kilmalid, and thought they had been available for about 10 years. Staff got a warning if not wearing them. Before that, he felt things were very lackisdaisical. In response to the suggestion ear plugs were available in 2000, Mr Sastain was not sure they were readily available, but if you asked a line leader or manager you could get them. Ear plugs were originally made of foam. There had been no instruction in their use; you just pushed them in. They sometimes popped out. Later there was a plastic plug. Mr Sartain currently uses an orange screw type plastic plug, which he thought had been introduced about 5 years ago.

Sandra Diamond

[17] Sandra Diamond (66) is a line operator and has worked for the defender for 32 years. Ms Diamond worked in Newton Hall for 10 years from 1990-2000. Most of the lines were operating most of the time. She has carried out all of the jobs on the line. She had been involved in "dumping" bottles at the start of the line. She thought the pallets delivering bottles to the start of the line had about 500 of the largest bottles, or up to 800 for 70cl bottles. "Dumping" the bottles on the conveyor were quite noisy. Sometimes she would be doing that all shift, and sometimes she would be down the packing end of the line. Bottles could get broken on the conveyor on a daily basis. Bottles around a broken bottle had to be cleared too; Ms Diamond thought up to 20. Operators cleared the glass, throwing the bottles into a bin, which was pretty noisy. Bottles might also fall off the line, and sometimes a whole pallet might crash. That was very noisy. There were breakages on the other lines too, and about the same frequency. Bottles were not segregated on the line at Newton.

[18] Ms Diamond worked on the lines at Kilmalid from 2000, including 11 years on line 11. Since 2017 she has worked on line 16. She was trained to operate the depalletiser by the pursuer. That was the noisiest part of line 11, then the rinser and filler was the next most noisy. The auto-packer could also be noisy. The depalletiser was particularly noisy because the bottles were in layers and the frame came down on each layer so they were trundling and knocking together on the line. There would 120 big bottles or 220-225 smaller bottles per layer. Pallets might collapse; that could happen daily or you could go a week without it happening. If this happened, it was very noisy. If a bottle was broken on the conveyor, the line had to be stopped and the bottle removed to a bin. That was noisy. Ms Diamond said it was necessary to raise your voice to speak to co-workers. Ms Diamond could not recall hearing protection being available when she started at Newton. The first hearing protection was sponge ear plugs. They were yellow or blue. They popped out all the time. They were replaced by a blue one plastic one with a sponge tip on a string and had now changed to an orange plug on a string. It is now compulsory to wear these. The current plugs were introduced 6 or 7 years ago. Ms Diamond was not cross-examined.

Angela Baillie

[19] Angela Baillie (54) has been employed by the defender as a line operator for 34 years. She worked in Newton hall 1988-2000. In the course of a shift, you might be at the top of the line putting empty bottles on to the line for up to 6 hours in total, depending how many others were working on the line and whether they were trained for some of the tasks. Operators moved round after maybe two hours to the rinser and labeller and to fill and cap the bottles. The other task was packing, and sometimes you could be on that all day. The empty bottles were brought on pallets, five layers high, with 60 bottles in a layer, sometimes

more depending on size. Bottles also sometimes arrived in boxes, and had to be "dumped" on to the line. A male operator would lift the box up to the belt, and operators like Ms Baillie would take the box and jiggle it to get the bottles onto the conveyor, lift the box and put it on an overhead line. When she first started, Ms Baillie would be loading bottles on the conveyor for a whole day. After about two years, the process changed and operators moved round the line. The top of the hall, where the bottles were loaded on the line, was the noisiest part of Newton hall. Bottles would sometimes smash when the cardboard layers were removed from the pallet, perhaps 10 at a time. That could happen regularly, and was caused by the layers being uneven from being transported by forklift. Ms Bailie could not recall how often this might happen in an average shift. There might also be broken bottles in the centre of the pallet. Then the whole layer would have to be put in the glass bin and the area swept. It was extremely noisy when a pallet fell. That might happen up to four times a day. The bottles were lifted into the glass bin by the line operators. That was done quickly. Bottles might be touching on the start of the line; they might not be touching when in the rinser. Again the noise of the bottles banging was loud.

[20] Ms Bailie has worked at Kilmalid since 2000. She worked in Clyde hall for a few weeks in total. Staff were sent there when there was no work in Leven hall. Clyde hall was noisy. Mostly she has worked in Leven hall, where she has been on a number of different lines, including line 11, between 2008-2016. She was trained to operate all the machines on the line. She was trained to operate the depalletiser by the pursuer and other people. That took about four weeks. The pursuer had trained a number of people on the depalletiser, and might have spent up to four months working in that area all day. At other times, Ms Baillie recalled the pursuer working in the depalletiser twice a week for up to four and a half hours. The depalletiser area on line 11 was extremely noisy. The line speed for line 11 was

70 bottles per minute, but was sometimes run at 100 bottles per minute. Operating at the higher speed had caused a lot of breakages. The faster speed was noisier, because the bottles were banging together more. Sometimes the depalletiser would cause a pallet to crash if it was not in the right position, which would be extremely noisy. Sometimes it would be one layer, sometimes more. That might happen twice in a shift. Most operators did not wear hearing protection in Newton. It was not mandatory, and had only been available in the latter stages when she worked there, from about 1996. That was in the form of yellow sponge ear plugs. No instruction was given in their use. They were very itchy and uncomfortable. At Kilmalid there were red plugs on a wire, which were a lot better than the yellow ones. These were available from 2015. Now there are orange ones on a string. These are easier to insert that then red ones, which had a groove, and are more comfortable. A video and sheets with photos and a sign off were provided when the orange plugs were introduced about five years ago.

Martin Dippnall

[21] Martin Dippnall (57) is a consulting occupational hygienist, and has been qualified since 1989. Amongst his qualifications, he holds a Diploma in Professional Competence in Occupational Hygiene from the Faculty of Occupational Hygiene of the British Occupational Hygiene Society. He is a Chartered Member of the Faculty of Occupational Hygiene. He has conducted in excess of 250 noise/vibration surveys, comprising measurement and assessment of occupational exposure to noise and vibration in a wide range of industrial and commercial settings. His principal report dated 9 November 2021 and second supplementary report dated 22 September 2022 were referred to (5/10; JB736, and 5/29; JB1597 respectively).

[22] Mr Dippnall explained there are two types of device commonly used to measure noise levels for the purpose of hearing protection. A sound level meter, which is a hand-held device to measure noise levels at particular points; and a dosimeter, which is a device worn by an operative in an industrial setting, to measure that person's exposure to noise across a time period. Key measures of exposure include dBLeq and LEPD. DBLeq is the average noise level over a given measurement period. LEPD is the average daily noise exposure level, normalised to an 8 hour period. LEPD is the level to be used when considering the first and second action levels under Noise at Work legislation. A-weighted measure (dB(A)) is the noise level at the frequencies found in human speech, and therefore most sensitive to damage. C-weighted measure is the peak exposure, which takes account of sudden, impulse, noise.

[23] The defender's integrated risk assessment dated May 2008 for line 11 (JB2582ff) indicated that the noise level was "above 85 dba. Ear defenders are mandatory." (JB2608). After the Control of Noise at Work Regulations 2005 came into force, if the noise level was above that figure, a hearing protection zone is mandatory. The defender's integrated risk assessment dated June 2011 (JB1858ff) gave a score for risks by reference to probability and severity. Noise scored 4 for probability (on a scale 1-5) and 6 (on a scale 1-8) for severity. Risk was the product of these, and a result above 20 was specified as "high risk – cannot be justified on any grounds" (JB1862) Existing control measures were described as "Dampening on machine by way of guarding and engineering controls. Mandatory use of hearing protection within bottling hall. CBL Occupational Health assistance available in line with CBL policy." (JB1859) This was the only reference to dampening Mr Dippnall had discovered in the documents reviewed by him. It was not clear what was meant by "engineering controls". It was not clear whether this was a reference to the screw device

noted in the area of the filler machine during the site inspection. This has the effect of spreading bottles a fixed distance, to enable the filler to operate properly. In Mr Dippnall's view, this part of the defender's process was not effective hearing protection because they had not specified the engineering control before it was applied.

[24] At 3.10.2 and 3.10.5 of his report, Mr Dippnall reproduced noise levels noted by the defender in assessments in Leven Hall in 2006 and 2009. These showed identical levels. Mr Dippnall had never encountered identical levels in surveys three years apart. It could either have been a re-measurement, or re-use of previous years' figures. At 3.10.12, he set out figures from the defender's survey in February 2014, which has more locations and tasks. The level at the filler/rinser was 93dBA, but there was very little contextual information, for example whether or not it was a place where there was an operator. If it was a point on the line where there was an operator, that level exceeded the mandatory protection level. The level noted at the rinser/filler/labeller was 84 dBA, which is 1dB below the second action level, while the depalletiser figure was 81dBA, which is above the first action level. Under reference to paragraph 3.10.18, Mr Dippnall was critical of the 2014 survey's apparent reliance on single points of measurement. He would have expected measurements at different points on the line, perhaps at different line speeds. In addition it was essential to have an assessment for peak noise including glass breakages. The 2005 Regulations require exposure action values both for daily exposure and peak exposure. In Mr Dippnall's view, this assessment fell short of an adequate assessment. He was particularly concerned about the evidence of collapsing pallets of bottles, which would add to the daily value, and on the basis of the witness evidence, his view was this would almost certainly exceed the protection level. There was little technical literature on noise levels associated with breaking glass specifically, but the paper by Shanks et al for the Health and

Safety Laboratory in 2007 (5/50) provided some information. On the basis of that paper, Mr Dippnall said that the increase in exposure depended on the number of pallet collapses in a shift, but the increase could be of the order of 3dBA. If the court found that there were two collapses per week, the weekly dose might not exceed the action level, but the peak level was likely to be exceeded.

[25] He criticised the absence of clear definition of hearing protection zone because in addition to protecting employees, part of their purpose was to allow noise controls to be put in place in the correct area. He also criticised the absence of assessment (with the sole exception of the pump house) of the required standard of hearing protection necessary to maintain noise exposures to below the exposure limit values. That mattered because of the terms of the Control of Noise at Work Regulations which sets an absolute limit which takes account of the effect of hearing protection. The action levels in the 2005 Regulations were lower than those in the 1989 Regulations. Employers have to make an assessment if hearing protection lowers the noise does, to make sure protection is adequate. Mr Dippnall was not able to say if the peak level had been exceeded in the area of Newton hall where the pursuer worked, but it was likely that the current peak level would be exceeded by a pallet collapse. In his view, the defender had not measured noise adequately to allow them to determine if the peak level was exceeded by breakages. It was possible that pallets falling over weekly would exceed the 1989 Regulations peak level, but less likely than under the 2005 Regulations. While he recognised the matter was ultimately one for the court, his conclusion at 3.10.19 was that the defender's noise assessments fall short of the requirement to make a suitable and sufficient assessment. There was no assessment of hearing protection. There was no measurement of breakages. There was insufficient contextual information. There was no assessment at all of Newton hall.

[26] At 2.2.4 in his second supplementary report (JB1573), Mr Dippnall presented noise levels from the 2014 and 2017 surveys of Leven hall as an average for the sampling period for comparison with the levels recorded by him at the site inspection in March 2022. The figure for the de-palletiser in 2014 was 81dBA, and in 2017 was 87dBA. This is significant because every 3dB represents a doubling of sound energy, so 6dB is a quadrupling. The reasons for that might be measurement error, differences in line speed, or location of measurement; there was not enough contextual information. In any event it was a significant increase, and not likely to be due to measurement error, because a noise meter is calibrated to +/- 1dB. It was impossible to say if glass breakages were captured.

[27] At 5.2.1 of his first report, Mr Dippnall reproduced HSE Food Information Sheet 32 *Reducing noise exposure in the food and drink industries* (2002). This contained noise levels calculated by HSE inspectors, and in Mr Dippnall's view, were typical noise levels at that time. The noise data in the HSE document are a good proxy for the noise levels in Newton hall, given there are no actual noise surveys available. The factual witness evidence suggested there was little spacing between bottles. Dampening was a possible noise control measure, and there was little evidence that being considered. Acoustic panelling was mentioned, but only as a side benefit of panelling put in place for other purposes. Job rotation was in place. Taking the HSE figures, 85-95dBA was a reasonable central estimate for bottling hall noise at the time of publication.

[28] At 5.3 of his first report, Mr Dippnall discussed the pursuer's daily average noise exposure. This would depend on a number of factors, including time spent using noisy equipment or in proximity to noisy processes, such as glass breakages which would most likely vary from day to day and from year to year. On the basis of the evidence of the

witnesses to fact, glass breakage appeared to be more frequent than he had envisaged, which would have an impact on daily exposure. At 5.3.5, Mr Dippnall concluded:

> "It follows that the Pursuer was potentially exposed to noise levels of between 80-93 dB(A) when she worked in Clyde Hall and between 79-81 dB(A) when she worked in Leven Hall, according to the Defender's rather limited data. Depending on how long she worked at or near the noisier processes i.e. 'Filler/Rinser', then it is possible her 8 hour time-weighted average noise exposure (LEP,d) could have been above 90 dB(A), when she worked in Clyde Hall."

That remained his view having heard the witnesses to fact. He considered that if the court accepted the defender's noise surveys to be accurate, it appeared unlikely the pursuer was exposed to noise levels above 85 dB(A) after 2000. However, in his view the data were extremely limited in scope and lacking detail. In particular, there was no assessment of peak noise levels, especially from breakages. The court might consider that to not to be a suitable and sufficient assessment. Clyde Hall was made a mandatory hearing protection zone, since employees were required to wear hearing protection after 1996 or 1997. That indicated noise levels in at least some areas were above 90 dB(A), the second action level in the 1989 Regulations. At 5.3.11, Mr Dippnall in reliance on the HSE data referred to in his report estimated the pursuer's typical daily average noise exposure, LEP,d, was probably between 85 and 95 dB(A), excluding the attenuation of any hearing protection, when she worked at the in Newton Hall bottling hall up to around 2000. In his experience, having carried out comprehensive noise assessment surveys in several Scottish whisky bottling halls over the course of his career, noise levels there tend to be in the range 85–95 dB(A).

[29] Mr Dippnall went on to explain noise immission level, under reference to section 5.4 of his first report. The Noise Immission Level (NIL) is a calculation of an individual's lifetime exposure to noise.

> "The formula is included in the 'NPL Tables' of 1977… as follows:
> NIL = (Average daily noise level) + (10 × log10 T)

> Where the average daily noise level is measured in "dB (A) LEP,d" and "T" is time (in years)." (5.4.1)

As Mr Dippnall understood the pursuer's evidence, she wore no hearing protection from 1990-1995/96. She was thus largely unprotected against noise in that period. One would calculate the cumulative exposure. Thereafter, if she was provided with and wore suitable hearing protection, that ought to have reduced her exposure below 85 dB(A). The earplugs discussed in evidence ought to provide sufficient protection if worn and used consistently, except, possibly, in respect of the peak noise from pallets collapsing. Witnesses had spoken to the foam earplugs working their way out, which likely indicated they had not been properly inserted. In turn that was probably because the operatives had not been trained properly in their use. Training should verify that operatives are fitting the earplugs properly. At 5.5.2 of his first report, Mr Dippnall set out a graph from the HSE Code of Practice showing the decline in noise attenuation against the percentage of time protection was worn. This is on a logarithmic scale, and for example, if hearing protection was worn 90% of the time, the effective attenuation was 10dB as against 30dB for 100%. If the noise level was 95 dB or less, that was sufficient to bring the level below 85 dB.

[30] Audiometric testing was not mandatory until the 2005 Regulations. The defender introduced testing in the 1990s, which was good practice. If an audiogram in 1996 had demonstrated hearing impairment, irrespective of cause, Mr Dippnall would have expected review by occupational health, to inform a judgment about the next steps. If there was a low level of impairment, one might schedule a repeat test. If it was more than that, one ought to investigate noise exposure and hearing protection. There was no point having audiometric testing and not taking cognisance of it. If a repeat audiogram showed further deterioration, Mr Dippnall would have expected a referral to an occupational health physician for review,

and for investigations of noise levels and hearing protection. Coles et al's guidelines, Note 4 (JB1076) noted that hearing attenuation figures provided by the manufacturers of hearing protection require to be modified for "real world" conditions, and Mr Dippnall agreed with that as a generality because the manufacturers' testing would be in laboratory conditions.

[31] In cross-examination, Mr Dippnall confirmed his first report was prepared prior to the site visit in connection with this action. He agreed there was very little information in the witness statements summarised by him in sections 3.3. 3.4 and 3.5 about Newton bottling hall. The information he had was that Newton was a bottling hall and hearing protection was not worn. The pursuer and all the witnesses said Newton was quieter than Leven hall. Mr Dippnall understood from witness statements there had been changes in the equipment on line 11 between 20006-2011. He did not know for certain the effect on noise levels. Mr Dippnall's opinion about noise immission level at 5.4.4 was based on three points. First, the fact the pursuer worked in Newton hall 1990-2000; secondly the pursuer said she was not provided with hearing protection for 5 or 6 years; and thirdly, Newton was and older plant, where the equipment would be older and noisier. He had largely based his opinion on the HSE figures quoted. His view of Kilmalid took account of the figure for Newton, and also that the pursuer had been provided with hearing protection.

[32] The site visit in March 2022 lasted between an hour and half and two hours. Mr Dippnall and other participants were issued with hearing protection, and he thought it was difficult to estimate general noise levels while doing so. He did not recall seeing any breakages on the lines or at the de-palletiser. There was an operative removing bottles from the line, draining them and throwing them into a glass-bin. He did not observe any pallets crashing. His second supplementary report contained measurements he took on the site visit (at JB1572). The noise levels were broadly similar to those recorded by the defender's

expert Mr Garry. Line 12 was not running while the visit was taking place. If it had been, in Mr Dippnall's view, the noise level would have been higher; at 5.4 he gave his view that if two similar noise sources are contributing to overall noise level, the combined noise will be about 3dB(A) greater than a single source. He accepted that would be at the midpoint between the two sources, and he had not made midpoint noise readings. The other issue discussed in section 5 of the report is line speed. Mr Dippnall had relied on the article at 5/30 about noise levels at an Italian winery. He considered that was a valid comparison because the main issue identified there was bottle to bottle contact, which increased with line speed. Mr Garry visited the site in February 2022. Line 12 was noted to be running. The noise levels recorded were similar. Mr Dippnall did not agree that the noise from line 12 was inconsequential. It was unlikely on a balance of probabilities to be making a similar level of noise as line 11. Mr Dippnall agreed with the first three sentences of para 6.2 of Mr Garry 's report. He agreed with para 6.4 of the report.

Jonathan Newton

[33] Jonathan Newton is a consultant ENT surgeon with NHS Forth Valley. He has been a consultant for 13 years. Mr Newton examined the pursuer on 3 July 2020 and prepared a report dated 5 July 2020 (5/7 of process)(JB715). Mr Newton noted a history from the pursuer and recorded that the pursuer had noticed decreased hearing for about two years prior to examination. He also noted Her tinnitus worsened at this time. The pursuer told him she has had tinnitus for many years. She was given hearing aids by the NHS in 2019. He had noted there are times the pursuer struggles to hear at work. Her hearing aids help. Speaking on the telephone at work can be challenging. At home the pursuer struggled to hear the television set and needed the volume turned up. The struggles to a degree in

everyday conversation. She particularly struggles where there is background noise. She no longer socialises as much with friends due to her poor hearing. Bars and restaurants are particularly difficult. There was no history of previous middle ear surgery, childhood ear disease or meningitis. At 3.1, Mr Newton noted the circumstances of her employment provided by the pursuer (JB719). Mr Newton had arranged for an audiogram to be prepared as part of the report. That was conducted by Caroline Ralph, an experienced audiologist, and was included as Appendix 2 (JB730). The audiogram shows good hearing at the lower frequencies but bilateral sensorineural hearing loss in the high frequencies. There is an unmistakable downward notch in the audiogram bilaterally at 4-6kHz. The downward notch is significant as one of the diagnostic criteria in Coles's Guidelines (JB1071), and in Mr Newton's experience it was the most important criterion. There is a clear dropping off at 2, 3, 4, and 6 kHz; these are the frequencies most affected by noise exposure and makes a diagnosis of noise-induced hearing loss very likely.

[34] Coles's "Guidelines on the diagnosis of noise-induced hearing loss for medico-legal purposes" were published by Coles, Lutman and Buffin in (2000) Clinical Otolaryngology 25, pp264-273 (5/19 of process JB1071). The guidelines were formulated to provide a framework for clinical diagnosis and for medico-legal cases where there was doubt as to cause. It was, in Mr Newton's view, the benchmark paper for noise-induced hearing loss, and he would be surprised if an ENT surgeon was unaware of it. Coles and his colleagues had produced a further paper in 2015 or 2016 addressing quantification of hearing loss. Coles et al provided three diagnostic criteria (JB1073). In Mr Newton's view, all are present in the pursuer's case. R1, high frequency impairment, was demonstrated on the audiograms. R2, noise exposure, was demonstrated by the audiometric data and the information about the pursuer's history of exposure to noise. If exposure was at 85 dB(A)

over an 8 hour period, R2(a) would be satisfied. R3, the configuration of hearing impairment, was demonstrated by the audiograms and in particular the presence of a downward "notch" between 2-6 kHz. Mr Newton considered there was no other factor that could have caused the pursuer's hearing loss.

[35] In paragraphs 6.4-6.6 of his report, Mr Newton had applied the guidelines in Coles et al's 2015 paper (JB1549) to assess the level of the pursuer's hearing loss using the values extracted from the audiogram. There is a greater than 10dB notch/bulge in both ears. The presence of a notch or bulge with a history of excessive noise exposure supports a diagnosis of noise induced hearing loss. At 6.5, Mr Newton set out the calculation of hearing loss using Coles's methodology. Loss was 50dB in the right ear, and 40dB in the left ear. The difference averaged over all frequencies was 10dB, which was sufficiently close in Mr Newton's view to allow the loss to be characterised as symmetrical. The overall binaural hearing loss is 42dB. The noise-induced component was calculated in paragraph 6.6 as 29dB, with the remaining 13dB being due to age. The pursuer's hearing loss was appropriately described as "moderate." As Mr Newton recorded at paragraph 7.5, the prognosis for this type of hearing loss is for slow deterioration with ageing. All ears deteriorate with age, though there is some evidence that deterioration with time is likely to be more rapid in ears damaged by noise than it would be in ears not so damaged. That was discussed in the paper by Kujawa and Liberman (5/33 of process JB1620), which supported Mr Newton's position about that.

[36] Mr Newton recommended the pursuer was provided with hearing aids because she has significant, sensory, hearing loss which is not amenable to surgery or medication. NHS hearing aids sit outside the ear and are not digital. Privately supplied hearing aids are likely to sit within the ear and to have better functionality. They will be invisible, which is

important to some patients, and their digital operation means they can be tuned to the frequencies most appropriate to the patient, and have sound compression so that the patient hears better than with NHS hearing aids. The cost per ear of £1500 was correct at the time of the report, but Mr Newton estimated that the cost per ear would now be around £2500. Hearing aids ought to be replaced every five years because of wear and tear, and also because of the pace of technological improvement.

[37] The audiogram dated 18 February 1991 (5/39 of process; JB1679) was hard to read because of the jagged lines, but overall it showed pretty good hearing because the lines were above the 20dB line on the *Y* axis. The audiogram dated 15 February 1996 (5/40 of process; JB 1680) showed the beginnings of a very obvious bulge or notch between 3kHz – 6 kHz. There was a deficit of 20dB in one ear at 4kHz and 10 dB in the other. Note 11 to Coles's guidelines suggested there was still a high probability of noise-induced hearing loss in those circumstances. Idiopathic hearing loss means hearing loss for which there is no known or identifiable cause. It is a possible diagnosis, but not in the pursuer's case where Coles's guidelines are met so perfectly in all the audiograms. In this case, such a diagnosis would be misleading and erroneous. The pursuer also has tinnitus, and Mr Newton assessed this as in band 3 of the 5 set out in Appendix 4 to his report (JB732), which is classified as moderate. Tinnitus did not point towards a noise-induced hearing loss, nor did it point towards an idiopathic origin.

[38] In Mr Newton's view, the tabulation of figures from the audiograms from 2015-2022 by Mr Murray (JB1677) showed significant evidence of a bulge pattern in the frequencies for noise-induced hearing loss. In his view, that suggested it was highly likely the pursuer's hearing loss was noise-induced. The figures for 2020 were a textbook pattern, and 2021 was almost identical. From his own comparison of earlier audiograms, there was evidence of

deterioration from 2015 to 2018. There was no worsening of the level of impairment between 2018 and 2022. Mr Newton would have expected there would probably be further deterioration in that period if the pursuer had idiopathic hearing loss. Mr Newton said the conclusion in Mr Swan's report of 5 December 2021 (JB1730) , was categorical that the audiometry shows a pattern of hearing loss typical of noise-induced loss, and he agreed with that. If there was evidence of hearing impairment in 1996, he would have recommended referral to an appropriate NHS specialist, escalation of noise protection, and removal of the patient to a less noisy area.

[39] In cross-examination, Mr Newton said the 1996 audiogram (JB1680) had a big notch at the hearing frequencies and was pretty good evidence of noise-induced hearing loss. One could not say what level of noise the pursuer had been exposed to from the audiogram, but it was an injurious level. Presented with that audiogram, Mr Newton would doubt a patient telling him there had been no injurious exposure to noise. Mr Newton did not agree with Mr Swan's conclusion (JB2656) that idiopathic hearing loss with a similar audiogram profile was frequently seen in clinical practice. In his work, Mr Newton sees 20 new patients every week, and almost never sees such an audiogram profile that is not associated with noise-induced hearing loss. He could not rule out the possibility of idiopathic loss, but, in his experience, it is really uncommon. On the hypothesis that it was shown the pursuer was not exposed to hazardous noise, Mr Newton considered that noise level measurement provided only a snapshot in 2021 or 2022. It would not definitively prove what noise exposure the pursuer had experienced in 1995. Nor did Mr Newton accept the thesis that the presence of hearing loss at 2kHz pointed away from noise-induced loss. In his experience, noise-induced loss is centred 3-6kHz, but frequently extends to 2kHz. Coles suggested anchor

points at 1 and 8 kHz, so that 2kHz was within the area indicative of noise-induced loss. It was often, but not typically, affected.

Craig Murray

[40] Craig Murray is 58 and is an otolaryngologist, and has been a consultant for 22 years; he is employed by NHS Greater Glasgow and Clyde. Mr Murray spoke to his report of 3 August 2022 (5/31 of process; JB1604). The 1991 audiogram (5/39; JB1679) showed near normal hearing. On the 1996 audiogram (5/40; JB1680), the frequencies below 2kHz were normal. There was a drop of 20dB at 4kHz in the right ear, and a lesser drop in the left. A notch at 4kHz with a good recovery at 8kHz meant one was looking at noise-induced hearing loss as a potential cause. 3, 4 and 6 kHz were the frequencies most commonly affected by noise-induced hearing loss. On the 1999 audiogram, there was distinct notching for both ears, the more significant drop was at 6kHz. There was a dramatic drop in the left ear, which Mr Murray would want to investigate clinically if presented with such a pattern. The May 2003 audiogram (5/42 of process; JB1684) showed a reasonably well defined notch at 3kHz in the right ear. The left ear was not quite as marked. The 1996 and 2003 audiograms are broadly comparable, particularly in the right ear. There was some evidence of noise-induced hearing loss in 1996, and in Mr Murray's view, ought to have been followed up by a re-test in less than 3 years, and if the next audiogram showed more loss a referral for clinical assessment should follow. Consideration should also have been given to the hearing protection supplied and whether it was suitable for the pursuer to work in that environment. The pattern in the 2010 audiogram (5/43 of process; JB1686) was consistent with noise-induced hearing loss, because of the changes at 3-6kHz. The March 2013 audiogram (5/44 of process; JB1690) shows a clear notch centred at 3 and 4 kHz in the right

ear. The pattern was typical of noise-induced hearing loss. There was some deterioration, but not by a significant amount. Mr Murray considered the rapid change was a concern, and it would be unusual for this to be solely due to noise. There could be an alternative cause in addition to noise. Was there a medical problem, for example vascular or neurological conditions. Mr Murray would have wanted to investigate if there was other illness.

[41] The audiograms for March and April 2015 (5/45 and 5/46 of process; JB1696&1697) are very similar, including asymmetry at 2kHz in the right ear. Turning to the audiogram taken at the ENT department at Gartnavel General Hospital by Lynne Cook in July 2015 (5/37; JB1676), Mr Murray considered that was typical of noise-induced hearing loss, with a notch at 3 and 4 kHz in the right ear. There was also a bulge to 2kHz. The left ear was a more typical NIHL pattern. There was variation in the figures in the 2015 audiograms, but that was more likely due to the way the testing was done – two were in the occupational health department, and one in an NHS audiology unit. However the patterns of hearing loss matched. Mr Murray would be looking at what had changed across the test results, and these showed progressive deterioration. If it was accepted the pursuer was exposed to noise causing damage, one would expect hearing protection wold prevent progressive loss; the progressive loss shown made Mr Murray question the protection being used. Questions to be addressed where whether protection was supplied; was it used; was it used properly; and did it remain in place.

[42] There was a material difference in the results between April 2015 and July 2015. Mr Murray considered this could be accounted for by different testing conditions, and the margin for error in a test/re-test situation is 10dB. Between 2015-2018 there appeared to be a deterioration, though it was within the margin of testing error. Between 2018 and

September 2022, there was not a noticeable deterioration at those frequencies. The August 2016 audiogram (5/47 of process; JB1701). Both ears showed some deterioration in the 3 and 4 kHz ranges. 2kHz remained the same. The 7 August 2018 audiogram (JB1708) showed deterioration in 3, 4, and 6kHz. It also showed deterioration at 2kHz. That might be because the pursuer was over 50, and as we age, we naturally lose high-frequency hearing. Sometimes the audiogram begins to lose the bulge. Equally, sometimes 2kHz is involved in noise-induced hearing loss. Normally one judges hearing impairment by looking at the better ear. In this case there was a notch at 3 and 4kHz. There were signs of 2kHz involvement, thought there was a question about the extent to which that was a reliable data point. There was no easy answer to that, and the rapidity of change at that frequency, might suggest it was not due to noise. Overall, the pursuer had loss of 4)bB, which is moderate hearing loss.

[43] Mr Murray was aware of the reports from Mr Swan lodged by the defender, and that Mr Swan now considered the pursuer's hearing loss had an idiopathic cause. Mr Murray disagreed because if progressive hearing loss was idiopathic, one would expect the deterioration to continue at broadly the same rate. In the pursuer's case, hearing loss stabilised and levelled off after 2015. Mr Murray considered Coles's guidelines supported the impression that the 1996 audiogram shows potential NIHL. There is a well-defined notch in the right ear. On the left ear, there is a small notch in the 3-6kHz range. The pattern was of NIHL. Mr Murray considered that criteria R2(b) and R3(b) of Coles's guidelines were met. With reference to the lower level of noise attenuation in actual workplaces compared with laboratory settings mentioned in note 4 to Coles, Mr Murray agreed and noted Coles et al were not the only sources to conclude that; for example, the US

equivalent of the HSE discounted manufacturer attenuation figures by 50%. Thus the figures in Coles note 4 were very realistic.

[44] In cross-examination about Mr Swan's report, Mr Murray agreed that Mr Swan appeared to have proceeded on the pursuer's description of matters in his first report, and changed his mind when an engineer's report became available. He had been using the same audiograms. There had been no real change in occupational noise exposure, though Mr Dippnall had noted changes such as the introduction of the "snake" in part of the machinery, and plastic covers. If the noise exposure breached the guidelines, Mr Swan's first report might be right. If was established the pursuer was not exposed to hazardous noise, one would have to fall back on Mr Swan's second report, and some other cause.

Defender's evidence

Anna Brown

[45] Anna Brown (54) is a Registered General Nurse and a Registered Specialist Community Practitioner. After working in ICU and surgical wards in NHS practice, she moved to work in occupational health. She has worked in the nuclear industry and then for the defender and its predecessor United Distillers since 2004. She has undertaken a number of training courses in relation to noise hazards, including noise-induced hearing loss. She manages a team of five permanent occupational health staff, which also has specialist external support. They are responsible for around 1800 employees of the defender and an associated company. Ms Brown is based at Kilmalid, in accommodation adjacent to Leven hall. Disposable earplugs were available for line operators. They are widely available in the halls. Ms Brown had not experienced occasions when earplugs were not available, but she was not in the halls as often as line operators. When operators attend for hearing tests they

complete a questionnaire including a question are you aware how to fit hearing protection. She always tells staff to lift the ear and fit the plug. If she was in the bottling hall and saw someone not wearing hearing protection, or not wearing it properly, she would speak to them, because the hall is a mandatory hearing protection zone. The pursuer always ticked the questionnaire to indicate she wore hearing protection when required.

James Garry

[46] James Garry (63) is a consulting forensic engineer. He is a Chartered Engineer and a Member of the Institution of Mechanical Engineers. He has been engaged in forensic work for 36 years, mainly in relation to noise-induced hearing loss. He produced a report dated 21 February 2022 (6/1/1)(JB1706), which he adopted as part of his evidence. Mr Garry had experience of a range of bottling plants. These varied according to the product. He had been a whisky bottling plant, but not to a winery as described in the paper produced by the pursuer (5/30). A winery would be bottling a single product. The paper seemed to indicate repeated collisions between bottles. At Kilmalid, there were devices to separate the bottles, and there did not appear to be reference to such devices in the paper. The operation appeared similar, but there was insufficient detail to compare. Mr Garry thought it was significant there was a pneumatic capping machine in the winery, which he thought would produce higher noise levels. There was no such machine at Kilmalid. As a general proposition, it was true that the higher the line speed, the more noise is generated because of the increased frequency of bottles colliding. That would not increase the absolute noise, but would increase Leq. The lines at Kilmalid had a number of devices separating bottles: Archimedes screws, star wheels with slots for individual bottles at the capper and labeller, and separate platforms at the filler. The bottles come together between stations, depending

on how the line is set up. Mr Garry said it was possible to have a conversation on the line at Kilmalid without having to raise your voice or shout. All the factual witnesses had said Newton was quieter than Kilmalid/Leven hall.

[47] Mr Garry had a site visit to Kilmalid in February 2022, which lasted about an hour and a half, almost all of which was in the bottling hall. To his recollection almost all the lines were operating, including lines 11 and 12. He did not see any pallets crash or other breakage. He did hear bottles going into the glass bins, which made a "thud" noise, and which made no effect whatsoever on the noise readings he was taking. There was a momentary movement in the meter. In his view, there would have to be a huge number of breakages over a period to increase Leq. Mr Garry did not witness any de-palletiser malfunction. The feed was not continuous, and there was a small increase in noise when a new rank of bottles was lifted. The top of the line where the bottles are marshalled was the noisiest. Mr Garry's noise survey produced values very similar to Mr Dippnall's, with values generally below 85dB(A). The values were not of concern because hearing protection was used; it would be different if it were not used. In his opinion, if operatives were wearing ear-plugs they were not exposed to harmful levels of noise, because the likely noise level would never be high enough. The level would have to be 105dB(A), which was the equivalent of a hammer drill in a concrete wall. Mr Garry did not agree with Mr Dippnall's approach to the cumulative effect of lines 11 and 12 running simultaneously. The 3dB figure was not a rule of thumb because the actual calculation is more complex. It was necessary to consider the distance between the machines, and the distance from the machine to the meter. The 3dB figure only applied at the midpoint between two identical machines. Mr Dippnall did not record those distances or figures. Mr Garry was familiar with the paper by Hempstock and Hill (JB1085) discussed by Mr Dippnall in relation to the "real world"

attenuation provided by hearing protection. He did not take issue with the overall conclusion that field performance was less than the manufacturer's prediction.

[48] In cross-examination, Mr Garry said that the fact witnesses reported Newton was quieter than Leven meant it must have been noticeably so. He was not surprised the evidence was operatives had to raise their voices if they were 4 feet away from each other. If there were 4 people on the line, they were not shoulder to shoulder, as had been suggested. If operatives had to shout at 1 metre distance, the noise would have been above 85dB(A). If normal conversation was happening, the noise must have been below 85dB(A). The factual witnesses did not describe shouting, but did describe raising their voices. There was no evidence about what was done in the 1990s in terms of noise assessment; Mr Garry simply did not know if there had been one earlier than 2001. While Mr Garry would defer to medical experts, the pursuer's audiograms appeared to show hearing loss; the cause was another matter.

[49] In relation to hearing protection, there was no reason why ear-plugs should work their way out of the ear. The evidence of itchy ears suggested they were removed purposely. If they fell out, you would notice that immediately because of the increased noise. The pursuer said she put them back in straight away if they came out. The evidence of the factual witnesses indicated they had been shown how to fit the ear-plugs. The defender's response to the audiogram depended on the category: 1 = normal; 2= warning; 3 = GP referral; 4 = immediate referral. If someone was wearing hearing protection, there was nothing more that could be done in terms of protection. That is because there are three types of hearing loss: age-related, noise-induced, and idiopathic. Hearing protection has no effect on idiopathic hearing loss. The decision to refer to a GP would relate to the person,

not to the noise level or hearing protection. If someone was wearing hearing protection, the exposure would be below 85dB(A).

[50] Mr Garry agreed that it was unusual for noise assessments to produce exactly the same results over time, though in similar conditions one would expect close results. However in his view, it was probably more important to look at his results and Mr Dippnall's. Noise surveys are particularly important where there is no hearing protection; if there is high quality hearing protection, surveys are valuable, but would have to show exceptional noise for further action. Mr Garry's noise survey, and Mr Dippnall's, would have all the surrounding values, including bottle contact on the line. Mr Garry could not say increasing line speed was significant. You would get more contact because there was more energy; bottles would catch up, but then be segregated again at machines, then move on again. Mr Garry did not agree with Mr Dippnall's analysis of noise of pallets breaking. He found it difficult to envisage because of the presentation of the machine, but it would be a noisy, then over. The noise level would be nothing near 130dB(A). It might be 120dB(A) The noise would have to be continuous to make a significant difference to exposure. The disposal of bottles Mr Garry observed on his visit were made with a dull thud. If operatives were wearing hearing protection, this noise would have no relevance in assessment of the overall noise. Mr Garry also observed that bottles are not cheap, so there was a reason to minimise loss. On his site visit Mr Garry had observed screens, the Archimedes screws, star wheels and bottle separation. He could not think of anything else to make the noise level less.

Analysis and decision

Parties' submissions

[51] Counsel for both parties produced written submissions, which they adopted. They are in process, and I therefore need not rehearse them at length, although I have taken full account of them in the discussion which follows.

The working environment and exposure to noise

[52] The pursuer's evidence that she was not exposed to injurious levels of noise in the course of her employment prior to working with the defender was not challenged, and I accept that evidence. I also accept her account recorded in Mr Newton's report that she had no relevant prior illnesses which might affect her hearing. I accept the evidence of Mr Newton that while the audiogram dated 18 February 1991 (JB1679) was hard to read, overall it showed "pretty good" hearing, because all of the lines were above the 20dB line on the *Y* axis. From those facts, I infer that the pursuer's hearing was essentially "normal" at the point she started work with the defender.

[53] I accept the pursuer's evidence that hearing protection was not provided when she started work with the defender in 1990. That was consistent with the evidence of the other line operators. All spoke to hearing protection being introduced, though some, including the pursuer, had a clearer sense than others of when that was. The pursuer's evidence was that it happened in 1995 or 1996. That was consistent with Angela Baillie's evidence that it was introduced about 1996. All the line operator witnesses spoke of the first type of protection introduced being yellow foam ear-plugs, and all were agreed there was no instruction or training in their use. Nor was there any evidence that the defender monitored

use when hearing protection was initially introduced, though that position changed, certainly by the time production moved to Kilmalid (Leven hall).

[54] A number of the factual witnesses including the pursuer said in evidence that Newton hall was less noisy than Leven hall at Kilmalid. Counsel for the defender invited me to take this as the starting point, and to hold that the noise levels in Newton must therefore have been less than those recorded in the surveys carried out by the parties' expert witnesses in February and March 2022. I do not consider that approach well founded. This strand of the witness evidence is necessarily impressionistic. While all of the factual witnesses said Newton hall was noisy, it is more than 20 years since any of them worked there. Further, while the line operator witnesses spoke of Newton bottling hall as a noisy environment, there was no evidence produced of the actual levels of noise. It seems to me an unwarranted leap to accept impressionistic but unquantified noise levels as being necessarily lower than known quantified levels. At 5.2.1 of his first report, the pursuer's expert Mr Dippnall reproduced HSE Food Information Sheet 32 *Reducing noise exposure in the food and drink industries* (2002). This contained noise levels calculated by HSE inspectors, from inspections at the time. He suggested that noise data in the HSE document are a good proxy for the noise levels in Newton hall, given there are no actual noise surveys available, because the levels in the HSE document were based on actual measured noise for similar premises at about the same time. In Mr Dippnall's own experience of carrying out surveys in a number of whisky bottling halls, this was a realistic range. Taking the HSE figures, 85-95dBA was a reasonable central estimate for bottling hall noise at the time of publication. I reject the defender's submission that Mr Dippnall failed to take proper account of the witness evidence about the general noise level in Newton hall. I consider that for the reasons given, the HSE document is a reasonable proxy, though it provides a likely range

rather than a confirmed reading. In the absence of contemporaneous noise surveys, I consider this is the most reliable available assessment of the likely value of the noise levels in Newton hall in the period 1990-2000.

[55] I accept that there would have been some attenuation of noise levels once hearing protection was made available in 1996; that is, after all, the purpose of hearing protection. It is difficult to reach a firm conclusion about the extent of such attenuation however. In the first place, in addition to the absence of evidence of noise surveys in Newton hall, there was no evidence that the suitability and effectiveness of the ear-plugs issued to the defender's employees, including the pursuer, was assessed by the defender. That matters for itself in the sense that the defender was not fully informed, but also, secondly, because I accept the evidence of Mr Dippnall about levels of attenuation in the actual workplace as compared with the laboratory. That is recognised in Note 4 to Coles et al's criteria (JB1076), and is discussed in Hempstock and Hill "The attenuations of some hearing protectors as used in the workplace" Ann. Occup. Hyg vol 34 No 5 pp453-470 (199) (JB1085). Both Mr Dippnall and Mr Garry accepted this was relevant. I also note the graph at 5.5.2 of Mr Dippnall's report (JB782) demonstrating the sharp decline in attenuation if hearing protection is not worn for even a short time: wearing protection for 90% of the time results in a drop from 30dB to 10dB attenuation. Accordingly, I conclude that it was likely there was attenuation of noise levels from 1996 by reason of the issuing of ear-plugs, but I am unable to make a finding that the level of attenuation of the noise level dB(A) was consistently below the first action level.

Breach of duty

[56] The pursuer's case on record is that the development of her hearing loss was caused by the defender's breach of duty at common law, and by breaches of Regulations 4, 5, 6, 7, 8, 9 and 11 of the Noise at Work Regulations 1989 [SI 1989/1790] until the end of 2005, and thereafter of Regulations 4, 5, 6, 7, 8, 9 and 10 of the Control of Noise at Work Regulations 2005 [SI 2005/1643], albeit there is no civil liability under the Regulations from and after 1 October 2013, by reason of the Enterprise and Regulatory Reform Act 2013.

[57] It was common ground that although the 1989 and 2005 Regulations no longer instruct civil liability, they were relevant to deciding the standards with which the defender had to comply (and see *McDonald* v *Indigo Sun Retail* [2021] SC EDIN 20, at paras 57&58). It is convenient to turn to the regulations.

[58] Noise at Work Regulations 1989

4. Assessment of exposure

(1) Every employer shall, when any of his employees is likely to be exposed to the first action level or above or to the peak action level or above, ensure that a competent person makes a noise assessment which is adequate for the purposes–

(a) of identifying which of his employees are so exposed; and

(b) of providing him with such information with regard to the noise to which those employees may be exposed as will facilitate compliance with his duties under regulations 7, 8, 9 and 11.

(2) The noise assessment required by paragraph (1) shall be reviewed when–

(a) there is reason to suspect that the assessment is no longer valid; or

(b) there has been a significant change in the work to which the assessment relates;

and, where as a result of the review changes in the assessment are required, those changes shall be made.

5. Assessment records

Following any noise assessment made pursuant to regulation 4(1), the employer shall ensure that an adequate record of that assessment, and of any review thereof carried out pursuant to regulation 4(2), is kept until a further noise assessment is made pursuant to regulation 4(1).

6. Reduction of risk of hearing damage

Every employer shall reduce the risk of damage to the hearing of his employees from exposure to noise to the lowest level reasonably practicable.

7. Reduction of noise exposure

Every employer shall, when any of his employees is likely to be exposed to the second action level or above or to the peak action level or above, reduce, so far as is reasonably practicable (other than by the provision of personal ear protectors), the exposure to noise of that employee.

8. Ear protection

(1) Every employer shall ensure, so far as is practicable, that when any of his employees is likely to be exposed to the first action level or above in circumstances

where the daily personal noise exposure of that employee is likely to be less than 90 dB(A), that employee is provided, at his request, with suitable and efficient personal ear protectors.

(2) Every employer shall ensure, so far as is practicable, that when any of his employees is likely to be exposed to the second action level or above or to the peak action level or above, that employee is provided with suitable personal ear protectors which, when properly worn, can reasonably be expected to keep the risk of damage to that employee's hearing to below that arising from exposure to the second action level or, as the case may be, to the peak action level.

(3) Any personal ear protectors provided by virtue of this regulation shall comply with any enactment (whether in an Act or instrument) which implements in Great Britain any provision on design or manufacture with respect to health or safety in any relevant Community directive listed in Schedule 1 to the Personal Protective Equipment at Work Regulations 1992 which is applicable to those ear protectors.

9. Ear protection zones

(1) Every employer shall, in respect of any premises under his control, ensure, so far as is reasonably practicable, that–

(a) each ear protection zone is demarcated and identified by means of the sign specified for the purpose of indicating "ear protection must be worn" in paragraph 3.3 of Part II of Schedule 1 to the Health and Safety (Safety Signs and Signals) Regulations 1996 (SI 1996/341), which sign shall include such text as indicates–

(i) that it is an ear protection zone, and

(ii) the need for his employees to wear personal ear protectors whilst in any such zone; and

(b) none of his employees enters any such zone unless that employee is wearing personal ear protectors.

(2) In this regulation, *"ear protection zone"* means any part of the premises referred to in paragraph (1) where any employee is likely to be exposed to the second action level or above or to the peak action level or above

11. Provision of information to employees

Every employer shall, in respect of any premises under his control, provide each of his employees who is likely to be exposed to the first action level or above or to the peak action level or above with adequate information, instruction and training on–

(a) the risk of damage to that employee's hearing that such exposure may cause;

(b) what steps that employee can take to minimise that risk;

(c) the steps that that employee must take in order to obtain the personal ear protectors referred to in regulation 8(1); and

(d) that employee's obligations under these Regulations.

[59] Control of Noise at Work Regulations 2005

4. Exposure limit values and action values

(1) The lower exposure action values are—

(a) a daily or weekly personal noise exposure of 80 dB (A-weighted); and

(b) a peak sound pressure of 135 dB (C-weighted).

(2) The upper exposure action values are—

(a) a daily or weekly personal noise exposure of 85 dB (A-weighted); and

(b) a peak sound pressure of 137 dB (C-weighted).

(3) The exposure limit values are—

(a) a daily or weekly personal noise exposure of 87 dB (A-weighted); and

(b) a peak sound pressure of 140 dB (C-weighted).

(4) Where the exposure of an employee to noise varies markedly from day to day, an employer may use weekly personal noise exposure in place of daily personal noise exposure for the purpose of compliance with these Regulations.

(5) In applying the exposure limit values in paragraph (3), but not in applying the lower and upper exposure action values in paragraphs (1) and (2), account shall be taken of the protection given to the employee by any personal hearing protectors provided by the employer in accordance with regulation 7(2).

5. Assessment of the risk to health and safety created by exposure to noise at the workplace

(1) An employer who carries out work which is liable to expose any employees to noise at or above a lower exposure action value shall make a suitable and sufficient assessment of the risk from that noise to the health and safety of those employees, and the risk assessment shall identify the measures which need to be taken to meet the requirements of these Regulations.

(2) In conducting the risk assessment, the employer shall assess the levels of noise to which workers are exposed by means of—

(a) observation of specific working practices;

(b) reference to relevant information on the probable levels of noise corresponding to any equipment used in the particular working conditions; and

(c) if necessary, measurement of the level of noise to which his employees are likely to be exposed, and the employer shall assess whether any employees are likely to be exposed to noise at or above a lower exposure action value, an upper exposure action value, or an exposure limit value.

(3) The risk assessment shall include consideration of —

(a) the level, type and duration of exposure, including any exposure to peak sound pressure;

(b) the effects of exposure to noise on employees or groups of employees whose health is at particular risk from such exposure;

(c) so far as is practicable, any effects on the health and safety of employees resulting from the interaction between noise and the use of ototoxic substances at work, or between noise and vibration;

(d) any indirect effects on the health and safety of employees resulting from the interaction between noise and audible warning signals or other sounds that need to be audible in order to reduce risk at work;

(e) any information provided by the manufacturers of work equipment;

(f) the availability of alternative equipment designed to reduce the emission of noise;

(g) any extension of exposure to noise at the workplace beyond normal working hours, including exposure in rest facilities supervised by the employer;

(h) appropriate information obtained following health surveillance, including, where possible, published information; and

(i) the availability of personal hearing protectors with adequate attenuation characteristics.

(4) The risk assessment shall be reviewed regularly, and forthwith if—

(a) there is reason to suspect that the risk assessment is no longer valid; or

(b) there has been a significant change in the work to which the assessment relates, and where, as a result of the review, changes to the risk assessment are required, those changes shall be made.

(5) The employees concerned or their representatives shall be consulted on the assessment of risk under the provisions of this regulation.

(6) The employer shall record—

(a) the significant findings of the risk assessment as soon as is practicable after the risk assessment is made or changed; and

(b) the measures which he has taken and which he intends to take to meet the requirements of regulations 6, 7 and 10.

6. Elimination or control of exposure to noise at the workplace

(1) The employer shall ensure that risk from the exposure of his employees to noise is either eliminated at source or, where this is not reasonably practicable, reduced to as low a level as is reasonably practicable.

(2) If any employee is likely to be exposed to noise at or above an upper exposure action value, the employer shall reduce exposure to as low a level as is

reasonably practicable by establishing and implementing a programme of organisational and technical measures, excluding the provision of personal hearing protectors, which is appropriate to the activity.

(3) The actions taken by the employer in compliance with paragraphs (1) and (2) shall be based on the general principles of prevention set out in Schedule 1 to the Management of Health and Safety Regulations 1999(1) and shall include consideration of—

(a) other working methods which reduce exposure to noise;

(b) choice of appropriate work equipment emitting the least possible noise, taking account of the work to be done;

(c) the design and layout of workplaces, work stations and rest facilities;

(d) suitable and sufficient information and training for employees, such that work equipment may be used correctly, in order to minimise their exposure to noise;

(e) reduction of noise by technical means;

(f) appropriate maintenance programmes for work equipment, the workplace and workplace systems;

(g) limitation of the duration and intensity of exposure to noise; and

(h) appropriate work schedules with adequate rest periods.

(4) The employer shall—

(a) ensure that his employees are not exposed to noise above an exposure limit value; or

(b) if an exposure limit value is exceeded forthwith—

(i) reduce exposure to noise to below the exposure limit value;

(ii) identify the reason for that exposure limit value being exceeded; and

(iii) modify the organisational and technical measures taken in accordance with paragraphs (1) and (2) and regulations 7 and 8(1) to prevent it being exceeded again.

(5) Where rest facilities are made available to employees, the employer shall ensure that exposure to noise in these facilities is reduced to a level suitable for their purpose and conditions of use.

(6) The employer shall adapt any measure taken in compliance with the requirements of this regulation to take account of any employee or group of employees whose health is likely to be particularly at risk from exposure to noise.

(7) The employees concerned or their representatives shall be consulted on the measures to be taken to meet the requirements of this regulation.

7. Hearing Protection

(1) Without prejudice to the provisions of regulation 6, an employer who carries out work which is likely to expose any employees to noise at or above a lower exposure action value shall make personal hearing protectors available upon request to any employee who is so exposed.

(2) Without prejudice to the provisions of regulation 6, if an employer is unable by other means to reduce the levels of noise to which an employee is likely to be exposed to below an upper exposure action value, he shall provide personal hearing protectors to any employee who is so exposed.

(3) If in any area of the workplace under the control of the employer an employee is likely to be exposed to noise at or above an upper exposure action value for any reason the employer shall ensure that—

(a) the area is designated a Hearing Protection Zone;

(b) the area is demarcated and identified by means of the sign specified for the purpose of indicating that ear protection must be worn in paragraph 3.3 of Part II of Schedule 1 to the Health and Safety (Safety Signs and Signals) Regulations 1996(1); and

(c) access to the area is restricted where this is practicable and the risk from exposure justifies it, and shall ensure so far as is reasonably practicable that no employee enters that area unless that employee is wearing personal hearing protectors.

(4) Any personal hearing protectors made available or provided under paragraphs (1) or (2) of this regulation shall be selected by the employer—

(a) so as to eliminate the risk to hearing or to reduce the risk to as low a level as is reasonably practicable; and

(b) after consultation with the employees concerned or their representatives

8. Maintenance and use of equipment

(1) The employer shall—

(a) ensure so far as is practicable that anything provided by him in compliance with his duties under these Regulations to or for the benefit of an

employee, other than personal hearing protectors provided under regulation 7(1), is fully and properly used; and

(b) ensure that anything provided by him in compliance with his duties under these Regulations is maintained in an efficient state, in efficient working order and in good repair.

(2) Every employee shall—

(a) make full and proper use of personal hearing protectors provided to him by his employer in compliance with regulation 7(2) and of any other control measures provided by his employer in compliance with his duties under these Regulations; and

(b) if he discovers any defect in any personal hearing protectors or other control measures as specified in sub-paragraph (a) report it to his employer as soon as is practicable.

9. Health Surveillance

(1) If the risk assessment indicates that there is a risk to the health of his employees who are, or are liable to be, exposed to noise, the employer shall ensure that such employees are placed under suitable health surveillance, which shall include testing of their hearing.

(2) The employer shall ensure that a health record in respect of each of his employees who undergoes health surveillance in accordance with paragraph (1) is made and maintained and that the record or a copy thereof is kept available in a suitable form.

(3) The employer shall—

(a) on reasonable notice being given, allow an employee access to his personal health record; and

(b) provide the enforcing authority with copies of such health records as it may require.

(4) Where, as a result of health surveillance, an employee is found to have identifiable hearing damage the employer shall ensure that the employee is examined by a doctor and, if the doctor or any specialist to whom the doctor considers it necessary to refer the employee considers that the damage is likely to be the result of exposure to noise, the employer shall—

(a) ensure that a suitably qualified person informs the employee accordingly;

(b) review the risk assessment;

(c) review any measure taken to comply with regulations 6, 7 and 8, taking into account any advice given by a doctor or occupational health professional, or by the enforcing authority;

(d) consider assigning the employee to alternative work where there is no risk from further exposure to noise, taking into account any advice given by a doctor or occupational health professional; and

(e) ensure continued health surveillance and provide for a review of the health of any other employee who has been similarly exposed.

(5) An employee to whom this regulation applies shall, when required by his employer and at the cost of his employer, present himself during his working hours

for such health surveillance procedures as may be required for the purposes of paragraph (1).

10. Information, instruction and training

(1) Where his employees are exposed to noise which is likely to be at or above a lower exposure action value, the employer shall provide those employees and their representatives with suitable and sufficient information, instruction and training.

(2) Without prejudice to the generality of paragraph (1), the information, instruction and training provided under that paragraph shall include—

(a) the nature of risks from exposure to noise;

(b) the organisational and technical measures taken in order to comply with the requirements of regulation 6;

(c) the exposure limit values and upper and lower exposure action values set out in regulation 4;

(d) the significant findings of the risk assessment, including any measurements taken, with an explanation of those findings;

(e) the availability and provision of personal hearing protectors under regulation 7 and their correct use in accordance with regulation 8(2);

(f) why and how to detect and report signs of hearing damage;

(g) the entitlement to health surveillance under regulation 9 and its purposes;

(h) safe working practices to minimise exposure to noise; and

(i) the collective results of any health surveillance undertaken in accordance with regulation 9 in a form calculated to prevent those results from being identified as relating to a particular person.

(3) The information, instruction and training required by paragraph (1) shall be updated to take account of significant changes in the type of work carried out or the working methods used by the employer.

(4) The employer shall ensure that any person, whether or not his employee, who carries out work in connection with the employer's duties under these Regulations has suitable and sufficient information, instruction and training.

[60] Counsel for the pursuer's rather diffuse submissions on breach of duty are best summarised in the following propositions which I have adapted from page 21 of the pursuer's written submission:

1) There were no noise level assessments for Newton hall for 1990 to 2000.

2) There were no noise level assessments in Leven hall until 2006.

3) The adequacy of at least some of the noise assessments from 2006 was questionable.

4) The defender's noise surveys lack adequate description of how measurements were made, and there was no record of line speeds at the time of noise surveys.

5) There was no peak level assessment by the defender until 2017.

6) Increasing levels of noise in 2014 and 2017 were not adequately explained.

7) 2017 noise survey indicates levels well in excess of 90 dBA in certain areas.

8) The defender's decision to designate both Leven and Clyde halls mandatory hearing protection zones was significant.

9) There were no noise risk assessments until 2008.

10) The defender produced no documentation or other evidence as to any comparative exercise undertaken by them of the different types of hearing protection provided over the years.

11) Control measures other than provision of hearing protection were not the subject of evidence from the defender.

12) Making hearing protection available initially on non-mandatory and then on mandatory basis suggested concern around risk of injury from noise.

13) There was a significant increase in mechanisation of the lines from 2000. The line operator witnesses gave evidence there was an increase in noise levels.

14) The defender made no assessment of whether mechanisation was increasing or decreasing noise levels.

[61] The defender's position was that the *measured* noise levels do not disclose any breach of duty at common law or under the Regulations. For the pursuer to succeed, the court would need to accept Mr Dipnall's evidence about at least a bracket of exposure, and the defender invited the court not to accept that evidence. In any event, the attenuation of noise levels by ear plugs removed the risk of hearing damage.

[62] It seems to me that the pursuer's propositions 1, 2, 4, 5, 7, 9, 10, 11, 13 and 14 are straightforward statements either about the absence of documentation before the court, or about uncontroversial evidence which was before the court. Proposition 3 is vouched by Mr Dippnall's evidence, and propositions 6 is a conclusions from his evidence. I accept his evidence about those matters. Propositions 8 and 12 are conclusions and I will return to them. It is convenient first to consider the various Regulations referred to by the pursuer,

and in the end I understood the pursuer to rely on regulations 4, 6, 7, 8 and 11 of the 1989 Regulations, and regulations 5, 6, 9, and 10 of the 2005 Regulations.

1989 Regulations – regulation 4

[63] In terms of the 1989 Regulations, the first action level was 85dB(A), the peak action level was 200 pascals, and the second action level was 90dB(A) (see reg 2(1)). Given the publicly available levels in the HSE documents referred to by Mr Dippnall at paragraph 5.2.1 of his report (JB773-776), it seems to me clear that this duty was engaged. I infer the defender was alive to that by reason of the fact it instituted audiometry for its employees including the pursuer, from at least 1991. The absence of any records of noise level assessments for Newton hall, and the absence of any records for Leven hall prior to 2006, suggests there was no such assessment. The more so as there are in existence audiograms from an earlier date. I therefore conclude the defender was in breach of regulation 4.

Regulation 6

[64] This regulation is clearly engaged, as its operation is not dependent on noise reaching any of the action levels. There was no evidence of steps taken in Newton hall other than the issue of hearing protection in 1995 or 1996, and its use being compulsory. The evidence about Leven hall was that the Archimedes screws and the Perspex screens might have had some effect on noise levels, but that was not measurable and was not their purpose. Reasonable practicability was not a strand in the evidence of either party. I consider the defender was in breach of regulation 6.

Regulation 7

[65] This regulation is potentially engaged, since the upper end of the range of noise which I have accepted from Mr Dippnall's evidence extends to the second action level. The duty on the defender was to reduce noise other than by provision of hearing protection. There was no evidence of such steps being taken in Newton hall. I have already referred to the steps to configure the lines in Leven hall. I was not addressed about reasonable practicability. I consider that the defender was in breach of regulation 7.

Regulation 8

[66] From 1995 or 1996, the defender issued hearing protection in the form of yellow foam ear- plugs, and required its staff working in Newton hall to wear them. From its inception in 2000, hearing protection was required to be worn in Leven hall. From those dates, the defender was complying with its duty under this regulation.

Regulation 11

[67] It was clear from the evidence of the line operator witnesses, that the defender provided no instruction or training about the use of hearing protection when it was first introduced in the mid-1990s. Nor was there any evidence of the defender providing information or training about the other matters in regulation 11. Ms Brown said that when staff attended for audiograms she would talk to them about fitting their ear plugs, but that was the extent of the evidence of engagement until much more recent change of pattern of ear plugs in 2015 or 2016, when there was a video and a toolbox talk. Accordingly I am not satisfied the defender sufficiently complied with its obligations under this regulation.

2005 Regulations

[68] In terms of regulation 4, the action levels and daily exposure limits are reconfigured and lowered. As will be evident from the text set out above, regulations 5-10 contain duties elaborated at rather greater length than in the 1989 Regulations. The defender plainly had implemented health surveillance: the audiograms and the hearing protection zone in the bottling halls are the proof of that. There was a difference of view about where the point for action lay as between the occupational health practitioner Anna Brown and the ENT surgeons. That was not really explored and might be explained by professional focus. Likewise, there was evidence, which I accept, that information and training was provided about hearing protection when new model protection was introduced in 2015/2016. I do not consider that the defender was in breach of regulations 9 and 10. In my view, the key provisions in this case are regulations 5 and 6.

[69] The defender's decision to designate both Leven and Clyde halls mandatory hearing protection zones was significant. In my view, the pursuer's submission that this suggests concern around risk of injury from noise is well founded. On the pursuer's evidence that designation was place from time hearing protection was made available and required to be worn in 1995 or 1996, and therefore during the currency of both the 1989 Regulations and the 2005 Regulations. From the documents produced, the defender made some assessment of the noise levels from 2006 onwards (JB2118ff). It seems to me that the key issue is whether the defender had ensured that risk from the exposure of their employees, and in particular the pursuer, to noise was either eliminated at source or, where this was not reasonably practicable, reduced to as low a level as reasonably practicable. I consider that the onus of demonstrating the level of noise has been reduced to the lowest level reasonably practicable is on the defender. Given the findings I have made about the noise level in

Newton hall, and about the absence of assessment of noise in either Newton hall or Leven hall until 2006, and also the absence of evidence engineering solutions other than provision of ear-plugs, I am not satisfied the defender has demonstrated that on the evidence before me.

[70] As I have already noted, the 1989 and 2005 Regulations no longer carry with them civil liability. However, it seems to me that compliance with the regulations, both the 1989 and 2005 regulations, is part of what a reasonable employer would be expected to do in compliance with its common law duty (see *McDonald* v *Indigo Sun Retail* [2021] SC EDIN 20, at paras 57&58). In *Goodwillie* v *B&Q plc*, [2020] SC Edin 2, Sheriff McGowan put the point this way:

> "[142] I suggest that it may work in the following way. If a duty identified in a regulation can reasonably be said to fall within the duty of reasonable care incumbent on an employer (i.e. in the same way as certain elements have been held at common law to form part of that general duty, then it should be treated as creating such a duty. Moreover, where a regulation provides specific, concrete steps to be taken in the fulfilment thereof, they may also form part of the duty to take reasonable care. However, where the element which is subsumed into the common law duty of care in that way has as its source a regulation which otherwise creates an absolute or strict standard of care, the new element must be moderated to the standard of reasonable care."

I agree. Given the breaches identified above, it seems to me to follow that the defender was also in breach of its duty at common law to take reasonable care for the safety of the pursuer and not to expose her unnecessarily to risk of injury.

The pursuer's hearing loss and causation

[71] There is no dispute that the pursuer has hearing loss. Mr Newton's assessment of the level was not challenged. He noted the loss to be 50dB in the right ear and 40dB in the left ear, with an overall binaural loss of 42dB. Mr Murray concurred in that view.

Mr Newton characterised that as "moderate" hearing loss. I accept that evidence. In Mr Newton's opinion, the pursuer's hearing loss is partly noise-induced and partly age-related. The noise-induced component is 29dB, and the age-related component is the remaining 13dB. That leads to consideration of the issue of causation. The pattern of hearing loss demonstrated on audiogram is consistent with noise-induced hearing loss. The defender accepts that; the pursuer submits the court need look no further. The pattern of loss could also be demonstrated by an idiopathic hearing loss, and the defender invites the court to hold that is the more likely cause.

[72] In his evidence, Mr Murray discussed the patterns in the audiograms with reference to the various frequencies tested. His approach to those was based both in his clinical experience and in the application of Coles's guidelines (JB1071ff) to the pattern of loss demonstrated in the audiograms. His view was that each of the criteria were present. His analysis was as follows. Criterion R1 is present., because there is high frequency sensorineural loss at least 10dB greater 3, 4 or 6kHz than either 1 or 2kHz. Criterion R2(a) Noise exposure (equivalent noise exposure 8 hours daily at 85dB or greater for sufficient time) might be present in his view because the alternative places considered for employment are, by the defender's data, greater than 85dB, which is second action level. Mr Murray considered criterion R2(b) definitely was present because the estimated total exposure is in the range 90-99 dB(A). The corollary was that guideline 3(b) and not 3(a) must be met. In his view, however, both Coles's criteria R3(a) and R3(b) were present in the audiometric configuration seen on the pursuer's audiograms. There was a consistent pattern of a "notch" centred on 3 and 4 kHz, and the loss level is in excess of 20dB. Mr Murray rejected the defender's contention that the pursuer's hearing loss was idiopathic, because one would

expect a continuing pattern of deterioration up to date. That was not demonstrated on the audiograms, because the level of hearing loss appears to have stabilised around 2015.

[73] I found Mr Murray's analysis to be persuasive for a number of reasons. In his reports and in his oral evidence, Mr Murray was not dogmatic in his approach, and was open to revisiting his conclusion if additional information came to hand. Secondly, the factual findings I have made are consistent his analysis, rather than pointing away from it. Thirdly, Mr Murray's approach to the application Coles et al's guidelines is, in my view, exactly the holistic, fact-centred approach which the authors of the guidelines anticipate. I have held that the noise exposure level in Newton hall was likely to have been 85-95dB(A); but Mr Murray also noted that even if the noise exposure level could not be established exactly, the pattern of hearing loss has been consistent up to 2015. Against the background of a noisy work environment, I consider that also to be a significant factor. Finally, given the span of time covered by the audiograms up to and beyond 2015, I consider Mr Murray's response to the defender's model of idiopathic hearing loss persuasive. Sufficient time has elapsed without evidence of continued decline at the same rate to validate his analysis that the cause is noise-induced rather than idiopathic.

[74] I note the defender's submission that the medical evidence is not determinative of the issue before the court. But that is simply to recognise that the medical evidence needs to be considered and understood in the context of the pursuer's employment history; it being common ground there is nothing in her non-work life which is a likely cause of hearing loss. Mr Murray said as much in his evidence, and the defender points to this in an effort to qualify his evidence, by reference to their argument that the noise level in Newton hall must have been lower than that measured in Leven hall in 2022. However, I have already indicated why I reject the defender's starting premise for assessing the level of noise in

Newton hall, and I therefore consider that the defender's submission about Mr Murray does not avail. Although the defender obtained expert medical opinion, and two reports from Mr Swan are lodged as productions, the defender chose not to offer him as a witness. His reports are therefore not evidence before the court, although it is evident from the evidence of other witnesses to whom his reports were put in evidence, that Mr Swan changed his opinion. I do not speculate about that, though I do consider it is a matter of comment.

[75] For all of those reasons, I am satisfied that, on the balance of probabilities, the pursuer's hearing loss is predominantly noise-induced.

Damages

[76] As mentioned above, by the time parties came to make submissions, quantum had been agreed at a figure of £45,594.13, plus interest from 11 October 2022. Although this was not spelled out, it was evident this figure was derived from a valuation on the last page of the pursuer's written submissions, under deletion of a claim for loss of employability, which was not insisted in. Parties' agreement means it is not necessary for me to consider questions of damages at length, however it may be of assistance in future cases to note that in the pursuer's document solatium was valued at £22,305, apportioned 50% to the past, 50% to the future. The balance reflected the cost of hearing aids and their periodic replacement, together with interest to the date of proof.

Conclusion

[77] I will therefore grant decree in favour of the pursuer in the sum of £45,594.13, together with interest from 11 October 2022. Parties did not address me on expenses, and there are a number of issues which arise. I will therefore fix a hearing on expenses.

Appendix

Agreed matters in relation to hearing loss

Noise induced hearing loss principles:

- That the measure of noise exposure is the equivalent continuous sound level, Leq in dBA.
- That daily personal noise exposure (LEP,d) can be assessed from measured values of A-weighted sound pressure levels (dBA) and known periods of exposure or by the use of noise dose meters.
- That the Noise lmmission Level (NIL) involves a calculation of a person's cumulative lifetime exposure to noise.

Glossary:

AAHL: age-associated hearing loss

ARHL age-related hearing loss. These are all the hearing losses left over after excluding cases with some definite causative pathology, trauma or noise damage. They include hearing loss possibly associated with a wide variety of age related disorders but with no strong evidence of their cause in individual cases.

Air conduction (a/c): transmission of sound through the outer and middle ear to the internal ear, sound coming from the outside environment in the ordinary way or delivered by earphone placed on or in the outer ear.

Allocation: the distribution of hearing impairment as between different causes e.g. noise damage and ageing degeneration.

Apportionment: quantification of damage caused by noise at different times.

Audiogram: a graph upon which the results of audiometry are plotted at various kilohertz.

Audiometry: measurement of hearing, usually the hearing of pure tones. The results are plotted on an audiogram form.

Black Book: the report called Assessment of Hearing Disability: Guidelines for medico-legal practice by the Inter Society Working Group on Hearing Disability. Contains a scale to convert hearing impairment into a hearing disability.

Bone Conduction: transmission of sound to the inner ear by means of mechanical vibration of the bones of the skull usually the mastoid process thereby predominantly by-passing the conductive parts of the ear.

Cochlea: the hearing part of the inner ear.

Conductive hearing loss: reduction in hearing associated with reduced transmission of sounds through the external or middle ear.

DbHL: decibels, hearing level. The level of test tone delivered in pure tone audiometry relative to the zero for that frequency which roughly corresponds to the threshold of hearing by monaural earphone presentation in normal hearing persons.

dbHTL: decibels, hearing threshold level. The dbHL value corresponding to the threshold measured in a particular ear at a particular frequency.

dbSPL: decibels, sound pressure level. The absolute measurement of sound or noise level, relative to a physical zero which roughly corresponds to the binaural free field hearing threshold for 1 kHz in normal hearing persons.

Db(A): decibels, A-weighted. The sound pressure levels after application of an electronic A-weighted network which makes the response of the sound level meter more like that of an ear. The A-weighting reduces the importance of low and very high

frequency sounds which are less damaging to hearing, less annoying and less speech interfering. It is the usual unit for measurement of noise for hearing conversation and suchlike purposes.

Frequency: the rate of vibration of air or other structures transmitting a sound. Measured in hertz (Hz) or kilohertz (KhZ) where one hertz corresponds to one cycle per second.

Hearing loss: amount in decibels by which a person's hearing threshold changes for the worse as a result of some adverse influence.

Sensorineural hearing loss: damage or degeneration to the sensory structures (i.e., the hair cells) by noise or ageing respectively or due to disorder to the other parts of the cochlea or its peripheral neural connections.

Threshold shift: the difference, in decibels, between the hearing threshold levels of a person measured on two separate occasions. If the threshold shift progressively diminishes with the passage of time when the cause (usually noise) had ceased, it is referred to a temporary threshold shift or otherwise as a permanent threshold shift.

Threshold of hearing: the minimum level of sound which is just audible in given conditions on a specified fraction of trials (conventionally 50%)

Tinnitus: the sound or sensation of sounds in the head or ears that do not correspond to any external sound.