



OUTER HOUSE, COURT OF SESSION

[2018] CSOH 73

PD262/16

OPINION OF LADY WISE

In the cause

JOHN SAMUEL THACKER AND OTHERS

Pursuers

against

NORTH BRITISH STEEL GROUP PLC

Defender

Pursuers: Di Rollo QC, Marshall (sol adv); Thompsons

Defender: N Mackenzie; Clyde & Co (Scotland) LLP

11 July 2018

Introduction

[1] The first pursuer is the widower and executor of the late Mrs Winifred McIndoe Smeaton or Thacker (“Mrs Thacker”) who was born on 26 May 1947 and died on 10 September 2014. The second, third and fourth pursuers are Mrs Thacker’s daughter, granddaughter and sister respectively. The defender, North British Steel Group PLC is a company formerly known as the Atlas Steel Foundry and Engineering Company Limited. It operated foundry premises at Armadale from about 1913 until about 1989. Mrs Thacker was employed by the defender as an office junior and clerkess for a period up to 1967/68. The pursuers contend that she was exposed to asbestos dust in the course of her employment by

the defender. It is not in dispute that Mrs Thacker's cause of death was metastatic mesothelioma. It is also agreed that, in the event that it is established that Mrs Thacker was exposed to asbestos dust as a result of the negligence and/or breach of statutory duty on the part of the defender, that exposure caused her mesothelioma. Accordingly, the central contentious issue at proof was whether the late Mrs Thacker was exposed to substantial quantities of dust, including asbestos dust in the course of her employment. If she was so exposed, it would then have been for the defenders to take all practicable measures to protect her against inhalation of that dust.

[2] At the outset of the proof parties agreed at quantum in a total sum of £360,000. In the event that the defender is found liable in damages to the pursuers it is agreed that the following sums should be awarded:

- (1) To the first pursuer as executor dative: £90,000;
- (2) To the first pursuer as an individual: £205,000;
- (3) To the second pursuer: £35,000;
- (4) To the third pursuer: £15,000;
- (5) To the fourth pursuer: £15,000.

Undisputed evidence

[3] It was agreed that the Mrs Thacker entered the National Insurance system on 30 June 1962 and that National Insurance contributions were paid on her behalf by the defender during the tax years 1966/67 and 1967/68. The specific period during which she was in the employment of the defender was not agreed. Mr Thacker himself was employed by the defender as an apprentice engineer and then engineer at the foundry for a period up until 1968/69, with the exception of a period with Cameron Ironworks in 1966/67. National

Insurance contributions were paid on his behalf by the defender in the tax years 1961/62 to 1968/69 inclusive.

[4] There was extensive agreement in relation to the deceased's medical condition, much of which relates to the quantification of the pursuers' claim which, as indicated, was agreed. In summary, her condition was symptomatic from about April 2014. Her medical records record that she was coughing up green sputum at that time. In July 2014 her doctor recorded that although she had never smoked she was concerned as a result of her previous cough and had pain across the middle of her back for two weeks. Following various tests it was recorded on 8 August 2014 that Mrs Thacker had "mesothelioma advanced, liver metastasis". Between that date and 10 September Mrs Thacker's health deteriorated very rapidly and she died at home.

[5] A report from a hospital physician to the deceased's general practitioner dated 8 August 2014 includes the following note:

"I met with Mrs Thacker along with her husband, daughter and son in clinic this afternoon on 5 August ... she is a lifelong non-smoker, however there is possible asbestos exposure. She herself worked in the steel foundry for five years when she was 16. Her husband and father also worked in the steel foundry. In particular her father died of what was thought to be an asbestos-related lung cancer ... I have discussed the results of the CT scan with Mrs Thacker and her and her family are aware that, unfortunately this is incurable."

[6] The hospital records from St John's Hospital at Howden, which the deceased attended during 2014, contains a note under the heading "Social history" that Mrs Thacker had worked in an office in a steel foundry and that she was unsure about asbestos exposure. It was also noted that her father had mesothelioma.

[7] The parties are agreed that by 1960, the defender knew or ought to have known that asbestos dust, in sufficient quantities, was capable of causing respiratory illness. There was no agreement about the amount of dust thought to be dangerous. The terms of various

papers in relation to asbestos exposure and also a 1960 Ministry of Labour booklet "Toxic Substances in Factory Atmospheres" reissued in 1965 as "Dust and Fumes in Factory Atmospheres" were all agreed. The terms of an excerpt from the selected written evidence submitted to the Advisory Committee on Asbestos comprising the evidence of Cape Industries Limited was also agreed. That excerpt, in the section "Properties and Uses of Amphiboles", "1 crocidolite (blue asbestos)" notes the following:

"Crocidolite is the strongest of asbestos fibres and has a high resistance to acid. It has been used extensively in place of chrysotile asbestos in textiles, insulation mattresses, packings and as a filler when resistance to acids is important."

[8] Under the heading "Four Uses of Amphibole Asbestos in the United Kingdom" it is noted that crocidolite (blue) asbestos was in use in various products manufactured in the UK, including between 1893 and 1966 for yarn, cloth, rope lagging, webbing and packing.

Evidence led at proof

[9] The pursuers led evidence from five witnesses, Mr Thacker, Maureen McCulloch, Thomas Hendry, William Veitch and Robin Howie. Mr Howie is an occupational hygienist and was instructed as a skilled witness for the pursuers. The defender led no evidence.

[10] Mr Thacker confirmed that he was born on 19 February 1942 and was married to his wife Winifred on 7 October 1967. They met at work at the defender's foundry in Armadale. Mr Thacker began working there as soon as he left school in 1957 until 1969 when he went to work for a company in Broxburn where he remained for 32 years as an electrical fitter. When first at the defender's foundry he was an apprentice in the engineering shop there. He recalled that the main work at the foundry was the manufacture of large steel castings which were used to make turbines for the power industry. He was involved in the turning and fitting of machinery involved in pouring molten metal into moulds to create these large

pieces of equipment. His recollection was that his late wife had started work at the foundry when she was about 16 or 17. After she had left school she had taken a year's typing course in Edinburgh and then began work. He thought that she had started at a foundry in about 1963 and he confirmed that she had worked there until 1969. She was a junior clerkess at the start. Mr Thacker recalled that she was in and out of the foundry quite often delivering memos. She had to go and check a "clock-in" device in the middle of the premises which involved her going into both the dressing shop and the engineering shop. Additionally she would require to deliver memos with information for the lorry drivers who loaded and unloaded in the dressing shop. Her work involved her going into the office in the foundry and also into the dressing shop where the castings were dressed. Mr Thacker recalled that the bigger castings were heated to a high temperature and then carried out onto a trestle covered in asbestos blankets. The welders would pull back the blankets and repair flaws in the castings before they were dressed. Mr Thacker had been aware that the castings could not be put on turbines if they had faults and so they had to be dressed and tested. If there were any cracks in them they had to be taken out and re-welded.

[11] Mr Thacker produced two booklets containing a historical record of Armadale and its industrial processes and these were lodged as they contained photographs illustrating the type of work going on in the foundry. After the cooling process had taken place the castings would be taken to the cleaning shop where the sand would be taken off the casting with a hydroblast. The cleaning shop was interchangeably known as the bottom dressing shop. The top or upper dressing shop was where the castings would be taken after cleaning and examined for cracks in the material. Some of the castings were as much as 20 tonnes in weight. These would be put on trestles raised above the ground and a gas tube beneath would keep the temperature reasonably warm for when the welders were working on them.

The asbestos blankets were also used to keep the castings warm. The workers would move the blankets back to work on the castings and they wore asbestos aprons and asbestos gloves. The main purpose of the asbestos blankets was to keep the heat in. They were grey in colour and looked almost like a bed duvet although thicker. They were rolled up and piled on the floor after they were taken off the castings. Mr Thacker recalled that the asbestos blankets were all burst. He described the insides of them hanging out. He had been present when they were using some of them because although he worked in the engineering shop he would go into the dressing shop to see his friends and later his father-in-law. He could see into the dressing shop from the engineering shop which was partitioned off but not to ceiling height. His father-in-law worked in the top dressing shop.

[12] Mr Thacker was clear that his wife was in the top dressing shop almost every day in the course of her employment. He described the atmosphere in that dressing shop as "right dusty". There was a concrete path right through the middle of the shop with fine dust on both sides of the path. Sometimes a man would throw water on it to keep the dust and stour down. That was done about once a week. Mr Thacker did not recall any ventilation while he was there although knew that something had been put in after he left the business. He said that in the dressing shop you could see the dust in the air particularly when the sun was shining through the windows. When asked whether he saw the asbestos blankets producing dust he said that although they were just lying there, they were burst and full of asbestos; they were never repaired and they just kept using them. He said that all the workers knew there was asbestos in the blankets but received no warnings or advice. They never wore masks although some workers tied handkerchiefs round their mouth because of the dust.

[13] Mrs Thacker did not work in any dusty environment after 1969 when she left the foundry. She had been employed in a sub-post office and latterly for the council. In the early 70s she worked at a hairdressers in Bathgate where she was a receptionist. She retired from West Lothian Council where she had worked for many years as a home help/carer when she was 63. He had no knowledge of her being exposed to asbestos and asbestos dust anywhere other than at the foundry.

[14] Under cross-examination Mr Thacker agreed that a letter from HMRC, number 6/15 of process, had an entry of "No employers recorded" for Mrs Thacker (or Smeaton as she then was) between the years 1962/63 and 1965/66. He said, however that it was not correct that she had started work at the foundry in 1967 because he had known her before that and she had worked at the foundry. A copy photograph, number 6/24, was put to him and he confirmed that the office where his late wife had worked was situated at the main entrance which was near the main road from Armadale to Bathgate. His attention was drawn to dark circles on the buildings and asked if they could have been ventilation but he said he did not know and in any event he stated, that was not where the castings were heated. Mr Thacker confirmed that he never had to go into the office near the main gate and that his contact with the lady who became his wife was when she came into the engineering shop and they began talking. He confirmed that the HMRC letter, number 6/13 of process, in relation to his own employment was also incorrect. He had been employed by the defender until 1969 when he went to work elsewhere. He had served a five year apprenticeship as a turner's fitter. He was involved machining the castings, usually by drilling holes in them. He would be provided with a drawing and had to machine to a specification given in the drawing. He agreed that the sand was taken off the castings in the bottom dressing shop and once cool they were taken to the top dressing shop using a small

trailer with a diesel engine. He agreed that the environment in the top dressing shop was hot as the castings were heated there but not in the engineering shop where they were inspected. It was put to him that the door that the lorries came through the entrance was often open but he said that it was only open for the lorries to drive through and was otherwise closed. He confirmed that while his wife was based in the office she spent a lot of time walking round the foundry. In re-examination Mr Thacker confirmed that he and his wife had been in a relationship for at least two years prior to getting married in 1967 and that the deceased had already been working at the foundry before he met her.

[15] Evidence was led from Maureen Anne McCulloch, a paralegal in the employment of the solicitors instructed by the pursuers. She deals primarily with asbestos cases and has been employed by the pursuers' agents for 17 years. In 2014 Mrs Thacker had consulted the pursuers' solicitors and Mrs McCulloch was instructed to go to see her. She spoke to handwritten notes that she had taken when she visited Mrs Thacker which were subsequently typed up on her return to the office. These handwritten notes and the typed version are numbers 6/20 and 6/21 of process respectively. The date of the visit was 5 September 2014 by which time Mrs Thacker was seriously ill. Mrs McCulloch visited her in hospital. She read out the relevant parts of the notes that she took. In particular she noted the following:

"Taking Mrs Thacker's evidence of coming into contact with asbestos dust during her employment. The only possibility of being exposed to asbestos was during her time at the Atlas Steel Foundry working as an office junior from 1963 to 1968. She recalls going into the dressing shop with messages for the boss and staying to speak to her father and uncle who also worked there. She remembers asbestos blankets being used and they were flung all over the place and were lying on the floor. She was in the dressing shop on a regular basis particularly when the shop was very busy. ...

Her father worked as a dresser in Atlas and would have been using the asbestos blankets. She remembered him coming home with his boiler suit on. She left home in 1967 to get married and her father was still working at Atlas at that time."

[16] Under cross-examination a passage from the handwritten notes (number 6/20) was put to Mrs McCulloch where she had noted "At least one 3/5 out week if busy" and asked whether this meant that the deceased had said that she was in the dressing shop at most three to five times per week. Mrs McCulloch agreed that that seemed to be what it meant. It was suggested to her that a note from Dr Dorward, number 6/16 of process, prepared for the pursuers' solicitors records (at page 5) that Mrs Thacker would go into the dressing shop at least once a week and if they were very busy at least five times a week. Mrs McCulloch indicated that she thought that accorded with what her notes said which was that the deceased would be in the dressing shop at least once per week but on three, four or five occasions if they were busy.

[17] Thomas Hendry a 71 year old gentleman living in Armadale gave evidence. He confirmed that he was employed at the Atlas Foundry between 1961 and 1989/90, completing about 29 years employment there. He was 15 years old when he started work and was an apprentice cutter, welder and dresser. He worked in the dressing shop of the foundry on the manufacture of the castings. He worked in the top dressing shop for the first year and progressed to the lower dressing shop where he worked on larger castings. He spent about four or five years there. He remembered Winifred Smeaton (later Mrs Thacker) because she worked in the office but came into both dressing shops to collect timesheets and other documents. He thought that he saw her almost daily or perhaps not every single day but he recalled that it was frequent because she was around the area regularly and would be welcomed with "wolf whistles" by the men in the shop. Mr Hendry had a good recollection of Mrs Thacker because living in Armadale he knew most people in the local area.

[18] Mr Hendry confirmed that when he had to cut through 6-15 inches of solid steel he was provided with protective gear in the form of leather aprons, visors, masks and a leather hood. He also wore clogs. He recalled that the castings were covered in asbestos blankets to keep the heat in. The gas pipes were heated as high as 280-300 degrees Fahrenheit and if they cooled down too quickly stress cracks occurred. Accordingly steps were taken to keep them at a regular heat which was necessary to work with the castings.

[19] Mr Hendry described the asbestos blankets as being a white or grey colour and they would be folded in two. He knew at the time that the blankets contained asbestos and was told that by his employers but no warnings about any danger were given. When asked about the size of the blankets he said that they were all cut from a big roll which was heavy. Each blanket had to be cut to size. A labourer would cut them or one of the cutters or welders would do so. He was clear that there were asbestos blankets being cut both in the top dressing shop and the bottom dressing shop and that Mrs Thacker went into both shops. He recalled that the blankets would be used until they were literally falling apart when they would be stored in a pile on the floor and eventually taken away and buried. He described the dust as "whirling up off the floor". He described the fibres of the asbestos dust combined with other dust from the floor as looking "like fairy dust flickering in the air". He explained that other than the concrete path up the centre of the foundry floor it was a dirt floor so that the castings would not be damaged when turned. When asked whether it had been compulsory to wear masks Mr Hendry responded that nothing was really compulsory in the 1960s as the instruction was more to get the job done. Personally he did wear a mask although he never saw the deceased Winifred wearing one. He had not been particularly concerned about exposure to asbestos until about 1968 when gradually the asbestos blankets were removed and replaced by fibreglass ones. Those were worse on the skin than the

asbestos blankets which were lighter. However you could see the dust everywhere in the air from the asbestos blankets. They were an eighth to a quarter of an inch thick and the rolls were cut into four or sixth foot widths with a hacksaw blade and sharpened knife. The bigger the castings the bigger blankets they needed. There was dust everywhere and you had to brush off the steel dust in the cutting areas. Mr Hendry said in terms that there was every kind of dust in the dressing shop.

[20] He recalled that there was always a problem with ventilation in the foundry although when there was a change of ownership things got better. In the period 1963-1968 he described the atmosphere in the foundry as "horrendous" in terms of both fumes and dust. He said "You had to see it to believe it". People who have not experienced such working conditions could not understand. Mr Hendry knew the deceased's father who worked in the dressing shop. Mr Hendry identified the top and bottom dressing shops in the aerial photograph, number 6/24 of process. He confirmed that the asbestos blankets had been used in both. The castings had been cleaned either with a brush or shot blasted and some were so large you could walk inside them. In terms of the atmosphere, the dust was sucked out and blown into the shop floor and so you had to make sure no one was standing right behind you. A dresser would then work with a pneumatic hammer to cut off the rough edges of the casings. Again that was carried out in both dressing shops. The finisher dressers worked up at the top grinding with welds after the welding process. Mr Hendry explained that after a part was welded the weld went hard and so had to be normalised by heating up again. The dressing of the casings involved grinding them down with a hand grinder which created a lot of dust.

[21] Under cross-examination Mr Hendry disagreed that his memory of events in the 1960s was not the best, indicating that he recalled well his own marriage 50 years ago. He

accepted that there was a different health and safety culture in the 1960s, for example while masks might have been issued there was no requirement to wear them. He agreed that by the 1980s things were different and more attention would be paid to issues like the wearing of masks. He was happy that he personally had worn a mask since the 1960s. He agreed that different activities took place in different parts of the bottom dressing shop which was a very large area although each section was not completely shut off and one could walk from one to the other. He agreed that there were vents along the ceiling of the dressing shop which he said were good at letting the rain in. He explained that the concrete path that he had described only ran halfway up the dressing shop and in the other half the floor was sandy. The foreman's hut was about three quarters of the way through the dressing shop. The offices looked over the dressing shop and the moulding shop. So far as personnel were concerned the deceased and another female were the only office clerks in the 1960. Mr Hendry's wife then worked there from 1972. There were never more than two office clerks at the one time. His recollection was, however, that it was usually the deceased that he saw in the dressing shop. She was the one that would come down with the various paperwork. It was not until after she left that another one appeared. It was suggested that there had been another clerkess that would be subjected to wolf whistling by the men but Mr Hendry recalled only Winifred as coming into the dressing shop prior to 1968. He disagreed that she would only come to the dressing shop once a week. Although it might occasionally only be once a week he often saw her three or four times in the working week and said so it would generally be more than once.

[22] William Veitch a 72 year old man who lives in Armadale gave evidence. He had also been employed at the Atlas Foundry although that was in the mid-1970s. He had worked in Bathgate in the 1960s and did not work at the foundry in Armadale until the 1970s and 1980s

when it closed. His evidence was curtailed once it was appreciated that he could not give evidence in relation to the period relevant to the subject matter of these proceedings.

[23] Robin Howie, an occupational hygienist instructed as a skilled witness by the pursuers, spoke to three reports he had produced, numbers 6/17, 6/18 and 6/37 of process. Appended to 6/17 of process is his curriculum vitae. Mr Howie has been involved in occupational hygiene work since about 1970 when he joined the institute of occupational medicine. He has held a number of professional appointments in that field and was president of the British Occupational Hygiene Society between 1997 and 1998. In 1995 he set up his own business, Robin Howie Associates and is involved in consultancy work, a significant proportion of his time being spent in the preparation of expert reports in litigation. He has published numerous occupational hygiene papers and articles including several on the risks of asbestos. In 2011 he published an article on risks arising from low level exposure to asbestos in the Journal of the Royal Environmental Health Institute for Scotland. As an occupational hygienist his primary role was to look at and assess workplaces and advise how various health risks within them could be minimised. He has been involved in asbestos cases from the early 1990s. He has some personal knowledge of castings manufacturing as his father owned a small foundry in the 1950s. He was familiar with the processes in foundries that had been described by Mr Hendry whose evidence he had heard. In particular he had an understanding of the operations described by Mr Hendry, including taking castings to a dressing shop to be worked on and then redressed. He could see the logic of the workers moving backwards and forwards between the two dressing shops that had been described in evidence. He described the work that would have been going on at the Atlas Foundry as “a very dusty and dirty operation”. It was well known that in foundries the amount of silicone dust was perceived to be the main

problem but metal dust was also problematic. Dust would be created from the moulding process and because there was a sand floor on the foundry there would be a lot of loose dust lying around. The general processes involved in the work of foundry would have created a dusty environment of a sort that would be coming to be visible – about 10-20mg per metre cubed. Although some of the men wore masks these were not particularly efficient and a respirator would have been more beneficial but uncomfortable to wear.

[24] In relation to the frequency with which Mrs Thacker had required to be in both the lower and upper dressing shops, Mr Howie confirmed that given the size of the premises and the nature of Mrs Thacker's work it was likely that she would be there for a good few minutes on each occasion. She would require to wait for memos or paperwork and there had been evidence of her speaking to her father who worked there. The main types of asbestos to which she would have been exposed were crocidolite and chrysotile. There are six main types of asbestos but the three most common are known as crocidolite ("blue asbestos") and chrysotile ("white asbestos"). Chrysotile is the least potent type of asbestos, far less potent than amosite ("brown asbestos") and about 6,000 times less potent than crocidolite which is also more easily airborne. In the Atlas Foundry the main use of asbestos was for thermal insulation of the castings. So far as the appropriate standards for protecting employees from exposure to asbestos were concerned, the starting point was the Asbestos Industry Regulations 1931. While those related only to the manufacture of asbestos, Mr Howie confirmed that a prudent employer would, from the time they were in the force, at least look at them for guidance as to whether the substance needed to be controlled in the workplace. By the time Mrs Thacker was working at the foundry the Factories Act 1961 was in force. Section 63 of that Act (in identical terms to the equivalent provision in the 1957 Factories Act) relates to the expose of employees to injurious dust. Mr Howie confirmed

that a reasonable employer would have been fully aware at that time of the injurious nature of asbestos dust. From 1929 onwards the Chief Inspector of Factories had included figures for deaths from asbestosis. The lung cancers caused by such exposure were also listed from 1938 and from at least the early 1950s a reasonably large employer would be reading such statistics. The Atlas Steel Foundry was a large employer for that purpose.

[25] Mr Howie explained that guidance on Occupational Exposure Limits (OEL) in the UK for asbestos was first published in a Safety, Health and Welfare Booklet number 8 in 1960 and subsequently in the 1961 amendment slip to that booklet and the 1965 addition of it. A copy of the 1960 publication (number 6/19 of process), in a section headed "Permissible Concentrations" the booklet stated:

"While systems of control should be as effective as it is practicable to make them, it is desirable to have some guide to which the efficiency of the control measures can be related. In the list at the end of this booklet there are set out figures of maximum permissible concentrations of certain substances used in industry. For each substance a figure of concentration in atmosphere is given. If this concentration is exceeded, further action is necessary to achieve satisfactory working conditions."

[26] Mr Howie noted that the listed maximum permissible concentration for dusts containing asbestos was 177 particles per cubic centimetre. That figure would include non-fibrous particles presented in the dust cloud. He pointed out that the booklet did not indicate that the maximum permissible concentrations were exposure levels at which there was no risk of injury or that they were levels of exposure below which the application of control measures or the provision of respirators was unnecessary. In relation to dust containing asbestos particles he confirmed that a reasonable employer at the time would have been aware of the booklet in question and have looked to see if he was using any materials on the list. Steps would then have to be taken to ensure compliance. Mr Howie's interpretation of the booklet was that, in relation to asbestos, if the permissible limit of 177

was reached that would require an employer to take further action, in other words beyond the controls that he should already have in place. Even if the level of exposure was lower than the maximum permissible limit but not as low as reasonably practicable, then an employer would not have complied with the guidance.

[27] The relevant 1965 booklet (number 7/7 of process) had gone a little further in stating in terms that attempts should always be made to use as a substitute for potentially injurious dust or fumes a substitute of the least harmful material possible. The introduction to that booklet states: "In all circumstances the aim should be to reduce the concentration of dust or fume in the atmosphere to the lowest practicable level." That booklet also confirmed that the threshold limits of exposure should be used as guides in the control of health hazards and should not be regarded as fine lines between safe and dangerous concentrations. The threshold limit value ("TLV") are listed and these are absolute limits that should not in any circumstances be exceeded. For example, if the TLV was two then any exposure would have to be limited to two times the limit throughout the work shift. A time-rated average is taken over the whole day to avoid a situation where employers might expose their employees to short periods of very high exposure. The 1968 list (number 7/9 of process) reiterates certain TLV's for various injurious or offensive substances. It provided a change to calculating substances in terms of fibres per ml. The standard for asbestos was set at 12 fibres per ml whereas previously it had been calculated per cubic foot. In any event the tentative value intimated in the 1968 booklet was never adopted in the UK. Mr Howie was also taken to the Newhouse and Thompson paper (number 6/29 of process) which was published in 1965. The results in that paper were presented at a conference in New York in 1964. The authors had looked at a factory in East London and the results had shocked all those with an interest in the area. The paper contains a list of 83 patients with mesothelial tumours and gives a

relevant history of each. The paper highlighted the danger of working with asbestos including to those not involved in manufacturing but simply exposed to it. It also covered for the first time the exposure of relatives such as the spouses of those working in asbestos factories who may have laundered their overalls and so on. It contained details of some neighbourhood cases relating to people who lived up to half a mile away from an asbestos factory. It related only to those suffering from mesothelioma. There was also an article in the Times Newspaper in 1965 which put the issue out of the arena of medical literature and into general knowledge. Joining these threads together Mr Howie expressed the opinion that throughout the period 1960-68 a reasonable employer would have ensured full compliance with the whole of the contemporary occupational exposure limits.

[28] Mr Howie was asked to consider and assess Mrs Thacker's likely exposure to asbestos. This had been covered in section 6 of his report (number 6/37 of process) but he had now heard the evidence, particularly of Mr Hendry who talked about the blankets coming in a roll that was cut in the dressing shop and he took that into account. From the descriptions given in evidence, Mr Howie considered it highly likely that asbestos in some form was present in the blankets used in the foundry. Although crocidolite could not be excluded, he thought that the mattresses described by the witnesses were more likely to be amosite felt or chrysotile webbing. As Mr Hendry had been clear in his evidence that the fabric came in rolls cut to a length it did not sound as if they were asbestos mattresses as such. A chrysotile roll cut into blankets would look like a coarse jute. Mr Hendry had described them as an eighth to a quarter-inch which would be about six millimetres.

Mr Howie confirmed that cutting such roll into blankets would generate asbestos dust and fibres. There were various papers that discuss the emission of fibres from asbestos textile products. These included Bamber & Butterworth (1970), Cross et al (1971), and Harries

(1971). These were lodged as numbers 6/30, 6/31 and 6/32 respectively. On the basis of the Harries paper, on the assumption that ripping chrysotile cloth would have generated similar exposure as cutting chrysotile blankets to size, such activity would have generated about 20-40 fibres/ml, about 35 fibres/ml mean, of chrysotile. On the handling of the chrysotile blankets such activity would have generated about 3-30 fibres/ml, about 10 fibres/ml mean, of chrysotile. Mr Howie also referred to a table from the Cross et al paper, number 6/31, which looked at exposure levels generated by different processes such as fitting asbestos cloth and making asbestos mattresses and so on in the shipbuilding industry. A good analogy with the circumstances of the exposure in the present case would be fitting asbestos cloth on non-asbestos lagging and this would emit 5-10 fibres/ml. By 1970 a different type of dust suppressed cloth was introduced which reduced exposure to 0.2/3 fibres/ml. That type of cloth was not available during the period when Mrs Thacker was working at Atlas. So far as the Harries paper was concerned (number 6/32) the author of that paper was a surgeon commander in the Royal Navy. He published a study in 1968 having seen a large number of mesothelioma cases. The period covered by his paper is 1967-70 and although concerned with a shipyard situation, table 5 in the paper concerns the ripping of cloth. This activity was found to produce, in breathing samples, an asbestos dust concentration of 0.3-16.5 fibres/cm³. Results for the general atmosphere which would be more relevant to Mrs Thacker's situation had a range of 23-43 with a mean of 33 fibres/cm³. However that would be the atmosphere for those manipulating the cloth. By the late 1960s to 1970 concerns about all asbestos products led to such cloths being treated so that they were less dusty. However, in the mid-1960s there was no treated cloth and in the defender's foundry untreated cloth will have been used. The Harries paper also covered the use of asbestos cloth for a pre-heating welding technique and again showed exposure to asbestos dust

concentrations in a range of 0-30 with a mean of 8.7 fibres/cm³. This was the sort of technique that Mr Hendry had described. Mr Howie confirmed that standing the evidence he had heard from Mr Hendry he thought that the cloth described could have been amosite felt which is ten times dustier than chrysotile although he was content to work on the basis that the exposure levels would be similar. He explained that from the mid-1970s to 1980s he had been involved in testing respiratory devices against asbestos. The work had to be carried out under very carefully controlled conditions standing the considerable dangers of exposure.

[29] On the basis that the blankets used in the defender's foundry were chrysotile, Mr Howie expressed the view that the workers who were cutting and handling them would have been exposed to between about 10 fibres/ml and 30 fibres/ml. Indisputably Mrs Thacker would have been less proximate and so exposed to less than those actually cutting or handling the blankets but she was clearly in the area when those processes were taking place. Although the building was large there would be a general background level of dust including asbestos dust and the dressing shop was enclosed with relatively poor ventilation. The sweeping of the floors would have contributed to the dust in the atmosphere. If Mrs Thacker was exposed to the dust about 5 to 10 yards from the source her exposure would be about 10% of that of those cutting or handling the blankets. On that basis Mr Howie expressed the view that Mrs Thacker would have been exposed to between 1 and 3 fibres/ml of chrysotile when she was standing 5 to 10 yards from the workmen.

[30] Mr Howie also assessed the likelihood that the defender had complied with the necessary hygiene standards for asbestos. In this context there were papers that tried to compare the particle counts with fibre counts. Mr Howie thought that the paper of Doll and Peto in 1985 was the most authoritative. Those authors stated that 1,000,000 particles per

cubic foot would amount to 1 fibre/ml which meant that 5,000,000 particles was equivalent to 5 fibres/ml. The Doll and Peto paper (6/36 of process) was looking at the effects of asbestos on health, primarily of chrysotile, as the other two main types were no longer being used at all by the time of their research. At page 20 of the paper, Doll and Peto start to discuss the measures of exposure. They refer to the formula that 1 fibre/ml is equivalent to $0.031 \text{ particle count/ml}^{-1} + 1.90$. There is then a discussion of the correlation between the 1960 particle and 1961 regulated fibre counts and the authors conclude that they had chosen to analyse the particle counts taken in 1960 and the regulated fibre counts taken in 1961 in the same areas rather than the parallel measurements taken in 1977, both because the 1960/61 data were collected routinely and because they included higher readings which were more representative of earlier conditions. The authors go on to state:

“Perhaps coincidentally, however, our preferred regression analyses of the 1977 parallel measurements gave a similar conversion factor (see p 21). A value of 35.3 particles per fibre would mean that 1 mppcf is exactly equivalent to 1 f.ml^{-1} and we have, therefore, used this factor in our dose-response analyses to preserve this convenient identity.”

[31] This meant that comparing like with like would mean that 35 particles was equivalent to 1 fibre/ml. Translating that into the measurements Mr Howie had made in his report, his opinion was that those cutting and handling the chrysotile cloth to form blankets would have suffered a mean exposure of between 10 and 30 fibres/ml. Mrs Thacker’s exposure was lower but of course the guidance required the employer to reduce exposure as far below the limit as practicable and it appeared that no measures at all had been taken to protect Mrs Thacker. The equivalence of $1 \text{ mppcf} = 1 \text{ fibre/ml}$ used by Doll and Peto was according to Mr Howie the correct comparison as their paper was still in publication by the Health and Safety Executive and had a high level of credence.

[32] Mr Howie explained how dust in the workplace is assessed. A pump is fixed to someone's belt and a sampling head placed on their left shoulder. A known volume of air is sucked through a filter taken to the laboratory and then weighed and compared with the same amount of air from the dusty environment. In the 1960s thermal precipitators were available to assess dust. This involved air being blown across a hot wire to force dust onto glass. This was a widely used method and available in 1963.

[33] Under cross-examination Mr Howie accepted that in the 1960s asbestos blankets would not carry a hazard warning on them. He disputed that the maximum exposure limit of 177 particles per cubic centimetre in the 1960 booklet number 6/19 of process related purely to asbestos particles as opposed to particles containing asbestos. He disputed that it was an absurd interpretation to suggest that the 177 particles could contain something other than a pure asbestos concentration. He did agree that the figures for exposure were an average concentration through the working day, confirming that it was a time weighted average. He was referred to further guidance in 1965 (number 7/6 of process) which appended American guidance to the UK guidance. In the preface of the latter it was suggested that the threshold limit values referred to the airborne concentration of various substances and the inference was that nearly all workers could be repeatedly exposed day after day without adverse effect to the stated limits. Mr Howie pointed out that only the American guidance included such a suggestion with the British guidance (on page 2 of the document) being clear that concentration of the substances in question should be reduced to the lowest practicable level. While he accepted that the purpose of the document was to highlight to employers that an employee could be exposed to a maximum of 177 particles per cubic centimetre of asbestos, Mr Howie explained that the guidance had to be read with

the inclusion of the British introduction about reducing exposure to the lowest practicable level.

[34] Mr Howie was asked about the notice of intended changes to the conversion factor in the 1968 guidance (7/9 of process). He agreed that using the notice of intended changes at pages 32 – 40 of the document suggested a conversion rate of 30:5 which is 6:1 as opposed to the 1:1 he had used, but Mr Howie reiterated that the conversion of 6:1 was never accepted in the UK. He agreed that the Doll and Peto paper contained a reference to both conversion figures and that to some extent the dispute about which was correct remained although he confirmed by the reasons given in evidence in chief that he used the preferred estimate of Doll and Peto of 1:1.

[35] It was suggested to Mr Howie that Mr Hendry's evidence about the doors being opened to let the air go through and also about ventilation which he had said was "good at letting the rain in" and it was suggested that the inference could be drawn that this would also let the air out. Mr Howie responded that hot air rises. He accepted that on the accounts given about Mrs Thacker's attendance in the dressing shop, she would likely be there for a number of minutes on each occasion and that if she was exposed to asbestos dust it was for only a number of minutes. Mr Howie agreed that it would be for 10 to 15 minutes a day although on several occasions each week. He was asked what the average exposure that might give her to asbestos dust and he indicated that exposure of three fibres per ml for 15 minutes would be an average of 0.1 ml per day.

[36] In re-examination Mr Howie was asked again about his statement that the maximum exposure limit of 177 particles would include dust over and above asbestos dust which counsel for the defender had suggested was absurd. Mr Howie confirmed that dust was always a mixture of different types and there was no discrimination between asbestos dust

and other types of dust in the atmosphere. The test involved looking at the opaqueness of the dust in water. He maintained that it was incorrect that the 177 exposure limit would involve there being related only to asbestos. He explained that when counting fibres it is understood by those conducting the research that there are other matters included in those fibres. What one was taking was an index not a measure. The 177 standard would be applied to something like monkey dung even though it did not produce much asbestos dust.

Assessment of the evidence

[37] Dealing first with the issue of credibility and reliability of the lay witnesses, I have no hesitation in accepting the evidence of both Mr Thacker and Mr Hendry as wholly credible and reliable. Mr Hendry was the central witness for the pursuer who could speak to the various processes carried out in the top and bottom dressing shops and I will return to it in more detail. He seemed to me to have a very good recollection of the deceased Mrs Thacker's regular attendance in both dressing shops of the foundry and of what was going on, on a daily basis, in both dressing shops. He was able to distinguish between the early period in the 1960s with a later period when he continued to work for the defender leading right up to 1989. While some attempt was made to suggest to him that his memory of events was less than perfect after so many years, there was nothing in the way that he gave his evidence or in the detail of what he said that gave me any cause for concern that he was in any way unreliable. I accept also in its entirety the shorter evidence of Maureen McCulloch and accept that what she recorded in her notes (6/20 and 6/21) comprises an accurate account of what she was told by Mrs Thacker about her regular visits to the dressing shop in the foundry and the presence of asbestos blankets there. No relevant evidence was given by William Veitch once it was appreciated that he had not worked in the

foundry during the material period and so no assessment of his credibility or reliability is required.

[38] So far as Mr Howie is concerned, counsel for the defender submitted that his evidence ought to be given no weight for three reasons. First it was submitted that he ought not to be treated as a witness to fact as he had no factual experience of the defender's foundry and that his evidence about his father's foundry should be ignored. Secondly it was suggested that he assumed the role of the pursuer's advocate in manner that it would exclude him from giving independent skilled evidence (*Kennedy v Cordia (Services) Limited* [2016] SC (UKSC) 59. Thirdly, it was submitted that Mr Howie did not have sufficient facts on which to properly base his opinion evidence. It was suggested that he was prepared to speculate in relation to the amount of dust given off by asbestos blankets and he had conceded that there was no evidence about whether Mrs Thacker had been within 5 – 10 yards of the cooling castings and so he did not know how close she would have come to them. Having considered those submissions, I reject each of them and accept the evidence of Mr Howie as a skilled witness entitled to give opinion evidence. So far as whether he can or cannot also be regarded as a witness to fact, Mr Howie was present in court for all of the evidence to fact. He then used that as a benchmark for the opinion evidence he gave. He did not purport to speak as a witness to the environment in the defender's foundry. What he was able to speak to, as general background, was some knowledge he had of the dusty and dirty atmospheres in premises of this sort. As that evidence was also given by Mr Thacker and Mr Hendry nothing turns on Mr Howie also having given an account of brief involvement from witnessing a foundry himself. The second and more important attack is on his impartiality and whether he assumed the role of the pursuer's advocate. Mr Howie had prepared three reports for the pursuer in this case, as a skilled witness and

was permitted to be present in court during the evidence as such a witness. He was robust in his responses to the defender's counsel in cross-examination and he maintained that the opinions he had expressed in evidence in chief were correct, no more than might be expected of any skilled witness confident in the views he had reached. When contrary views were put to him he gave reasons for disagreeing. Mr Howie has an extensive and impressive curriculum vitae and a particular professional interest in risks associated with asbestos. He was able to give reasons for the opinions he expressed in his reports and the extent to which he deviated from those to take into account the oral evidence he had heard. I am satisfied that he had relevant knowledge and experience including drawing on the general body of research and studies in relation to asbestos exposure, to allow him to give opinion evidence. I formed the view that Mr Howie was at all times attempting to assist the court and that he was not assuming the role of advocate for the pursuers. The third challenge to his evidence was on the basis that he did not have sufficient facts to properly give opinion evidence. This is a case that poses challenges for both parties and for the court standing the length of time since the events that now give rise to the proceedings. For reasons connected with the speed of Mrs Thacker's decline in health, it was not possible to take any detailed evidence from her. Mr Howie gave estimates of the amount of dust given off by the procedures going on involving the cutting up of asbestos blankets being used for thermal insulation of the castings on the basis of the evidence before the court. That is something that he was entitled to do. While the issue of whether the pursuers have proved enough, in terms of exposure to substantial quantities of dust including asbestos dust, is the central contentious matter between the parties and will be examined in more detail, it was incumbent on Mr Howie to make estimates based on the information he had including the evidence he had heard. His calculations were necessarily estimates and I accept them as

that. As the defender led no evidence, skilled or otherwise, there was no alternative method of assessing Mrs Thacker's exposure against which Mr Howie's evidence on this could be tested. While of course the onus is squarely on the pursuers to prove their case, a matter to which I will return, I am satisfied that Mr Howie's opinion evidence had a basis in fact and that he was entitled to give it as a skilled witness. Accordingly I reject the challenges made to his role in the proceedings.

[39] The first issue of fact that was arguably contentious related to the period of time during which Mrs Thacker had worked at the foundry. The defender's sought to rely on certain letters from HMRC which tended to indicate that the period during which she had been employed by the defender was rather shorter than contended in the pursuers' case. However, that correspondence (number 6/15 of process) recorded no employer at all for Mrs Thacker between 1962 and 1966. The letter is inconsistent with Mr Thacker's evidence that, apart from a one year typing course when she left school, Mrs Thacker had worked continuously at the defenders' foundry from the age of 16 or 17 until the couple married in October 1967. It was not then disputed that she had continued to work with the defenders into 1968. Mr Thacker pointed out in evidence that the HMRC letter was incorrect in relation to the dates of his own work with the defenders. He was clear that his wife was already working at the foundry when he met her and that they had been in a relationship for at least 2 years before they got married. On that basis I find that she was working for the defender for a period during which HMRC have no record of her doing so. Ms McCulloch's note when she saw Mrs Thacker in hospital accords with Mr Thacker's evidence. Mrs Thacker told Ms McCulloch that she had worked in the office of the defender's foundry between 1963 and 1968. I have no hesitation in finding that Mrs Thacker was employed by the defender for that 5 year period.

[40] The second issue on which there was initially some suggestion that there might be a dispute was the frequency with which Mrs Thacker was present in the dressing shops of the foundry in the course of her employment. Ms McCulloch's note had her there at least three to five times a week if they were busy. Mr Hendry thought that it might be almost daily although accepted that it could have been just more than once a week and sometimes three or four times. Accordingly, taking Mrs Thacker's account as relayed to Ms McCulloch together Mr Hendry's recollection, I find that Mrs Thacker was present in the dressing shop while work was going on there during the course of the day at least once a week but up to three, four or five times per week especially during busy periods. So far as the length of time she would be present in the dressing shops for (and the clear evidence of Mr Hendry was that she attended at both dressing shops) there was little dispute that each visit would probably be for about 10 to 15 minutes. Mrs Thacker's father worked in the foundry and she would often stay to speak to him for a short period. She would also have to wait for documents to be prepared to take back to the office and so on. Mrs Thacker's father, with whom she lived until she married in 1967 had of course been exposed to asbestos and died having contracted mesothelioma

[41] The next issue in the evidence and one of the central issues in dispute is the extent to which asbestos dust was emitted into the atmosphere into the dressing shops in question. A related question is whether the pursuers have proved that the deceased herself was exposed to any such asbestos dust, something that the defender contends they have failed to do. There was no dispute that the processes involved in the foundry involved hot and dirty work. The issues related to the quantities of dust and the extent to which these contained asbestos dust. There was also no dispute that the main purpose of the asbestos blankets described in evidence and used as part of the process was to keep the heat in on the castings

so that employees could work on them while they were kept at an appropriate temperature. Both Mr Thacker and Mr Hendry were able to describe the asbestos blankets being used. So far as issues relevant to the atmosphere and whether it contained asbestos dust were concerned, Mr Thacker described the blankets as being "all burst – the stuff inside them was hanging out". He described the atmosphere in the top dressing shop as "right dusty". He said that you could see the dust in the air and when asked whether he saw the asbestos blankets producing dust he said that they were burst and full of asbestos and that the defender never got them fixed but kept using them. So far as Mr Hendry was concerned he described in some detail the cutting of the rolls of asbestos blanket to size so that they could be put over the casting. He said the dust was "whirling up off the floor" and "had to be seen to be believed". The particularly vivid description he gave of the combination of the fibres of the asbestos and the dust of the floor looking like fairy dust flickering in the air amounted to direct evidence of asbestos being emitted into the atmosphere of the dressing shop. With particular reference to the asbestos blankets and the fibres they emitted he spoke of being able to see it everywhere in the air. It is certainly the case that in speaking about dust everywhere Mr Hendry was referring also to steel dust, black dust in the cutting areas and the black fine dust that was prevalent in both the top and bottom dressing shops. However he specifically said that there was "every kind of dust" in a context when he had just been talking about cutting the asbestos blankets. He said that in later years things improved but that in the 1960's the fumes and dust were "horrendous". On the basis of Mr Hendry's evidence I find that asbestos dust was being emitted into the atmosphere of both dressing shops. As a result of the blankets being burst with the fibres springing into the open the emission of asbestos took place mostly when the asbestos blankets were picked up from the floor and flung over the castings but also when the blankets were being cut. I

find also that Mrs Thacker was being exposed to these substantial quantities of dust, including asbestos dust, regularly and routinely when she attended both dressing shops on about three occasions per week. Her evidence (through Ms McCulloch) was that she was in the dressing shop when the asbestos blankets were being used and “flung all over the place”. She was present in the dressing shop more often when the foundry was busy. From that I infer that she was present more often when the asbestos blankets, the insides of which were bursting out on Mr Hendry’s evidence, were emitting dust. Further, I find it likely that Mrs Thacker also suffered secondary exposure when living at home and coming into contact with her father there on the basis of her evidence that she remembered him coming home with his boiler suit on having used the asbestos blankets at work.

[42] Turning to the level of dust, including asbestos dust, to which Mrs Thacker was exposed, I have found that it was substantial. The defender contends that the exposure was at a level below that which a reasonably prudent employer would have foreseen a risk of injury to her. There was, however, evidence at proof that at the point of release the level of asbestos dust in the environment was beyond the maximum acceptable level at the time. Mr Howie gave evidence confirming the position stated in his report that the cutting and handling of asbestos blankets would give off in excess of the five fibres per ml referred to in the 1960 publication number 6/19 of process. There was evidence based on the state of knowledge at the time to support the pursuers’ contention that the defender knew or ought to have known that asbestos dust in sufficient quantities was injurious. The knowledge of the ways in which mesothelioma could be contracted developed over time. Mr Howie had been referred to the Newhouse and Thompson article (6/29 of process) published in 1965 about this. While indisputably Mrs Thacker’s level of inhalation will have been lower than the men working in the dressing shops all the time, Mr Howie’s evidence was that her level

of exposure was such that he could conclude that the asbestos dust in the air exceeded the acceptable limit at the time when it was given off. I accept his evidence that, insofar as a specific calculation was possible, Mrs Thacker's direct exposure would have been anything between 1–10 fibres/ml on a regular basis, but the dust, including asbestos dust, emitting into the atmosphere was far greater than that.

[43] Having found that the deceased was exposed to substantial dust, including asbestos dust, the next issue is whether the defender took all practicable steps to protect their employees, including Mrs Thacker, against injury. There was some evidence about the factory premises being damped down to reduce the amount of dust and to some extent that might be regarded as a protective measure. However, standing the atmosphere described by Mr Hendry, there is no basis for a finding that the damping down process indicates anything more than how dusty the environment was generally. Mr Hendry mentioned that he wore a mask although others did not and while there was some evidence of doors being opened and about ventilation the extent of the latter was unclear. There was no evidence about any measures at all being taken so far as the deceased was concerned. It was incumbent upon the defender to show what could have been done and that practicable steps were taken. However there was no evidence led on behalf of the defender and so I have no information about whether, for example, consideration was given to how the atmosphere could have been improved during the cutting of the asbestos blankets.

[44] While of course any precautions that ought to have been taken by the defender against substantial exposure must be judged by the standards of the day, the undisputed fact is that there was an awareness that the dust was injurious such that masks were available. However there was no enforcement of that and no mask was provided to Mrs Thacker. The fact that asbestos continued to be used even after it was known to be

highly dangerous does not excuse the defender's failure to take reasonable steps to negate or at least minimise the risk to all its employees of this injurious dust. There was some suggestion on the part of the defender in this case that the level of exposure was somehow tolerable. However in light of the agreement that the deceased contracted mesothelioma and that she had not been exposed to asbestos dust anywhere else, I consider that, to the contrary, it can easily be inferred that it was not tolerable. The literature does not support a proposition that a certain amount of exposure to asbestos dust is harmless.

Application of the law to the facts

[45] Senior counsel for the pursuers urged an approach that did not permit the defender to "shelter behind the burden of proof and dismiss the claim" as Neuberger LJ, as he then was, put it in *Harris v BRB (Residuary) Ltd and another* [2005] ICR 1680. Mr Mackenzie for the defender on the other hand relied on the dictum of Lord Rodger of Earlsferry in *Sienkiewicz v Greif* [2011] 2 AC 229 at paragraph 166, where his Lordship stressed that judges should resist any temptation to give a claimant's case an additional boost by taking a lax approach to the proof of essential elements. To do so would result in the balance struck by the *Fairchild* exception being distorted. It seems to me that it is incumbent upon the pursuers in this case to prove the essential elements of their claim. The question is whether sufficient primary facts have been established to allow the court to conclude that the defender is liable to the pursuers under the relevant statute and/or at common law.

[46] The primary case of the pursuers is that the defender was in breach of its obligations under section 63(1) of the Factories Act 1961 which is in the following terms:

"63. Removal of dust or fumes.—(1) In every factory in which, in connection with any process carried on, there is given off any dust or fume or other impurity of such a character and to such extent as to be likely to be injurious or offensive to the

persons employed, or any substantial quantity of dust of any kind, all practicable measures shall be taken to protect the persons employed against inhalation of the dust or fume or other impurity and to prevent its accumulating in any workroom, and in particular, where the nature of the process makes it practicable, exhaust appliances shall be provided and maintained, as near as possible to the point of origin of the dust or fume or other impurity, so as to prevent its entering the air of any workroom.”

[47] There was no dispute between counsel that the foundry in this case was a factory to which the legislation applied. The terms of section 63(1) of the 1961 Act are effectively in identical terms to the previous legislation, the Factories Act 1937. There was also no real dispute about the interpretation of the provision. Senior counsel for the pursuer highlighted the disjunctive “or” before the words “substantial quantity of dust of any kind”. He submitted that the provision is activated where any substantial quantity of dust was present such that the duty was owed to all those who inhale the dust. The second limb of section 63(1) provides only that the dust has to be either injurious or substantial when given off. The employers’ duty is to take all practicable measures to protect the employees. The first limb of section 63(1) requires the dust or fume or other impurity to be of such a character and to such an extent as to be likely to be injurious or offensive to the persons employed. The pursuer sought to rely on both limbs of the provision. Considerable reliance was placed on the authoritative interpretation of these provisions laid down by the UK Supreme Court in the case of *McDonald v National Grid* [2015] AC 1128. That case involved a claim by a lorry driver who had visited a power station about once a month over a four year period to collect pulverised fuel ash. The issues for the court were, first, whether the Asbestos Industry Regulations 1931 applied to the case and, secondly, whether there had been a breach of the Factories Act 1937 section 47(1) that being the identical provision to section 63(1) of the 1961 Act. On that second issue the claimant had placed particular reliance on an alleged failure by the defendant to take practicable measures to protect him

against the inhalation of dust. At the earlier stages of the case there had been no finding as to the quantity of dust given off during the relevant lagging process. In consequence of that, the claim ultimately failed. In the speech of Lord Kerr, at paragraph 58, it is recorded that the respondent had accepted that the following things had to be established before a breach of statutory duty based on the second limb of the provision could be established, namely:

- (1) the dust was given off in connection with a process carried on in the (premises in question);
- (2) the claimant (deceased in the present case) was a “person employed within the meaning of the section”;
- (3) the quantity of dust when given off was substantial; and
- (4) the claimant (the deceased) in this case inhaled dust given off by the relevant process.

There was a dispute in the case, however, about whether or not the quantity of dust had to be substantial at the point when it was given off or at the point of inhalation. On that issue, Lord Kerr concluded that the relevant duty was to take practicable measures whenever a considerable quantity of dust was given off and that the activation of duty was not dependent on it being shown that the quantity of dust was considerable at the moment of inhalation (paragraph 76).

[48] In relation to the quantity of dust, the trial judge had made no finding on whether the amount of dust given off was substantial. That was not something that could be rectified on appeal. There was some support in the evidence for a “potential” for exposure to high quantities of dust but not sufficient to demonstrate that there was any substantial quantity of dust relevant to the injury said to have been caused to the claimant. On this issue Lord Kerr confirmed first (at paragraph 86) that the words “any substantial quantity of dust of any kind” did not mean a substantial quantity of injurious dust. He said that whether the

second limb of the subsection in question is triggered falls for a purely quantitative assessment. His Lordship went on (at paragraph 87) to set out the correct approach to an analysis of section 47(1) (or section 63(1)) as follows:

“The question whether the dust is asbestos or other injurious dust should therefore not obtrude into the initial assessment of whether the second limb of section 47(1) is engaged. To do this conflates consideration of the second limb with considerations that are relevant to the first limb. Proper application of the subsection requires a staged approach: (i) Is the dust, fume or other impurity which is given off of such a character and given off to such an extent as to be likely to be injurious or offensive to the persons employed? (ii) If not has any substantial quantity of dust of any kind been given off in the workroom where the claimant was a person employed? (iii) if the answer to (i) or (ii) is ‘yes’ are there practicable measures which can be taken to protect the persons employed against inhalation of the dust or fume or other impurity and to prevent its accumulation in any workroom? And (iv) if the answer to (iii) is ‘yes’ have they been taken?”

[49] As part of this approach there is a requirement to confront the question of whether the quantity of dust to generated at the time satisfies the statutory requirement of being substantial. The failure to focus that issue led to Mr McDonald’s claim failing. However, as the claimant had clearly been exposed to asbestos dust to some extent, together with the absence of any suggestion that he was exposed to asbestos in any other employment or in the general atmosphere was sufficient to establish causation (paragraph 91).

[50] On the authority of *McDonald*, I accept the submission made by senior counsel for the pursuer that a finding that there was a substantial quantity of dust (of any kind) to which the deceased was exposed routinely and regularly is sufficient to shift the burden to the defender such that only if the defender shows that practicable measures were taken to prevent injury to the deceased could it escape liability. I have already made the finding that Mrs Thacker was exposed to a substantial quantity of dust, including asbestos dust, and that such exposure was likely to have been above the maximum acceptable level at the time at least at the point of release. I have also found that the defender did not take steps of any

kind to protect the deceased. Accordingly, I am satisfied that the pursuers have met the test in limb (ii) of section 63(1) and that the defender breached the relevant statutory duty.

Causation clearly follows from the agreement that, if it is established that the deceased was exposed to asbestos dust as a result of the breach of statutory duty on the part of the defender the exposure caused the deceased's mesothelioma.

[51] Turning to the common law case and the first limb of section 63(1) I will deal with these together as it was accepted that both involve a traditional reasonable foreseeability test. While the approach in *McDonald* suggests approaching the first two limbs to see if there is liability under one of them, I have already found it established under the second limb. In light of the conclusion I have reached in relation to the likely level of exposure to asbestos dust in the atmosphere as supported by the relevant literature, I am also satisfied that the pursuers led sufficient evidence to satisfy the requirements of limb (i). It was known by the 1960s that asbestos dust would be likely to cause injury. I have already dealt with the question of exposure over the maximum thresholds and I have accepted that the relevant figures have to be taken at the point of release. On the basis of the Newhouse and Thompson article in 1965 it is clear that knowledge had developed by that stage about the causes of mesothelioma to put the defender on notice that anyone exposed to asbestos dust required protection. All of that would have been supportive of the pursuers satisfying the first limb of section 63(1) had that been required and is relevant to the common law case. In *Maguire v Harland & Wolff Plc* [2005] PIQR P21, a case involving both primary and secondary exposure the latter type arising from the wife's contact with her deceased husband's work clothes, the Court of Appeal analysed the literature and found that prior to the Newhouse and Thomson article in 1965 it could not be regarded as reasonably foreseeable that those who had secondary and intermittent exposure to asbestos were at risk of injury. In the

present case, I have found that the deceased was directly exposed to significant quantities of dust, including asbestos dust, until she ceased employment by the defender in 1968.

Accordingly, between about the end of 1965 and the termination of her employment with the defender in 1968, the defender knew or ought to have known that any exposure to asbestos dust was likely to be injurious to Mrs Thacker and that there was no need for the previous requirement of “heavy and prolonged exposure” before any duty could arise (*Maguire v Wolff* at paragraph 90). I conclude that the defender breached the duty to the deceased during that period by failing to take any steps to reduce or negate her exposure. It was contended on behalf of the defender that the pursuers had said almost nothing about what the defender ought to have done other than the possibility of the wearing of a mask. However in light of the unchallenged evidence about the state of knowledge from 1965 onwards and the indisputable position that no measures of any kind were taken to protect the deceased, I find that the requirements of knowledge and a lack of reasonable care have been established. As indicated, there is in effect no distinction between the approach to the first limb of section 63(1) and the common law in this respect.

[52] The defender relied on the decisions in *Williams v University of Birmingham* [2012] PIQR 53 and *Richards v Highway Iron Founders (West Bromwich) Ltd* [1957] 1 WLR 781 but these added little to the accepted approach to the first limb of section 63(1) and the common law case. It was contended for the defender that while steps such as damping down the floors and providing some ventilation were crude by the standards of today they were sufficient by 1965 standards. I do not accept that proposition. Mr Hendry’s evidence supported a contention that the defender knew of precautions that ought to be taken to protect their employees from dust, including asbestos dust and that as a result masks were issued to certain employees. The failure to provide a mask to Mrs Thacker (or to take steps

to see to it that masks were worn by all employees) is a sufficient basis to find that no reasonably practicable steps were taken, even by the standards of the day, to protect employees such as the deceased.

Decision

[53] In conclusion, I find that the pursuers succeed as they have proved that the processes undertaken in the defender's foundry during the period of the deceased's employment there created substantial dust, including asbestos dust, to which the deceased was regularly and frequently exposed when attending in the course of her employment in the dressing shops. Further, while her exposure to asbestos was less than the levels to which those cutting the asbestos blankets and covering the castings with them were exposed, her exposure was to an extent likely to be injurious to her, as it ultimately was. That injury was reasonably foreseeable and the defender did nothing to prevent it.

[54] The pursuers having established liability both in terms of the statute and at common law, the quantum of damages is agreed as narrated in paragraph 2 of this opinion. Interest requires to be added to the sums stated there. Accordingly, I will fix a hearing on the By Order Roll so that I can be addressed on the precise sums to be awarded in the decree in the pursuers' favour and also on any question of expenses, which I meantime reserve.