



OUTER HOUSE, COURT OF SESSION

[2022] CSOH 17

A632/14

OPINION OF LORD TYRE

In the cause

BENKERT UK LIMITED

Pursuer

against

PAINT DISPENSING LIMITED

Defender

**Pursuer: A Smith QC, C Smith; BT O LLP
Defender: Young QC, McGregor; DWF LLP**

11 February 2022

Introduction

[1] On 10 November 2009 a fire occurred at industrial premises owned by the pursuer in Alva, Clackmannanshire. As a consequence the pursuer sustained losses which are agreed to have amounted to £29,680,235.00. In this action the pursuer contends that the loss was caused by the breach of contract and fault and negligence of the defender. The defender denies liability and contends, firstly, that the loss was caused or at least materially contributed to by the fault of the pursuer and, secondly, in any event, that any liability of the defender to the pursuer was limited by the terms of their contract to the sum of £3,225.06.

The case came before me for proof before answer which, due to Covid-19 restrictions, was conducted remotely.

[2] At the time of the fire, the pursuer (“Benkert”) produced printed paper used mainly in the manufacture of cigarette filters. (The premises were rebuilt after the fire but closed in December 2020, when the employees were made redundant.) As part of Benkert’s process, paper was printed with solvent-based coloured ink. Solvents are highly flammable. Inks and solvents were stored in drums and mixed to the desired colour and consistency by two computer-controlled dispensing machines referred to as the large dispenser and the small dispenser, both located in the ink plant room. The dispensers had been supplied by the defender, whose name until October 2019 was Rexson Colorweigh Limited and to whom I shall refer in this opinion as “Rexson”. The dispensers were maintained by Rexson in accordance with the terms of a series of maintenance contracts entered into between the parties.

[3] It is not in dispute that the fire started in the ink plant room, and that it was probably caused by a spark igniting flammable solvent vapour. The parties disagree however as to exactly where and why this is likely to have occurred. There are two principal competing explanations. Benkert contends that the fire started at the large dispenser and that it occurred because a hose connecting the dispenser to the ink and solvent drums which was attached by a worm drive clip, commonly referred to as a “jubilee” clip, came suddenly loose, allowing solvent vapour to escape, which was then ignited by a spark caused either by static electricity created by the escaping liquid or by the clip striking another part of the dispenser. Rexson contends that it is equally or more likely that the fire started at the small dispenser, where one of Benkert’s employees was engaged in filling a can with solvent,

possibly without carrying out all of the precautions prescribed to prevent a build-up and discharge of static electricity.

[4] Evidence in the form of witness statements and oral testimony was given by a large number of former Benkert employees and by employees of Rexson including the maintenance engineer who serviced Benkert's dispensers. Three witness statements by former Benkert employees were agreed to be the entirety of their evidence. I accept the evidence of the factual witnesses as credible and, except where I state otherwise in this opinion, reliable.

[5] Expert evidence in the form of written reports and oral testimony was given on behalf of Benkert by:

Mr Daniel Pointon of Burgoynes, consulting scientists and engineers;

Mr Michael Halliday, HSD Safety Ltd, loss prevention consultants; and

Mr Tony Brunton, master plumber.

Expert evidence in the form of a report, supplementary report and oral testimony was given on behalf of Rexson by Mr Peter Reupke of Hawkins, forensic engineers. On 1 February 2021 the expert witnesses held a lengthy telephone conference and provided a very helpful joint report explaining in detail their areas of agreement and disagreement. At the proof the evidence of Mr Pointon, Mr Halliday and Mr Reupke was taken concurrently. I accept that all of the expert witnesses were qualified to provide opinion evidence on the matters contained in their written reports and in their oral evidence to the court.

Description of the dispensers

[6] The ink plant room was at a corner of the main factory area. It had six large storage tanks along one wall. Adjacent to these tanks were the two ink dispensers. In front of the

dispensers in the centre of the room, was a large open area, to allow large drums and containers of ink to be moved around.

[7] The dispensers were of similar design, comprising a shower head type arrangement (the dispenser head) with a large number of valves above an open area. The valves were opened by compressed air. In normal operation, a container would be placed beneath the dispenser head and the operator would then key instructions into the appropriate computer screen to deliver the desired ink or mixture of inks/solvents. The small dispenser was designed to fill can-sized containers and had the dispenser head at about waist height, with a weighing scale below. The large dispenser was designed to allow oversized drums to be filled, using a dispenser head at shoulder height with a weighing scale mounted in the floor beneath.

[8] Each dispenser head was linked to pipes to supply 24 different inks or solvents. The solvents were delivered to valves via a single-pipe pumped arrangement. However, the inks tended to "settle out" giving inconsistent results if the ink was left stationary in the pipes. Consequently, inks were delivered to the valves using a two pipe system allowing each ink to be pumped around a circuit, with only a proportion being drawn off at the dispenser head valves. The circulation pumps were placed adjacent to the tanks or drums in the drum room. They were air driven and designed to deliver up to 6 bar pressure. They ran for short periods and not continuously.

[9] The majority of the solvent delivery and ink collection pipework was formed in stainless steel pipes with screwed connections. However, at the two dispenser heads, the final connections were made using short lengths of flexible rubber hoses. In the large dispenser as initially installed, the flexible coupling hoses were of a plastic or rubber inner hose, surrounded by a woven metal outer sheath. The end pieces were swaged fittings with

machine fitted crimps secured by swivel nuts. By the time of the fire, however, all but three of these hoses had been replaced by EPDM (polypropylene) hoses without an outer woven metal sheath, held in place at either end by jubilee clips holding them on to stainless steel male connections known as ferrules. The connectors in the large dispenser head were closely packed together and covered by a hood which shielded them from view from floor level.

[10] Static electricity creates a risk of ignition of solvents and solvent-based inks. For this reason, static avoidance methods, such as the use of earth clamps on cans and other metal equipment and the wearing of anti-static work clothing and boots, were practised on site. Staff were trained in anti-static precautionary measures.

Maintenance of the dispensers

[11] The large dispenser was installed in 1997 in pursuance of a contract for the purchase of inks entered into between Benkert (then called Interbobbin (UK) Ltd) and an ink manufacturer called Manders Liquid Inks (subsequently Flint Inks). That contract provided for the supply for installation of dispensing equipment, for whose maintenance and repair Manders would be responsible. The equipment, which was bespoke to Benkert's requirements, was manufactured and installed by Rexson, and Manders subcontracted their maintenance and repair obligation to Rexson. The small dispenser was installed in 2002. At that time the agreement between Benkert and Flint Inks was amended: Flint's maintenance obligations ceased and ownership of the large dispenser passed to Benkert. Thereafter Benkert contracted directly with Rexson for programmed maintenance of both dispensers.

[12] Also in 2002 an upgrade was carried out to the large dispenser, increasing the diameter of the flexible hoses to improve flow rate. Rexson's recommendation was to fit

both dispensers with EPDM hoses, covered in a loose stainless steel braiding. As the solvent lines would not affect ink flow, they remained stainless steel-braided PTFE. Benkert accepted the recommendation and the work was carried out towards the end of 2002. However the hoses fitted were EPDM hoses without stainless steel braiding. They were secured to the ferrules by jubilee clips. In 2007 Benkert experienced a problem with ink blockage of four hoses connected to pipes which were being brought back into service after a period of non-use. On the advice of Rexson they replaced the hoses with four new EPDM hoses which were fitted by Benkert engineers. This was the only occasion when hoses were fitted to the large dispenser head other than by a Rexson engineer.

[13] I return to consider the terms of the maintenance agreement between Benkert and Rexson in more detail below. For present purposes it suffices to say that Rexson carried out two services per year. The engineer who usually carried these out was Mr Andrew Dunkley. His work would include checking that all pipe work joints and fittings were tight and that there were no leaks. This would be done by pumping fluid through and observing that there were no leaks, and then a visual check that jubilee clips were not loose. If the jubilee clip and hose were not attached tightly, there would be a very little bit of fluid seepage around the base. He had never known a hose secured by a jubilee clip to work its way off the ferrule. He would also check that all flexible hoses were kink free and tighten swivel nuts if required. He would replace valves as necessary. Mr Dunkley's last visit before the fire was on 1 and 2 April 2009. His work report for that visit records that he replaced three valves on the large dispenser and carried out more extensive work on the small dispenser, including replacing nine valves. He had been due to return in about November 2009 but the fire intervened.

[14] Benkert employed its own maintenance engineers but they were not trained to carry out maintenance of the dispensers beyond flushing out blocked hoses and replacing valves that were not working. The latter was a straightforward operation, carried out from beneath the dispenser head using a special tool supplied by Rexson. It did not require the Benkert engineer to take the cover off the dispenser head or to do anything to the ink/solvent hose connections. The Benkert engineers did not check the hose connections or jubilee clips in the course of their general maintenance activities; they regarded that as a matter for Rexson to attend to under the contract. There was some evidence that on rare occasions a Benkert engineer would tighten a hose connection if there was a leak evidenced by a drip from inside the dispenser head.

Eye witness evidence of the fire

[15] The operative who was at the small dispenser when fire broke out at about 11.25am was Mr Gerald Hastings, who worked on the printing presses. He had come to the ink plant room with a metal vessel to obtain solvent to reduce the viscosity of a batch of ink. (The vessel was variously described as a can or a bucket. I shall use the word "can" because photographs taken after the fire show a vessel akin to a watering can without a spout, with a lid and a hole through which the vessel was filled.) Mr Hastings did not go near the large dispenser. He typed his order into the computer of the small dispenser and, according to his evidence, put the can on a tray under the small dispenser head. He put a funnel into the can and connected the earth clamp. Solvent was dispensed into the can. When the screen display showed "Complete", he bent down to remove the funnel and lift the can. At that moment he heard a sharp bang behind him. He turned round and saw, over his left shoulder, flames on the large dispenser around the hood. The flames, which were at

shoulder height, were yellow and about 1½ feet high. He did not notice any flames on the floor. He left the can where it was and ran through the doorway into the main factory area shouting "Fire". Shortly afterwards the fire alarm sounded and the fire door between the ink plant room and the main factory closed automatically. Mr Hastings could not recall whether he took the earth clamp off the can before hearing the bang, but was adamant that he had put it on.

[16] Mr John Bauld was Benkert's ink plant technician. He worked in a small computer room through the wall from the ink plant room. He was there when he heard a loud thud or bang which sounded like something being dropped off a forklift truck. He went into the ink plant room and could see that the door into the factory was still open. He did not think the fire alarm was sounding. There was no-one in the ink plant room. He saw fire to his left at the large dispenser. The flames were at floor level. They were small and bright orange, about two feet high and spread over an area of a few feet. The floor seemed to be on fire but the dispenser head was not on fire. He was sure that if there had been fire on the dispenser head he would have seen it. He could hear the fire burning. He was only in the ink plant room for a couple of seconds before leaving by a corridor to a fire exit to the yard. He saw the fire team heading towards the fire with extinguishers.

[17] Mr Alex Downie, a maintenance shift engineer, was a member of the company's fire team who had received training in fire-fighting from the fire service and a private agency. He had been taking a break at the smoking area which was at the opposite end of the factory building from the ink plant room. He heard a thump like a paper reel falling. A few seconds later the fire alarm sounded. He was one of the first to arrive at the fire panel which was indicating the ink plant room as the location of the fire. Once the fire team had assembled they walked to the ink plant room; this took less than a minute. There were

about eight members of the fire crew as they approached the fire door. Mr Downie pulled the door open slightly. He saw a ring of flames about 1½ feet high above the large dispenser head. He was not aware of any fire below the dispenser. Three men entered the room with CO₂ and dry powder extinguishers. They doused the flames and backed off out of the room. The fire seemed to be out. Shortly afterwards however there was a second thud, and flames could be seen through a gap at the top of the fire door. It was too dangerous to re-enter and they awaited the arrival of the fire service.

[18] Mr Ian Gilchrist, an ink plant operator, was also out having a coffee break at the smoking area. He did not hear a bang but did hear the fire alarm. It only took seconds to walk to the fire panel and from there to the door into the ink plant room: perhaps a couple of minutes in total after hearing the alarm. He had a dry powder extinguisher. When Mr Downie opened the door, Mr Gilchrist saw flames on the top of the large dispenser, above the dispenser head. He also saw flames on the floor below. The worst fire was on the dispenser head. The flames were yellow/orange with a bit of blue. He went in first and the two men with CO₂ extinguishers followed. The fire seemed to go out and they withdrew but a minute later they heard a whooshing noise. He could see that the fire had restarted and that it was a serious fire.

[19] Mr Eric Dick, whose job was slitting bobbins to size, was also a member of the fire team. According to his witness statement he was one of the men with the CO₂ extinguishers. It would have taken him 1-2 minutes to reach the fire panel. He described the flames as being “around the back of the cisterns” and as “lying on the top of the cistern at the large dispenser”. He could not tell if the fire was on the floor or not. When he gave his oral evidence he could not remember what he had meant by a cistern, or what was on fire on the floor.

[20] The other CO₂ extinguisher was wielded by Mr Matthew Fagan, a laser operator who had heard the bang from the far end of the factory. Seconds later the fire alarm sounded and he made his way to the fire panel where the fire team were assembling. When the door to the ink plant room was opened, the flames were around the head of the large dispenser, not down below. The fire was at shoulder height. Flames were lapping out from the hood.

Post-fire investigation

[21] The fire spread to involve the whole ink plant room and the adjacent reel store before being extinguished. Within the ink plant room all combustible material was consumed.

Mr Pointon made his first visit to the site on 12 November, while the reel store was still burning and in the process of being demolished. Representatives of the police, fire service and HSE were also carrying out investigations on site. Mr Pointon returned on subsequent dates once inspection of the remains of the ink plant room became feasible.

[22] The large dispenser was heavily fire damaged, with most of its non-combustible parts destroyed. The electronic controls and the electrical valve controllers were no longer identifiable. Three earth clips were positioned on an adjacent storage hook with cables still attached. Above the dispenser head, three flexible hoses which were metal-braided with screwed connections at each end had partially survived the fire. The other hoses, which had been connected using jubilee clips to hold the hose ends over ferrules, had been consumed. The connections above the dispenser, between the hoses and the pipes leading to the storage drums, were downward facing and a number of the jubilee clips and hose ends were absent. At the dispenser head itself, the connectors were facing upwards, and the jubilee clips were mainly in place with partially burnt rubber beneath each clip. However, one clip was

absent. It was unclear which ink/solvent this connector served, as the valves were not uniquely numbered. Photographs show a drum directly beneath the dispenser head.

[23] When the debris was removed from the large dispenser head and various clips collected from the surrounding debris, it was apparent that the number of clips collected from the debris was two less than the total number of pipes. It was noted that two pipes had their outlet valves missing. Parts of one valve were found in the debris but it was not clear where the other valve was, nor whether it had been removed pre-fire.

[24] As regards the small dispenser, the flexible hoses were consumed in the fire. Mr Hastings' can was still in place, and a metal funnel was identified on the floor nearby. No remains of any earth clamps were identified on the small dispenser.

[25] The large dispenser head was removed from the fire location by crane and placed on a wooden pallet elsewhere on site for cleaning and further examination. It was inspected there on 30 November and 1 December 2009 by Dr Chris Wareham, a colleague of Mr Reupke. In the course of his inspection Dr Wareham noted that jubilee clips were missing from *two* of the upward facing ferrules.

The cause of the fire

Points of agreement among experts

[26] The joint report of the experts' meeting on 1 February 2021 set out a number of matters of agreement, including the following:

The potential causes of the fire all involve an ignition of flammable vapour from escaping inks or solvents.

Ignitable vapours would not normally be present except immediately adjacent to any flammable liquids in open containers (or spilt), so the incident must have involved

either Mr Hastings' actions in the area where he was working at the small dispenser, or a defect leading to an escape of flammable liquid.

The ignition of a vapour spread over a large area can lead to a "flash", where an ignition of the vapour in one location causes the flame to spread and the fire may then continue in another area where there is additional vapour. It was agreed, however, that the main area for early development of the fire was at the large dispenser head.

The credible ignition sources for the fire are electrostatic discharge, a mechanical spark and an electrical fault. Other ignition sources are discounted as implausible.

The ranking of the most probable to least probable ignition sources depends on a number of factors, the most significant being the electrostatic properties of the EPDM rubber hoses.

For practical purposes, the anti-static properties of braided hoses and anti-static EPDM hoses are similar.

If the hoses were not anti-static, likely ignition sources include electrostatic discharges from a jubilee clip or the escaping liquid, or a mechanical spark from a clip being impacted on a nearby metal object. Less likely but still possible are an electrical fault or another electrostatic event, such as a spark discharge from Mr Hastings. On the other hand, if the hoses were anti-static, ignition by an electrostatic discharge from a jubilee clip is unlikely.

There is an increased risk of a hose separating from its joint if the jubilee clip is absent completely. Failure to attach a clip is not proper and reasonable practice and the absence of a clip should be noticed during an inspection.

An attending engineer would expect to maintain the equipment as found, not to consider the design. It would be the responsibility of the employer to ensure that the fixing was appropriately designed and the engineer was adequately trained.

Detailed service inspections carried out by Rexson at six-monthly intervals would be more likely to detect deficient attachment of a hose with a jubilee clip than a routine inspection carried out by Benkert, if the deficiency was present during the inspection.

The cause according to Benkert

Mr Pointon's report

[27] Mr Pointon acknowledged that physical evidence of the pattern of development of the fire was very limited and that it was necessary to rely upon witness evidence to identify the area of origin. The clearest evidence was that of Mr Hastings, indicating that the fire started at the large dispenser head. The information from the fire team was consistent with this, although Mr Bauld's account was not so clear. The likely explanation for a loud noise, the immediate onset of fire, and the fire burning in two locations was a sudden release of flammable liquid with almost immediate ignition.

[28] The final piece of information was the apparent absence of one jubilee clip from an upward facing connector on the dispenser head. It was extremely unlikely that such a clip would fall from this position or even be dragged from it due to the effects of the fire. The absence of only one clip was remarkable, and the simplest explanation was that the hose end carrying this clip popped off violently while under pressure. This would provide a source of leaking flammable liquid, and the escape of liquid could also provide a source of ignition, either because of static generated by the escaping liquid, or by the clip becoming impacted on adjacent items to generate a spark as the hose end was moved about during the escape.

[29] With respect to electrostatic ignition, it was clear that static was a significant problem on site, especially during dispensing operations. It was possible that Mr Hastings had generated a spark while finishing his work, particularly if he had failed to earth his equipment adequately. However, this would have been likely to ignite the dispensed liquid at the small dispenser, and it was difficult to reconcile this scenario with either Mr Hastings' description of the fire or other witness reports of fire around the large dispenser. It would have been necessary for any such electrostatic spark to not ignite the liquid at the small dispenser, but to ignite vapours from a coincidental leak at the large dispenser, which appeared very unlikely.

[30] If the separation of a hose from a ferrule on the large dispenser was indeed the cause of the fire, this must have occurred due to a defect which was either longstanding, or which developed only shortly before the incident, due to "normal" usage. In general terms, the use of jubilee clips rather than screwed fittings appeared surprising.

Mr Halliday's report

[31] Mr Halliday was critical of the use of both jubilee clips and EPDM hoses. Pulses from the ink pumps would create pressure within the system, which would be greater when the valves at the dispenser head were shut because the kinetic energy had to dissipate. The pulses would test all the connections between the pump outlet and the valves. Small pressure peaks could be expected each time the pump started up, slightly greater on the inlet to the three-way valve than on the return side. Any blockage or restriction caused by ink deposits would result in increased pressure within the upstream pipework.

[32] The absence of a jubilee clip, or an improperly tightened clip, would be a significant concern to the safe operation of the equipment. Without a clip there was nothing but

friction between the flexible hose and male fitting to hold the hose in place. Use of push fitting hoses carrying flammable solvents was bad practice. If the clip was present but under-tightened, it could exert insufficient force to securely grip the hose on to the ferrule. If it was overtightened, its metal edges could damage the fabric of the hose and weaken it.

[33] As regards the use of EPDM hoses, the specification of the hoses used by Rexson in its upgrade of the dispenser made no claim to anti-static properties. Without such properties charge could accumulate on the hose and thereby create opportunities for ignition of vapours by electrostatic discharge.

[34] In these circumstances, Mr Halliday's opinion was that the use of EPDM hoses with no or limited antistatic properties in this dispensing system, in substitution for the original hoses incorporating stainless steel overbraid, was inappropriate. Even if the use of a jubilee clip had been appropriate, any EPDM hose should have been secured in such a way as to prevent it dislodging. If it was found that the EPDM hose had become detached, a spark was probably generated which ignited the ink and led to the fire.

[35] A maintenance engineer exercising reasonable skill and care and having received appropriate training should have identified that use of the non-compliant EPDM hose secured with jubilee clips did not meet the requisite safety standard, and either advised Benkert immediately to replace the arrangement with factory formed steel braided hoses and in-built screw-on connections or sought instruction from his technical superior. If he was instructed only to rectify visible or apparent damage or omissions from the arrangements in place, he should have taken steps to check that all relevant hoses were fitted with appropriately tightened jubilee clips until steel braided hoses could be fitted as a matter of priority.

Mr Brunton's report

[36] In Mr Brunton's opinion, a friction fitting such as a jubilee clip was, in a pressurised system, more likely to become detached than a screwed fixing. While the valve was open there was little or no pressure on the hose connections, but when the valve closed the system pressure would act on the unrestrained hose, placing a momentary drag on the connection. Constant repetition of this action could and often does result in leakage and sometimes complete failure of the connection. The competence of a friction connection, unlike a mechanical connection, was dependent on a number of variables including the cleanliness of the ferrule, the amount of torque applied to the worm screw of the clip, the specification of the hose, and the size and positioning of the clip, all of which made the amount of pressure that the hose and/or the connection could withstand without failing impossible to predict.

[37] An experienced maintenance engineer would, in Mr Brunton's view, make the client aware of the risks of using a friction connection in a system carrying flammable liquids with a tendency to vaporise, highlighting that it was inappropriate and insisting on replacing any damaged or worn hoses with braided hose and swivel nut connectors.

*The cause according to Rexson**Mr Reupke's reports*

[38] As part of his investigation, Mr Reupke carried out various laboratory tests. These included pressure tests on hoses and ferrules supplied to him by Rexson and said to be the same as the EPDM hoses and ferrules used in the large dispenser head at the time of the fire. (As a result of an inspection of the remains of the large dispenser head carried out on the eve of giving evidence, Mr Reupke discovered that the hoses in place at the time of the fire had an internal diameter of 19mm whereas the hose used in his tests had an internal diameter

of 25mm. He did not consider that this invalidated his conclusions.) With a jubilee clip attached and tightened to the minimum, the hose came off the ferrule at 33 bar. Without a clip attached, it came off at 16 bar. Mr Reupke then carried out repeated pressurisation of a new unclipped hose connection to a pressure of between 5 and 7 bar, 50 times in succession. The connection did not fail during the 50 pressurisation cycles, but when pressurised to failure the hose slipped off at 17 bar. Mr Reupke also overtightened a jubilee clip on a hose and then removed the clip to inspect the hose for damage; there was slight tearing which required a low power microscope to detect. Finally, Mr Reupke tested the hose supplied to him for anti-static properties and found it to be semi-conductive and made from anti-static materials. In the course of the joint meeting of experts, Mr Reupke suggested that conductivity may have been provided by the colouring of the hose with carbon black, a good conductor.

[39] In Mr Reupke's opinion, the EPDM hose supplied and fitted by Rexson was suitable for flammable liquids that were sensitive to electrostatic ignition. The use of jubilee clips to clamp hoses on to metal ferrules was appropriate and the joints were unlikely to loosen through vibration or use. It was possible that one or two clips were not attached at the last service in April 2009, but Benkert's staff had worked on the large dispenser head (and thus the hose joints) after that date and it was at least as likely that they left the clips off. Rexson's instructions recommended checking the hose connections every two weeks. A competent person carrying out such checks ought to have seen any missing clips and fitted replacements before putting the machine back into service.

[40] In his supplementary report Mr Reupke considered the possibility that a solvent leak at the large dispenser had created a flammable mix close to floor level which spread beyond the vicinity of the large dispenser and was ignited by an electrostatic discharge when

Mr Hastings touched the earth clip. If Mr Hastings was wearing anti-static shoes with clean soles and the floor was anti-static, there would not have been an incendive electrostatic discharge in this scenario. Conversely, if Mr Hastings was not well earthed through his footwear, it was possible that he generated an electrostatic discharge that ignited the vapour. If the vapour/air mixture near him was lean, he would not necessarily have been affected by the ensuing fire that would flash back towards the richer mixture, creating the more obvious flames at the large dispenser head.

[41] Based on the available evidence, ignition of solvent vapour by a mechanical spark or an electrical fault could not be eliminated. An electrostatic discharge from the escaping liquid was also a possible ignition source.

[42] At their joint meeting the experts considered whether the work being carried out by Mr Hastings was a possible source of ignition. On that occasion Mr Reupke agreed that for ignition arising due to a spark at the work can or at Mr Hastings, the can would probably be ignited and if so would be noticed, although in the case of ignition of lean flammable mixtures, the passage of the flame front is brief and not particularly hot. A static discharge from Mr Hastings to a metal item, or from an incorrectly earthed can, could cause ignition.

[43] In the course of his oral evidence Mr Reupke offered an alternative (or additional) mechanism by which the fire could have been started by a spark caused by Mr Hastings. When Mr Hastings reached for the can he touched something, for example the can, creating a spark which ignited flammable vapour displaced from the can into the atmosphere by the rising level of liquid in the can. As the vapour is denser than air it would form a layer at floor level and spread for some distance in such directions as the configuration of the room allowed. One would see a circular flame spreading across the floor at a low level until it reached another source of vapour at the large dispenser (such as a can of flammable material

or a leak), which it would ignite. This would not necessarily have been prevented by ventilation within the room. The leak could have resulted from a pressure pulse when Mr Hastings closed the valve on the small dispenser causing a hose to fail. The spreading flame would be bluish and it was possible that Mr Hastings did not notice it. The liquid solvent in Mr Hastings' can would be too rich to burn and a low flame burning temporarily at the rim might similarly go unnoticed.

Benkert's response to Rexson analysis

[44] The experts instructed on behalf of Benkert were not convinced that Mr Reupke's laboratory tests had any evidential value. It was not clear that the hoses tested by Mr Reupke were of the same specification as those present in the large dispenser at the date of the fire. The addition of a conductive material was not part of the specification of the hose material, and it could not be assumed that all black hoses were intrinsically electrically conductive. The hoses at site were likely to have been exposed to pressure cycles 100 to 10,000 times greater than the 50 cycles of Mr Reupke's test, and so the testing was not representative of actual use. Mr Halliday considered that the actual peak pressure in the system might be 24 bar, due to pumping. Mr Brunton considered that the minor damage to the hose by an overtightened clip, identified after 50 cycles, was evidence of progressive and rapid failure. Mr Pointon observed that testing could not help to determine whether the incident clip was not tightened, or tightened too much, nor if the clip was missing, nor if lubricant was used during installation, or if the hose was not pushed fully onto the ferrule.

[45] As regards the scenario that the fire was caused by a spark created by Mr Hastings, the experts were of the view that this was not consistent with the evidence. Mr Pointon accepted that if Mr Hastings had failed to attach an earth clamp to the can, there was a risk

of a static charge. He observed however that it required a lot of coincidences in order for a spark caused by Mr Hastings to reach another source of fuel, yet for the fire to be so limited in size that no flames around the small dispenser were observed by anyone. The probability of vapour from the can reaching a flammable mixture several metres away was low. There was nothing to indicate that the drum seen beneath the large dispenser after the fire had contained combustible material; if it had been there to catch drips, solvent would have evaporated quickly and dried ink was not combustible. If vapour emanating from Mr Hastings' can had caught fire, convection would have lifted further material into the combustion zone and the flame would have been maintained and visible to him.

Mr Halliday considered that flames at the neck of the can would almost certainly have been seen by Mr Hastings.

Parties' submissions on the cause of the fire

Submissions for Benkert

[46] There was a broad conjunction of witness testimony that the seat of the fire was at the large dispenser head. It was accepted that it was doubtful that Mr Hastings had connected the earth clamp, but even if a spark was generated by Mr Hastings no fire at the large dispenser would have occurred without leaking ink. The most likely cause of such a leak was that a jubilee clip – the one noted by Mr Pointon to have been missing – popped off while under pressure or was never attached at all. The flammable liquid was ignited either by a static charge created by its violent escape or by the jubilee clip striking adjacent items at the dispenser head as it flailed around. The alternative premise propounded by Mr Reupke, namely that Mr Hastings was the source of a static charge which set light to a cloud of vapour around the flask without alerting him to such an occurrence, was fanciful.

[47] The court could not be confident that the EPDM hose attached by the jubilee clips had had antistatic properties. There was no guarantee that the hose tested by Mr Reupke had the same qualities as the hose fitted at the time of the fire.

Submissions for Rexson

[48] The task of the court was not to decide which was the least improbable cause of the fire. Benkert had to establish the cause of the fire on the balance of probabilities and had failed to do so. It had failed to establish that the fire was caused by an explosion within the large dispenser or, even if it did, that the mechanism of the fire was one for which Rexson was responsible.

[49] The absence before the fire of a jubilee clip from a ferrule was no more than a possibility. There were other explanations for why one clip was found to be missing when Mr Pointon gained access after the fire, for example that it came off during the fire, or was removed or detached by other investigators. There was nothing to make a missing clip more likely than an incorrectly tightened clip. There was no direct evidence of a clip coming away from a hose fitting immediately before the fire. Mr Brunton's theory that a jubilee clip failed due to the incremental effect of pressure pulses over a period of time had no secure foundation. His comparison with a domestic water supply system was inapt. His theory did not explain why it had taken so long for a fitting to fail, or why no such failure had been observed by Mr Dunkley on any similar machine. There was no evidence of the magnitude or frequency of pressure pulses within the system. On the basis that the EPDM hoses supplied by the defenders were semi-conductive, there was no evidential basis for static build up within the hose as being the cause of ignition.

[50] There was stronger evidence that the fire had started at the small dispenser: the fact that it was in use at the time of the explosion; the similarity of Mr Hastings' description to a previous fire in 2007 involving the large dispenser; the presence of solvent vapour around a dispenser after a dispensing operation; the clear evidential indications that Mr Hastings' can was not earthed; the presence of buckets on the floor between the dispensers; Mr Bauld's description of the fire on the floor under the large dispenser; and the existence of potential fuel at the large dispenser even if no hose was ruptured. On the other hand, the evidence that the fire started in the large dispenser was limited and involved a large number of unlikely and unproven events: an absent, under-tightened or overtightened jubilee clip which had failed incrementally over time, and a static ignition at the point of failure at the same time as Mr Hastings touching an unearthed metal container. The observations of the members of the fire team came too long after the fire started to be of assistance.

[51] The experts had identified other possible causes that could not be discounted: an electrical fault within the ink plant room coinciding with a release of vapour; an electrostatic charge generated by a spray of solvent/ink escaping through a leak in a hose unrelated to a connection, for example because the hose had been damaged by a Benkert employee working in the dispenser head; or a failure of a valve in the large dispenser head.

Decision

[52] In *Rhesa Shipping Co SA v Edmunds (The Popi M)* [1985] 1 WLR 948 at page 955, Lord Brandon of Oakbrook made the well-known observation that a judge at first instance is not bound always to make a finding one way or the other with regard to the facts averred by the parties, but has open to him the third alternative of saying that the party on whom the burden of proof lies in relation to any averment made by him has failed to discharge that

burden. Similarly, in *Datec Electronic Holdings Ltd v United Parcels Service Ltd* [2007] 1 WLR 1325 at paragraphs 48 and 50, Lord Mance warned of an inherent risk that a systematic consideration of the possibilities could become a process of elimination “leading to no more than a conclusion regarding the least unlikely cause of loss”. Commenting on these dicta in *Milton Keynes BC v Nulty* [2013] 1 WLR 1183, Toulson LJ observed at paragraphs 34 and 35:

“... (T)he court has to stand back and ask itself the ultimate question whether it is satisfied that the suggested explanation is more likely than not to be true. The elimination of other possibilities as more implausible may well lead to that conclusion, but that will be a conclusion of fact: there is no rule of law that it must do so ...

The civil ‘balance of probability’ test means no less and no more than that the court must be satisfied on rational and objective grounds that the case for believing that the suggested means of causation occurred is stronger than the case for not so believing ...”

[53] Senior counsel for Rexson referred to three recent Scottish decisions in which *The Popi M* had been applied and where it had been held that the pursuer had failed to discharge the onus of proof. In my opinion this is not such a case. Firstly, there is nothing improbable or implausible about either of the principal competing contentions. Secondly, there is at least some circumstantial evidence in support of each of them. In the latter respect the present case differs from those to which senior counsel referred. I am satisfied that I can reach my decision on the basis that the explanation that I prefer is more likely to be correct than not.

[54] In determining the initial source of the fire, the evidence of Mr Hastings is critical. Although his oral evidence was given remotely in unsatisfactory circumstances (he was distracted by domestic commitments), his written statement, which he adopted, was clear: after hearing the bang and turning round, the only place where he saw flames was on the

large dispenser. He did not see flames on the floor and there is nothing in his evidence to suggest that he was aware of any kind of flame in the vicinity of the small dispenser or on the can that he had just filled. I find no reason not to accept his evidence in this regard as both credible and reliable. He was only a short distance from the large dispenser and in a position to observe it without obstruction. Because his observation was made immediately after the noise which all concerned have associated with the event that caused fire to break out, his evidence is the strongest indication of the location of the origin of the fire, namely the large dispenser head.

[55] The next evidence chronologically is that of Mr Bauld. His sight of the fire must have occurred after that of Mr Hastings because he had been in the computer room next door when he heard the bang, and by the time he entered the ink plant room Mr Hastings had gone. His description of flames on the floor is not of itself inconsistent with Mr Hastings' account because in the time between their respective observations burning solvent/ink could have spilled on to the floor. However his evidence that he did not see flames on the dispenser head is not consistent with that of Mr Hastings and the members of the fire team. Possible explanations for this discrepancy are that during the short period when Mr Bauld was observing the scene, the supply of fuel within the dispenser head had temporarily subsided, or that Mr Bauld was mistaken in either his observation or his recollection. I do not find the discrepancy to be of sufficient concern to cause me to doubt the reliability of Mr Hastings' description.

[56] The evidence of the members of the fire team is supportive of Mr Hastings' account but carries less weight. Estimates varied of the time lapse before the arrival of the team at the doors between the main factory area and the ink plant room. I find it likely that it would have taken more than one minute but less than two minutes from the sounding of the alarm,

very shortly after the bang, to the moment when Mr Downie opened the doors and allowed the assembled fire team a view of the fire. There is no doubt that by then the fire had taken hold at the large dispenser head, and it is possible, as described by Mr Gilchrist, that there were also flames below. This evidence is of lesser assistance in pinpointing the initial source of the fire because if the small dispenser had been the initial source the fire would have had time, assuming there to have been a credible path, to spread to the large dispenser before the fire team's arrival. It does however confirm that within about two minutes of ignition the fire was well established at the large dispenser but not at the small dispenser.

[57] I turn then to consider the likelihood of Rexson's alternative mechanism. Given that no earth clamp was found after the fire in the vicinity of the small dispenser, I find that it is more likely than not that Mr Hastings did not attach a clamp prior to carrying out his dispensing operation, and that it was therefore possible for a spark to be caused by discharge of electrostatic energy when Mr Hastings reached for the can. (A discharge could not have been caused by splashing within the can if, as Mr Hastings narrated, the dispensing had been completed.) However, the remainder of his evidence, which I accept, is not consistent with the initial ignition occurring at the small dispenser. The first indication he reported was the bang, loud enough to have been heard by some employees at the other end of the factory, which came from the vicinity of the large dispenser. If the ignition of solvent vapour at the large dispenser had been caused by flames spreading across the floor from the small dispenser, there would have to have been fire present at the small terminal before the bang. The time taken for the fire to reach the floor beneath the large dispenser might have been very short, but Mr Hastings cannot have failed to see a fire where he was working at the small dispenser because he was distracted by a more dramatic fire already burning at the large dispenser. On the contrary, the first indication of fire that he would have had would

have been the presence of flame at or around the neck of the can which he was reaching to pick up, and I find it extremely unlikely that he would not have noticed it.

[58] I am also unpersuaded that a likely physical pathway between an initial fire at the small dispenser and the fire that took hold at the large dispenser head has been established. The evidence relied on by Rexson was the presence of buckets in the ink plant room as shown in photographs taken after the fire, including a bucket directly beneath the large dispenser head. The reason why that bucket was there, assuming it also to have been present before the fire, was unexplained. So far as can be discerned from the photographs it was not full of any liquid. Mr Pointon recalled being told that it had been there to catch drips. Benkert's ink plant operators agreed that it was bad practice to leave buckets containing ink or solvent in the ink plant room. Although the small dispenser had been used several times during the morning for the dispensing of inks and solvents, the large dispenser had last been used at 6.58am, more than four hours before the fire, for the dispensing of a solvent. There is no evidence to connect the bucket in the photographs with that operation. Any solvent vapour created during that operation would have dispersed before the time of the fire. As Mr Pointon explained, any ink in the bucket would not have been combustible. I find that the bucket beneath the dispenser head did not provide a pathway for flame to move to the large dispenser head from any ignited solvent vapour spreading away from the small dispenser at floor level. There was no evidence of how any other bucket present in the ink plant room could have contributed to the outbreak of fire.

[59] Having determined that the source of the fire was the large dispenser head, the next step is to consider whether the cause was a leak of solvent or ink/solvent from a loosened hose or something else. There was no plausible evidence of any cause other than such a leak. A possibility that had occurred to Mr Reupke during his inspection of the remains of

the large dispenser head on the day before he gave his evidence, namely that a valve fell out, can be disregarded in the light of the explanation given by Mr Pointon, accepted by Mr Reupke, of the mechanism by which valves were held in place by washers all of which were present after the fire. Another theoretical possibility, that of a leak in a hose unrelated to a connection to the dispenser head, has no evidence to support it.

[60] On the other hand the absence of a jubilee clip from one of the ferrules after the fire constitutes credible evidence that the solvent vapour that caught fire escaped because a hose came loose. I accept the opinion of the three expert witnesses for Benkert that a cycle of pressure pulses, repeated many thousands of times, could cause a hose fitted with an under-tightened clip, or with its clip missing, to work its way loose and then suddenly come off, and I find that it is more likely than not that that is what happened. On this scenario the event that caused the ignition was not a spark created by Mr Hastings' failure to fit an earth clamp but the closing of the valve on the small dispenser which, whether alone or (as suggested by Mr Halliday) in combination with a pulse from the pump, produced an increase in pressure which caused the vulnerable hose to separate from the ferrule. Whether the spark that ignited the escaping vapour was caused by electrostatic charge from the liquid or by the clip striking a surface within the dispenser head is not the critical issue and there is no need for me to make a finding in that regard; either way there was a spark and a source of fuel, both caused by the hose working loose.

[61] It is impossible to exclude altogether the alternative explanations suggested by Rexson for why a ferrule without a clip was found by Mr Pointon after the fire. However, Mr Reupke agreed that it was unlikely that it came off during the fire, whether by being pushed off by water from a fire-fighting hose or otherwise, and it is entirely speculative to suggest that it was removed or detached, for no apparent reason, by another investigator. I

therefore accept Mr Pointon's view that the absence of the clip is a significant admixture of evidence that a hose detached from the dispenser head before the fire, and was the likely cause. I reject Rexson's contention that Mr Brunton's theory does not explain why it took so long for a connector to fail. The mechanism propounded is one of multiple pressure events acting (on this hypothesis) on a vulnerable connection. The degree of pressure would vary according to whether, for example, a pulse from the pumps coincided with the closing of a valve, and the extent of any ink blockage in the return system, and as such would be unmeasurable by post-fire testing. It is not in dispute that such pressure events did occur, and that they provide a credible explanation of why a hose with an under-tightened clip or no clip could eventually work loose.

[62] Mr Dunkley's evidence was that he had never seen a hose secured by a jubilee clip come loose in the manner described by Benkert's expert witnesses. I have no reason to reject Mr Dunkley's evidence in this regard but the problem is that it does not address the situation of a defectively-attached hose whose propensity to fail is not predictable on the basis of past experience. Mr Dunkley also disagreed that the operation of valves caused surges of pressure and release, on the basis that the system was not closed and ink not flowing through an open valve would simply return to the barrel. He did, however agree that a blockage on the return line would create a build-up of pressure. I do not therefore regard his evidence as casting doubt on the mechanism described by Benkert's expert witnesses whereby pressure could be exerted on connections by regular pulses created by the pumps and/or by the closing of valves.

[63] I am unable on the evidence to make a finding as to whether the EPDM hose that came loose had anti-static properties. The results of Mr Reupke's tests are not, in my view, conclusive of this issue. The fact that the specification of the hose made no mention of it

being anti-static suggests that the fact that the specimen tested by Mr Reupke was semi-conductive was a matter of good fortune rather than design. If indeed the semi-conductivity of the tested hose was caused by carbon black colouring, it cannot be presumed that the colouring adhering to the hoses fitted at the time of the fire was sufficient to bestow anti-static properties, although it may have done. The point is not critical because ignition could have occurred as a consequence of the electrostatic charge of the escaping liquid regardless of the properties of the hose.

Was the fire caused by Rexson's fault/breach of contract?

Submission for Benkert

[64] On behalf of Benkert it was submitted that if the court accepted that the fire happened because a flexible hose became detached from the large dispenser, and would not have happened if Rexson had used a swaged/swivel nut fitting, this alone rendered Rexson liable to Benkert for losses incurred as a result of the fire. The risk of fire from an escape of flammable liquid was well known. It was also known that a jubilee clip could come off without warning and that the safety of a swaged/swivel nut fitting was superior. In these circumstances the use of jubilee clips was not a reasonable and recognised alternative to a swaged fitting, as originally specified and installed, where inks and solvents were being transported. It was significant that the system installed when the factory was rebuilt after the fire reverted to the original specification.

[65] The above defects were so acute and obvious that any service engineer exercising reasonable care and skill ought to have recognised this and taken remedial steps. The service engineer should have advised Benkert to revert to the previous safer and more robust hose and connection methodology. Any failure or refusal to follow this advice

would, according to Mr Brunton, have to be in writing and signed by Benkert. As a consequence of these failures, Rexson were liable to make reparation to Benkert for losses sustained as a result of the fire.

[66] Benkert's case was not one of faulty design. It was based on failure of the engineer carrying out regular maintenance to identify the avoidable risks created by the use of jubilee clips and EPDM hoses and to recommend their replacement by swaged fittings. Nor was it a case against the engineer personally: it was that Rexson had failed properly to train the engineer to identify the fire risk where the hoses were carrying highly flammable liquids, and where there was an obvious safe alternative. There was no good reason to leave the less safe alternative in place.

Submission for Rexson

[67] On behalf of Rexson it was submitted that if the cause of the fire was a missing clip, the evidence did not establish that this had been the result of a failure by Mr Dunkley. He had not been challenged in his evidence that he carried out visual checks of hoses and connectors. There was evidence of Benkert employees replacing hoses in 2007 and, importantly, in May 2009 after Mr Dunkley's last visit. Benkert engineers would tighten jubilee clip connections if there was a leak at the dispenser head. The court could not therefore be satisfied that an absent clip was not due to the fault of a Benkert employee. The same applied if the fault alleged was over- or under-tightening of the clip.

[68] Benkert's case involved a comparison between the advantages of a swaged fitting over a jubilee clip connection. It was accepted that the experts agreed that a swaged fitting was less likely to detach than a jubilee clip connection, but the crucial issue was whether a reasonable maintenance engineer ought to have recommended changing the fitting. That in

turn depended on whether a reasonable maintenance engineer ought to have concluded that a jubilee clip fitting was unsafe within this system. There was no evidence that it was. No published guidance had been produced indicating that jubilee clips were not recommended for this type of connection. There was no evidence of well publicised incidents caused by failure of these types of connections. Benkert itself was content to use jubilee clips on the flexible hose sections within the drum room where the same products were being transported at the same pressure as in the dispenser head. In any event the appropriate comparison was between a properly constructed and applied swaged fitting and a properly constructed and applied jubilee clip connection. As regards the EPDM hoses, on the basis that they were semi-conductive there was no basis for the criticism that the hose was an inappropriate type which Mr Dunkley ought to have advised against using.

Decision

[69] Benkert disavows any attempt to present a case based upon negligent design. Its case as pled and as argued after proof is founded upon failure by Rexson's service engineer, in the course of performing Rexson's contractual maintenance obligations, to recommend replacement of all EPDM hose/jubilee clip connections at the dispenser head with swaged fittings. In my opinion the facts and circumstances of the case allow such a case to be presented. The reasons why EPDM hoses and jubilee clips were deployed for ink lines in 2002 instead of swaged/swivel nut connections is not clear but may have been related to ease of replacement in the event of leaks. It does not appear to have been a carefully-considered design decision and as such was, in my opinion, a matter falling within the scope of review when routine maintenance was carried out by Rexson. I am also in no doubt that Benkert relied upon Rexson for maintenance of the dispensers and that Benkert engineers

were not expected to, and did not, exercise independent judgment in assessing the safety of the system installed and maintained by Rexson.

[70] I am satisfied that use of EPDM hoses and jubilee clips was, putting the matter at its lowest, sub-optimal. The difference, as I see it, between swaged/swivel nut fittings on the one hand and the use of hoses with jubilee clips on the other lies in the capacity for something to go wrong. Once correctly fitted, a swaged fitting will not be susceptible to loosening by pressure pulses from pumps or valves. While it is obviously possible for the nut on a swaged fitting to be tightened incorrectly or inadequately, this would be immediately evidenced by a leak, and could be remedied by re-fitting the connection. In contrast, an under-tightened jubilee clip might not be immediately apparent or indeed apparent at all until shortly before failure. Equally, there is no equivalent in the case of a swaged/swivel nut fitting of the risk of a clip being omitted altogether. The potentially catastrophic consequences of a hose detaching are and were at all material times well recognised. Having regard to all of these factors, I conclude that use of EPDM hoses and jubilee clips was at the time of the fire more than merely sub-optimal: it created a risk of fire sufficient to impose upon Rexson, as the entity contractually responsible for maintenance of the system, a duty to remove the risk by recommending replacement of the installed hoses and clips by swaged fittings as had been used during the period before the 2002 upgrade.

[71] As to the possibility that an employee of Benkert had been responsible for creating the connection that failed, whether by under-tightening the jubilee clip or by failing to fit a clip, I accept that this possibility cannot be eliminated because there was some evidence suggesting that Benkert engineers occasionally replaced hoses to eliminate leaks from the dispenser head. However, as with all other matters I require to apply the standard of balance of probabilities. Rexson founded in particular on an entry in Benkert's maintenance

record for 17 May 2009 (after Mr Dunkley's last visit) seemingly made by George Mitchell, an engineer, stating "Replaced blocked hose at dispenser for German yellow". Mr Mitchell died about four years ago without any witness statement having been taken from him.

Assuming that the entry is correctly interpreted as narrating that Mr Mitchell had replaced one of the EPDM hoses secured by jubilee clips inside the large dispenser head, there is no way of knowing whether that work was carried out at the connector found to lack a clip after the fire, and no evidence from which to infer that it was. Having regard to the large number of connectors within the dispenser head, the probability must be that it was not.

[72] For these reasons I hold that Rexson, through its engineer, was in breach of its contractual and common law duty to Benkert in failing to recommend to Benkert, in the course of performance of its contractual maintenance obligations, to replace the EPDM hoses and jubilee clips in the large dispenser head with metal braided hoses with swaged/swivel nut fittings, and that the fire occurred as a consequence of that breach.

Contributory negligence

[73] On behalf of Rexson it was submitted that if it was liable to any extent for the fire, a substantial portion of liability lay with Benkert, in respect of its failure to carry out regular inspection of the hose connections as recommended by HSE guidance and by Rexson's user manual. The dispenser system user manual included a paragraph on "Hoses" which stated inter alia "Check that the dispensing unit hoses do not leak, become damaged or flattened". The annual standard maintenance agreement obliged Benkert to carry out routine day to day preventative maintenance measures. The monthly maintenance log required a visual check within the dispenser for leaks, and for chafing and kinks. The monthly and yearly preventative maintenance checklist also stated "Check all fluid pipe runs and fittings for

obvious signs of leaks and tighten/adjust as required (Yearly)". Health and Safety Executive guidance stated in relation to flexible hoses "Inspect them on each day they are used for signs of leaks, wear and mechanical damage". There was no evidence that any such steps had been taken. Had Benkert complied with the terms of Rexson's advice and their service agreement obligations, it was likely that any absence or creeping failure of a jubilee clip would have been detected and could have been rectified. In these circumstances, a finding of contributory negligence in the range 50-75% would be appropriate. It was accepted that only failures by Benkert in the period since Mr Dunkley's last maintenance visit were relevant to the issue of contribution.

[74] In my opinion no case of contributory negligence has been established. As Rexson (in my view correctly) accepted, any failure giving rise to fault on the part of a Benkert employee would have to have occurred during the period between Mr Dunkley's visit in April 2009 and the fire in November 2009. There is no evidence to suggest either that a jubilee clip was removed – or not fitted – during that period or that a creeping failure which ought to have been obvious to an engineer with no specific training at some date during that period would not have been obvious to Mr Dunkley in April 2009. I have already found that, in so far as the maintenance record suggests that a hose was replaced by Mr Mitchell, there is no reason to conclude that this contributed to the outbreak of the fire. As regards the obligation to "check all fluid pipe runs and fittings for obvious signs of leaks and tighten/adjust as required (yearly)", Benkert were in my opinion entitled to regard this as a matter to be attended to by Rexson during their twice-yearly service visits.

Limitation of liability

The maintenance contract

[75] As I have already mentioned, from 2002 Benkert contracted directly with Rexson for maintenance and repair of the ink dispensers. With effect from 2005, this was put on to a more formal annual basis, in terms of which Rexson undertook to provide two routine maintenance visits per year, and to repair any defects discovered in the course of those visits or reported by Benkert. It was Rexson's practice to require the contract to be signed on behalf of Benkert before the engineer carried out any work.

[76] The maintenance contract extant at the time of the fire was entered into on 30 March 2009, immediately before Mr Dunkley's visit. It was signed on behalf of Benkert by Mr Rolf Maitland, Benkert's production manager. In all material respects it was in the same terms as the contracts entered into in each year since 2005 which had also been signed by Mr Maitland; as before the contract provided for two service visits and the carrying out of any necessary repairs. The agreement ran to nine pages (in a normal point size) including a title page, a schedule and a signature page, and was on terms produced by Rexson.

Clause 5.3, on the sixth page, stated as follows:

"THE CUSTOMER'S ATTENTION IS SPECIFICALLY DRAWN TO THE PROVISIONS SET OUT BELOW:

5.3.1 the Company's total liability in contract, tort, misrepresentation or otherwise arising in connection with the performance or contemplated performance of the Services shall be limited to the Basic Charge; and

5.3.2 the Company shall not be liable to the Customer for any indirect or consequential loss or damage (whether for loss of profit, loss of business or otherwise), costs, expenses or other claims for consequential compensation whatsoever and how so ever caused which arise out of or in connection with this Agreement."

The “Customer” is Benkert; the “Company” is Rexson. The Basic Charge was defined in clause 1.1 as “the annual maintenance charge to be paid by the Customer to the Company as specified in the Schedule”. The Schedule specified a Basic Charge of £3,225.06, payable in two 6-monthly instalments of £1,612.53. Clause 10.1 stated that English law applied to the agreement.

[77] Mr Maitland did not read the contract in detail. He had no specific memory of reading clause 5.3. He did not refer the contract for scrutiny by anyone else or seek legal advice on its terms. At the time when the maintenance contract passed from Flint to Benkert, he had asked whether it was the same contract that Flint had had for the dispensers and was told that it was. He regarded it as Rexson’s standard documentation and gave no thought to whether the terms might be open for negotiation. He had not considered the possibility of engaging a different company to carry out routine maintenance; Rexson had supplied the machines and it was appropriate for Rexson to service them.

[78] Mr Neil Sharpe, who at the material time was Benkert’s financial director, confirmed that it was the company’s policy to contract with the manufacturers of particular equipment to maintain that equipment. There had never been any need to attempt to find an alternative supplier for maintenance of the ink dispensers, although it would have been possible to do so. Benkert would not have thought that it was possible to negotiate the terms of the contract with Rexson; it had similar contracts in place with other suppliers who usually tried to limit their liability to the amount of income from the contract, and Benkert did not tend to discuss this. Mr Sharpe had probably looked at the 2005 contract, including the limitation of liability clause. Negotiability was never tested. It was the company’s practice to ask regular contractors to provide details of their liability insurance cover, although he could not say whether this had been done in relation to Rexson before 2009.

The catastrophe that occurred had never been envisaged. Benkert had its own insurance in place, arranged through a broker by Mr Sharpe. At the time of the fire, Benkert's annual turnover at the Alva plant was around £25-30 million.

[79] Mr Darren Kennedy, Rexson's finance director, explained that the agreement limited Rexson's liability because indemnifying against the full extent of potential liability would have materially increased the cost of the service provided to customers such as Benkert. If, hypothetically, Benkert had sought to negotiate the terms of the contract, Rexson would have discussed them and sought to reach a modified agreement to mutual satisfaction. It would not give a flat "no" to a customer's request. In one case a contract had been amended because the customer did not wish Rexson's maintenance duties to extend to a particular part of a system supplied, and the contract price was reduced accordingly. He could not recall any other example of a negotiation of contractual terms as opposed to price.

[80] A letter "to whom it may concern" dated 1 July 2009 from a firm of insurance brokers to Rexson was produced. The letter listed all the insurances that Rexson had in force for the coming year, including public/products liability with an indemnity limit of £5,000,000 for any one occurrence.

The law

[81] The Unfair Contract Terms Act 1977, as amended, contains provisions applicable only to England and Wales, provisions applicable only to Scotland, and common provisions. The applicable law in this case is English law and reference is therefore made here to the English and common provisions. It was not contended by either party that there was any material difference for present purposes from the Scottish provisions.

[82] So far as material, section 3 of the 1977 Act provided as follows:

“(1) This section applies as between contracting parties where one of them deals ... on the other’s written standard terms of business.

(2) As against that party, the other cannot by reference to any contract term —

(a) when himself in breach of contract, exclude or restrict any liability of his in respect of the breach...;

except in so far as ... the contract term satisfies the requirement of reasonableness.”

It is not disputed that the parties contracted on Rexson’s written standard terms of business, so the condition in section 3(1) is satisfied.

[83] Section 11, entitled “The ‘reasonableness’ test”, stated inter alia:

“(1) In relation to a contract term, the requirement of reasonableness for the purposes of this Part of this Act ... is that the term shall have been a fair and reasonable one to be included having regard to the circumstances which were, or ought reasonably to have been, known to or in the contemplation of the parties when the contract was made.

(2) In determining for the purposes of section 6 or 7 above whether a contract term satisfies the requirement of reasonableness, regard shall be had in particular to the matters specified in Schedule 2 to this Act ...

...

(4) Where by reference to a contract term or notice a person seeks to restrict liability to a specified sum of money, and the question arises ... whether the term or notice satisfies the requirement of reasonableness, regard shall be had in particular (but without prejudice to subsection (2) above in the case of contract terms) to —

(a) the resources which he could expect to be available to him for the purpose of meeting the liability should it arise; and

(b) how far it was open to him to cover himself by insurance.

(5) It is for those claiming that a contract term or notice satisfies the requirement of reasonableness to show that it does.”

[84] Although section 11(2) above does not expressly require regard to be had to the matters specified in Schedule 2 to the Act in determining whether a term satisfies the requirement of reasonableness for the purposes of section 3, there is authority that they are

relevant and ought to be taken into account: see eg *Overseas Medical Supplies Ltd v Orient*

Transport Services Ltd [1999] 2 Lloyd's Rep 273, Potter LJ at paragraph 10. The matters in

Schedule 2 potentially applicable to the present case are:

- (a) the strength of the bargaining positions of the parties relative to each other, taking into account (among other things) alternative means by which the customer's requirements could have been met;
- (c) whether the customer knew or ought reasonably to have known of the existence and extent of the term (having regard, among other things, to any custom of the trade and any previous course of dealing between the parties); and
- (e) whether the goods were manufactured, processed or adapted to the special order of the customer.

[85] From English case law on the 1977 Act I derive the following further guidance

relevant to the circumstances of the present case:

- In applying the reasonableness test, the court must entertain a whole range of considerations, put them in the scales on one side or the other, and decide at the end of the day on which side the balance comes down: *George Mitchell (Chesterhall) Ltd v Finney Lock Seeds Ltd* [1983] 2 AC 803, Lord Bridge at 814-5.
- In relation to the question of equality of bargaining position, regard should be had not only to the question of whether the customer was obliged to use the services of the supplier but also to the question of how far it would have been practicable and convenient to go elsewhere: *Overseas Medical Supplies Ltd* (above), Potter LJ at paragraph 10.
- In cases of limitation rather than exclusion of liability, the size of the limit compared with other limits in widely used standard terms may also be relevant: *ibid.*

- The ease with which one or other of the parties could obtain insurance is an important factor: *Goodlife Foods Ltd v Hall Fire Protection Ltd* [2018] EWCA Civ 1371, Coulson LJ at paragraphs 64-7.

Arguments for the parties

[86] On behalf of Benkert it was submitted that for the following reasons Rexson had failed to prove that the limitation of liability to the Basic Charge in clause 5.3 satisfied the requirement of reasonableness. Rexson had £5,000,000 of indemnity cover; this was notified to Benkert. It was reasonable to infer that Rexson's insurance costs would be passed on to its customers who could then benefit to the full extent of the cover. There was no evidence that Rexson had fixed the Basic Charge on the basis of deciding not to incur the cost of insurance against the risk of their negligence or breach of contract causing losses to third parties. Despite its financial position, Benkert did not have equality of bargaining position. The equipment was specialist and adapted for use by Benkert in a hazardous working environment. Benkert was reliant upon Rexson's expertise to maintain and repair the dispensers. Its ability to bargain was limited as it was sensible to take advantage of the original supplier's specialised knowledge. The contracts were routed to Mr Maitland, a production manager and not a skilled negotiator who did not read the terms, having been told that the contract was in the same terms as Rexson's previous contract with the ink supplier Flint. There was no evidence that the pursuer could have contracted with another maintenance company on terms which avoided a similar limitation of liability. There was no evidence that Benkert employed limitation of liability clauses.

[87] On behalf of Rexson it was submitted that it was fair and reasonable to incorporate and now rely on the limitation of liability clause. There was no imbalance of bargaining

power; Benkert was a substantial commercial organisation. Rexson did not have a monopoly on the servicing of these machines. While a preference to employ Rexson to service machinery which it designed was logical, Benkert had other options: it could service its own machines or employ other companies. No inducements were made to Benkert for the servicing contract. The clause was made prominent in the service agreement, with the customer's attention drawn to it. It was not hidden away in a lengthy document. There had been a course of dealing between the parties during which the terms of clause 5.3 had remained constant. There had been repeated opportunities for Benkert to indicate any unhappiness with the clause and to propose changes. Rexson had been open to negotiation if a customer had sought it. As regards insurance, Benkert benefited from a reduction of costs linked to the limitation provision. According to Mr Sharpe, Benkert was familiar with clauses in which liability was limited to the cost of services and accepted such clauses from other suppliers without challenge.

Decision

[88] In *Goodlife Foods Ltd v Hall Fire Protection Ltd* (above) at paragraph 35, Coulson LJ, with whom the other members of the Court of Appeal agreed, drew a distinction between two separate issues, namely (i) whether a limitation of liability clause was particularly unusual or onerous and, if so, whether it had been fairly and reasonably drawn to the attention of the other contracting party, so as (at common law, applying the "ticket" cases) to be incorporated into the contract; and (ii) if the clause was incorporated into the contract, whether it failed the reasonableness test in the 1977 Act. Matters such as whether limitation of liability to a modest contract price was not regarded by the courts as particularly onerous or unusual (paragraph 35) and the prominence of the clause within the contract

(paragraph 53) were addressed in *Goodlife Foods Ltd* within the first issue. It is, however, to be recalled that the question whether the customer knew or ought reasonably to have known of the existence and extent of the term is also one of the matters mentioned in Schedule 2 as relevant to the requirement of reasonableness.

[89] In the present case no submission was made on behalf of Benkert that clause 5.3 was not incorporated into the maintenance agreement due to inadequate notice of an unusual or onerous term. Had such a submission been made, I would have rejected it. As the case law demonstrates, clauses limiting a supplier's liability to the contract price are not regarded by the courts as especially onerous or unusual. In any event the clause was in my view given sufficient prominence in the maintenance agreement which in effect ran to only six pages of normally sized and spaced print plus a short schedule, and in which clause 5.3 was prefaced by a warning in underlined capital letters.

[90] In carrying out the balancing exercise required in accordance with *George Mitchell (Chesterhall) Ltd v Finney Lock Seeds Ltd* (above), I have taken account of the following considerations.

Insurance

Section 11(4)(b) requires me to have regard to how far it was open to Rexson to cover itself by insurance. It is not in dispute that Rexson carried public liability insurance for a sum far in excess of the limit which it sought to impose on its liability. Even that sum, however, is only a fraction of the agreed quantum of Benkert's claim.

There was no evidence as to whether Rexson could have covered itself for the full amount of the present claim or, if so, on what terms and with what consequences for the price charged to customers such as Benkert. The 1977 Act does not expressly require regard to be had to the availability of insurance cover to the other party to

the contract, but in my opinion that too is an important though not decisive consideration. As a matter of fact Benkert did carry insurance: in agreement with Coulson LJ in *Goodlife Foods Ltd* (at paragraph 81) I consider that it would be unrealistic to ignore the fact that the present claim is a subrogated claim by Benkert's insurers. Although it was foreseeable at the time when the maintenance agreement was entered into that a fire caused by a fault in the ink dispenser system could have catastrophic consequences, it seems to me that Benkert were in a much better position than Rexson to assess the size of the potential claim for losses including partial or total destruction of the factory and lengthy business interruption. In this regard the balance, in my view, favours Rexson being permitted in essence to say to Benkert: we will not accept liability for losses which for us are impossible to quantify; it is up to you to make whatever insurance arrangements you think necessary. Nor do I see any reason why there should be a match between the limitation of liability and the limit of Rexson's public liability cover; on the one hand, the public liability cover will extend to matters not addressed in contracts with its customers, and on the other there would still remain the possibility, as unfortunately happened here, that the losses incurred would far exceed the limit of the cover.

Customer awareness

Although Mr Maitland gave no consideration to the limitation of liability in clause 5.3, Mr Sharpe was familiar with clauses of this type and had probably been aware that there was one in the Rexson contract. In any event, as already noted, Rexson took steps to give the clause prominence in an agreement that was neither

lengthy nor difficult to read. It had appeared in several previous agreements between the parties and had thereby come to form part of their course of dealing. In this regard too, therefore, I consider that the balance favours the requirement of reasonableness having been satisfied.

Equality of bargaining power

Although Mr Kennedy stated that Rexson was open to negotiation with customers in relation to contractual terms, the only example he could offer was price-related and not analogous with limitation of liability. In my judgment it is very doubtful that Rexson would have agreed to remove or amend the limitation of liability clause had Benkert asked them to do so. Either of these courses would have left Rexson exposed to (from its point of view) unquantifiable uninsured losses, and it seems more likely that Rexson would have declined, leaving Benkert with the choice of accepting the limitation or taking its business elsewhere. I accept that for Benkert the latter was a realistic possibility, although there were sound practical reasons for engaging the supplier of the machinery to carry out its routine maintenance and to investigate any problems arising. It would no doubt have been inconvenient to attempt to seek out an alternative supplier of maintenance services. That, however, was a commercial judgment for Benkert to make, and I do not regard the desirability of contracting with Rexson as amounting in itself to an indication of lack of equal bargaining power. There was no evidence of whether any alternative supplier would also have sought to limit its liability. In these circumstances I find bargaining power to be essentially neutral in the balancing exercise.

Adaptation to the special order of the customer

The dispensers were to some extent tailored to meet Benkert's requirements. That did not, however, preclude Benkert from making arrangements for their maintenance which did not involve engaging Rexson. According to Mr Kennedy, most of Rexson's customers maintained their own equipment. Again, therefore, I find nothing in relation to the bespoke nature of the machinery to affect the reasonableness of the limitation of liability.

[91] For these reasons I hold that, on application of the balancing exercise, Rexson has discharged the onus of demonstrating that the limitation of liability in clause 5.3 was fair and reasonable having regard to the circumstances which were, or ought reasonably to have been, known to or in the contemplation of the parties when the maintenance agreement was entered into on 30 March 2009. Rexson's liability in respect of Benkert's losses is accordingly limited to the sum of £3,225.06.

Disposal

[92] As I have held that Benkert is entitled only to the sum of £3,225.06, the question of entitlement to interest arises for determination. As requested by counsel at the proof, I shall put the case out by order before pronouncing an interlocutor, in order to be addressed on interest, expenses and any other matters arising from my opinion.