Neutral Citation Number: [2011] EWHC 2847 (TCC)

Case No: HT 09 273 & HT 09 474

IN THE HIGH COURT OF JUSTICE
QUEEN'S BENCH DIVISION
TECHNOLOGY AND CONSTRUCTION COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 03/11/2011

Before:

MR JUSTICE EDWARDS-STUART

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Between:

MILTON KEYNES BOROUGH COUNCIL	**1st Claimant**
- and -	
(1) MICHAEL NULTY (deceased) **(2) WING BAT SECURITY LIMITED (Formerly known as DBI SUPPORT SERVICES LIMITED) (In Liquidation)** **(3) NATIONAL INSURANCE AND GUARANTEE CORPORATION LIMITED**	**Defendants**

And Between:

NATIONAL INSURANCE AND GUARANTEE CORPORATION LIMITED	**2nd Claimant**
- and -	
(1) MICHAEL NULTY (deceased) **(2) MILTON KEYNES BOROUGH COUNCIL**	**Defendants**

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Mr Andrew Rigney QC (instructed by **Clyde & Co**) for the **Claimant** in action HT 09 273
Mr Graham Eklund QC and Mr Nigel Lewers (instructed by **Berrymans Lace Mawer**) for the **Claimant** in action HT 09 474

Hearing dates: 19 – 28 July 2011

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Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

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MR JUSTICE EDWARDS-STUART

Mr Justice Edwards-Stuart:

Introduction

1. These proceedings arise out of two fires that occurred on 2 and 3 April 2005 at a recycling centre near Milton Keynes ("the centre"), the second of which caused very substantial damage to the centre and its contents amounting to about £4.5 million. There was also a further small fire that broke out five days later, on 8 April 2005. The Claimant, the Milton Keynes Borough Council ("the Council"), owns the centre but sub-contracts its operation. There are two parallel actions. In the first action, the issues are what caused the first fire and whether the first fire caused the second fire. The only defendant against whom that action is continued is the First Defendant, Michael Nulty, a self employed electrical engineer.

2. The second set of proceedings has been brought by Mr Nulty's liability insurers, the National Insurance & Guarantee Corporation Ltd ("NIG"). The Council's case in the first action is that the first fire was caused by a cigarette end, carelessly discarded by Mr Nulty, but this is contested by NIG. In the second set of proceedings NIG contends that Mr Nulty was in breach of the requirement of his policy to give prompt notice of any circumstance likely to give rise to a claim and that, as a result, it has been seriously prejudiced in its ability to contest Mr Nulty's alleged liability for causing the first fire. I shall refer to this as the coverage dispute.

3. Unfortunately, Mr Nulty died in December 2010 and has therefore been unable to defend himself in these proceedings. Instead, the defence on his behalf has been effectively conducted by NIG even though it has its own separate claim against Mr Nulty. At a pre-trial review that was heard on 14 June 2011 it was ordered by Akenhead J that the trial of these actions should proceed in the absence of any person representing Mr Nulty's estate. I should explain at this point that the limit of indemnity in Mr Nulty's liability policy is £2 million and the Council's building insurers, who are bringing this claim by way of subrogation in the name of the Council, have made it clear that they will only seek to enforce any judgment obtained against Mr Nulty up to the limit of indemnity of £2 million and no further. Accordingly, Mr Nulty's estate is not exposed to any risk of enforcement against it.

4. In the first set of proceedings it is common ground that there are only three candidates for the cause of the first fire. First, a cigarette end carelessly discarded by someone smoking in the area where the fire started. Second, arcing from a live electric cable. Third, arson by an intruder. As I have said, the Council alleges that the fire was caused by the first of these, and that it was Mr Nulty who was to blame. NIG contends that if the fire was caused by a carelessly discarded cigarette, then it could equally well have been discarded by someone else. But its primary case is that the fire was caused by electrical arcing or, alternatively, by an intruder.

5. NIG contends further that the second fire had nothing whatever to do with the first fire, but was probably caused by an intruder. The relevance of the third fire, which was fairly minor, is that it is not really in issue that it was the result of a failure to extinguish the second fire properly. In these circumstances the Council contends that the second fire was caused in the same way. Whilst I refer to contentions made by NIG, I must make it clear at the outset that the burden of proving the cause of the fires is and remains throughout on the Council.

6. The centre has two balers. One is known as the commercial baler, and it processes paper and cardboard, the waste products of local businesses. The other is known as the domestic baler, and that processes tins and plastic from household waste in addition to paper and cardboard. Each machine has its own control panel beside it. Until 1996 there was a third baler, known as the small Boa baler. It was removed when a previous operator left the site, but the cable that supplied it was left in place and, worse still, at the time of the fires was not disconnected from the supply distribution board and was in fact live. It had been left coiled up beside the domestic baler and insulating tape, or something similar, had been put over the uninsulated ends of the conductors. No one knows why it was live at the time of the first fire. Two of the cores of the cable showed signs of arcing and the question is whether that arcing was the cause of the first fire or the result of it.

7. With this brief introduction I will now turn to the facts.

The main building and the electrical system

8. Before turning to the first fire, I should say a little more about the recycling plant itself. The recycling facilities at the centre were in one large building, which measured approximately 80 metres (east-west) and 60 metres (north-south). It was divided into two main areas: the tipping area and the processing area. The tipping area was at a slightly lower level than the processing area, and within it was a separate part which dealt with plastics (the PLYSU area). These areas are shown in the plan attached to this judgment entitled Figure 1.

9. Most of the machinery was in the eastern half of the processing area, with direct mechanical access to it by means of conveyors from the tipping area. The principal means of pedestrian access to each area was by way of large roller shutter doors which gave on to the yard outside. Along the southern side of the processing area was the office block. The domestic and commercial balers were in the processing area. A person entering the processing area through the roller shutter doors would walk across an open space before reaching the area in which all the plant was situated. The domestic and commercial balers were at the southern end of the processing area and quite close to the low voltage switch room which was set into the office block, but the access to which was from the processing area. All this is shown on the more detailed plan attached to this judgment entitled Figure 2.

10. The main distribution board, which served the whole building, was in the PLYSU area. The supply to this came from a local substation. The low voltage switch room (marked "2" on Figure 2) contained two distribution boards: Distribution Board No1, and Distribution Board No 2. These distribution boards served, amongst other equipment, the domestic and commercial balers.

The first fire

11. On about 30 March 2005 the domestic baler developed a leak from a flange on the oil feed pipe to the hydraulic ram. An engineer was called in, but did not arrive until the morning of Saturday, 2 April 2005. But earlier that morning, at about 03:00 hours (I shall use the 24 hour clock throughout), there had been a power cut and the centre had no electricity. The shift workers who operated the equipment in the centre were sent home, because they could not carry on working in the dark, and the matter was

reported to the Operations Manager, Mr Aylmer, at about 09:00 hours. He in turn called in the electricity supply company at about 10:10 hours, who sent an engineer or engineers to the site who arrived at about 11:45 hours, or shortly beforehand. The supply to the centre had been cut at the local substation close by. The electricians from the electricity company checked the various distribution boards in the centre and concluded that the cause of the power cut was a fault in the control panel of the commercial baler. Their records show that they left the centre at 13:05 hours and so the power must have been restored shortly before then (Mr Aylmer said in evidence that it was restored at "*12 o'clock-ish*": Day 2/131).

12. In the meantime, the repairs to the oil leak on the domestic baler had been completed by about 11:00 hours and the engineer then the left the site. Absorbent granules had been spread on the floor under and in the area around the domestic baler to soak up the oil. Owing to the poor light conditions as a result of the power cut, a forklift truck was brought up to the domestic baler and parked so that its headlights could be used to enable the engineer to see what he was doing.

13. An important consequence of the power cut was that the employees working on the overnight shift could not clear up the processing floor as they would usually have done during the last 30 minutes of the shift. Accordingly, after the evacuation following the power cut the centre was left in a very untidy state and there was waste scattered all over the floor. An added hazard in the area where the first fire started was the presence of the oil on the floor that had leaked from the domestic baler.

14. At the time of the fires Mr Michael Nulty was a smoker, and he said that he smoked some 10-15 cigarettes a day. He had worked at the centre for several years, initially almost full-time, and latterly part-time, being called in when required. He had been asked to attend to an electrical problem on Saturday, 2 April 2005, but when he arrived he was asked to deal with the fault in the commercial baler control panel as a matter of urgency. What he decided to do, because he knew (or had been told) that the commercial baler took priority over the domestic baler, was to replace the damaged parts on the commercial baler control panel with parts taken from the domestic baler control panel (which was virtually identical).

15. Having arrived at the centre at about 12:30 hours, Mr Nulty spent most of the next three hours fixing the commercial baler control panel. From about 14:00 hours, and perhaps earlier, he was the only person working in the building (as he would have known, because the Saturday morning shift finished between 13:00 and 14:00 hours).

16. Mr Nulty began by isolating the control panels for the two balers locally (that is, by using the control panel isolator switches) so that he could work on them safely. On completing the repairs to the commercial baler control panel he switched on the local isolator for that panel, but found that there was no electricity supply. He went back to Distribution Board No 1 and found that the circuit breaker[1] supplying the commercial baler had tripped. He switched the circuit breaker back on and returned to the control panel, but there was still no supply.

17. He then went to the main distribution board in the PLYSU area, where he found that the circuit breaker supplying Distribution Board No 1 had tripped. He switched on

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[1] Properly called a moulded case circuit breaker or MCCB.

that circuit breaker, then went back to Distribution Board No 1 and switched on the circuit breaker for the commercial baler and this restored the supply. He then left the building. The supply to the domestic baler remained live but, like the commercial baler, it was isolated at its own control panel.

18. Mr Nulty completed his reconnection of the supply to the commercial baler control panel shortly before 15:20 hours: this is known because at that time he was seen on the CCTV cameras walking from the weighbridge[2] to the gate (apparently there had been some problem with the gate and Mr Nulty and a Mr Homans had been asked to help Mr Soor, the security guard, to fix it).

19. Mr Nulty was next seen by the CCTV at 15:34 hours returning with someone else from the gate. A little later he was seen walking on his own past the camera up towards the west side of the building. He was wearing a fluorescent vest. This was at 15:37 hours. A few minutes later, shortly before 15:42, he was seen returning to the canteen, but this time without the fluorescent vest. He was therefore out of view of the CCTV cameras for a little over 4 minutes. One possibility is that he went back to his car where he might have taken off and left his fluorescent vest. The distance between the point at which Mr Nulty disappeared from the view of the CCTV camera and the site of the fire is about 100 metres, so it would probably have taken a good 2 minutes for him to walk to the area where the first fire started and back again.

20. The first fire was seen shortly after the fire alarm was activated at 15:55 hours. Whilst it is theoretically possible that, during the 4 minutes whilst he was out of view of the CCTV, Mr Nulty could have walked to the area where the first fire originated, started a fire and then walked back, he would probably have had to start the fire with a naked flame in order for it to take hold to an extent sufficient to trigger the fire alarm within 15-20 minutes. This is because, whilst the fire experts are agreed that a cigarette end discarded before 15:40 hours (at the latest) could have initiated a smouldering and then a flaming fire quickly enough to set off the alarm at 15:55, a person in Mr Nulty's position would then have had very little time to smoke a cigarette in the area where the first fire originated before discarding it at 15:40 hours. Accordingly, if Mr Nulty started the first fire after entering the building at 15:37 hours, it is unlikely that he did so by smoking a cigarette. However, I would have no hesitation in rejecting the suggestion, if it had been made, that Mr Nulty started the fire deliberately.

21. By reference to a witness statement that was prepared by the Claimant's forensic fire expert, Mrs Joanna Lawson, of Burgoynes, but which was never signed, Mr Nulty is said to have told Mrs Lawson that he left the building at around 15:40 hours and went to have a cup of tea and a cigarette in the canteen. Approximately 15 minutes later he heard the fire alarm. He went immediately to the processing floor and as he entered the building he saw a fire in the area around the rear of the domestic baler. He used his mobile phone to call the Buckinghamshire Fire and Rescue Service (whom I shall call the fire brigade). He told Mrs Lawson that the fire involved the rear section of the domestic baler and the floor around that area. He said that there was a lot of black smoke and that the flames were about 10 feet high, although they did not extend initially to the control panel. He ran to a nearby hose reel and attempted to extinguish or control the fire. He said that at first he directed the water on the flexible joint

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[2] The weighbridge is between the cameras marked 5 and 6 on Figure 1.

where the oil leak had been, as he was particularly concerned that if this joint was damaged by fire the oil would leak and the situation would be aggravated. He then applied water to other areas as the fire began to spread consuming the waste lying on the floor. By this time the fire had spread to the control panel for the domestic baler. The fire brigade then arrived and told Mr Nulty to leave the scene.

22. The fire brigade extinguished the fire and left at about 17:30 hours. Mr Nulty then went round the site with Mr Aylmer. The damage was confined to the area of the domestic baler, the conveyor immediately above it and the domestic baler control panel. Mr Nulty said that as they walked round he made sure that the electrical supply to the machines in the fire damaged area was isolated: this included the two circuit breakers in the PLYSU area which provided the supply to Distribution Boards No 1 and 2. They then left the site at about 18:30 hours, Mr Nulty intending to return to the site the following day to carry out some further work.

23. At about 19:30 hours the fire brigade returned to check the area where the first fire had been. They left about 45 minutes later, telling the security guard that all was well.

24. At around 00:18 hours on 3 April 2005 the fire alarm was activated for a second time. The security guard, Mr Sandhu, was in the weighbridge when the fire alarm went off. He walked up the east side of the building and when he looked through an open fire door he could see an orange glow from somewhere in the middle of the processing area. He took steps immediately to have the fire brigade called and then went to open the gate in order to let in the fire engines when they arrived. The fire was finally extinguished about 48 hours later. After that employees of the centre began to clear the burned waste material.

25. At about 08:40 hours on 8 April 2005 Mr Aylmer was alerted to smoke coming from an area of the processing floor that had been involved in the second fire. When he went to investigate he saw an orange glow and smoke coming from the same area. The fire brigade were again called and quickly extinguished the fire.

26. Internal reports of the fire brigade reported that the most likely course of the third fire was "incomplete extinction of previous fire". Mrs Lawson agrees: she described it as the only credible explanation.

The investigation - the first fire

27. The first forensic investigators attended the centre at about 12:30 hours on Monday, 4 April 2005. Ms Hilary Brown, of Casella Stanger, accompanied by an assistant, was the first on the scene. Casella Stanger was instructed by the fire brigade to investigate the cause of both fires and, in particular, to determine whether the second fire was a rekindling of the first fire. They met and questioned Mr Aylmer and Mr Nulty during that visit.

28. Ms Brown did not give evidence before me, but her reports were included in the trial bundle. In her report dated 9 May 2005, Ms Brown noted that there was a no-smoking policy on the site, but that it was not ruthlessly enforced. No reason was given for this conclusion. She concluded that the most likely cause of the first fire was careless disposal of smokers' materials in the vicinity of the domestic baler. She

also concluded that the second fire was probably caused by heat transfer from the conveyor belt involved in the first fire to debris on an adjacent conveyor belt, leading to a smouldering fire in the latter, which was not detected when the first fire was extinguished.

29. The fire brigade also produced an internal report, which was prepared by Mr Catlin, an Assistant Divisional Officer. He described his report as being the result of an "initial joint interim investigation carried out by myself and Casella Stanger". His conclusions, which (as he acknowledged in a witness statement) were effectively based on the findings of Ms Brown, were that the first fire was most likely caused by the careless disposal of smoking materials by an electrician working on-site, and that the second and major fire was most likely caused by the incomplete extinguishment of the first fire.

30. In fact, Mr Catlin first attended the site at about 04:00 hrs on Sunday 3 April, when the second fire was still underway and so he then assumed a fire fighting role. He went back to the site the following day, Monday, 4 April, where he met Ms Brown and her assistant. He then went back again on Tuesday, 5 April, and carried out a joint investigation of the site and an inspection of the CCTV security footage with Mrs Lawson. Mrs Lawson confirms that she and Mr Catlin looked at some of the CCTV footage together on that Tuesday. Mr Catlin also interviewed both Mr Aylmer and Mr Nulty. He recorded that Mrs Lawson found a cigarette end beneath the domestic baler "*in the area where the [first] fire is believed to have begun*". Under the heading "*Areas of concern*" he noted that, although there was a no-smoking policy, there were discarded cigarette ends in several places that did not appear to be the result of the recycling work. He may not have considered the possibility that they could have been washed up by the water when the fires were being extinguished.

31. Mr Catlin expressed the concern that the fire brigade would probably be faced with a substantial claim for the losses resulting from the failure to extinguish the first fire properly. Its insurers were notified and they instructed Hawkins & Associates to investigate on their behalf. As a result, on 11 April 2005 Mr Catlin went to the site again in order to meet Dr David Rose, whom he showed round the centre and gave him all the information that he had gathered.

32. In the meantime, Mrs Lawson visited the site on 5, 6, 7 and 8 April 2005. Subsequently, she paid further visits to the site on 28 April and 1 June 2005. On her visit on 7 April she was joined by her supervising partner, Mr David Bailey, who was subsequently retained as the Council's electrical expert. He told the court that the primary reason for his visit was that his clients wanted the comfort of some input from a partner of Burgoynes, since this was clearly likely to be a substantial claim. Mr Bailey was an appropriate choice, not only because he lived nearby but also because he happened to be Mrs Lawson's supervising partner. The fact that he was an electrical engineer by background was coincidental although it assumed a particular relevance as a result of facts which emerged later.

33. Unfortunately, before Mr Bailey's visit on 7 April 2005 the small Boa cable had been moved from the position it was in at the time of the fire. A photograph taken by Mrs Lawson during her first visit to the centre on 5 April showed the cable coiled up and leaning against, and partly looped over, part of the steel frame at the base of (and supporting) the domestic baler. It seems likely that this was its position during the

fire, although this is not certain. However, a further photograph taken at about 11:00 hours on the following day, 6 April, showed the cable after a significant portion of it had been uncoiled and was lying on the floor.

34. Mrs Lawson said in evidence (Day 6/149) that she did not specifically remember moving the cable during the period following the taking of the first photograph and before the taking of the second, but that she suspected that she may have moved it in the course of examining the area of the floor around the baler control panel. In any event, it is quite clear that Mr Bailey (or any expert who visited subsequently) could not have seen the small Boa cable in the position shown in Mrs Lawson's first photograph of it.

35. At some point shortly after Mr Bailey's visit to the site on 7 April 2005 he had a follow-up discussion with Mrs Lawson in Burgoynes' offices at which he advised her to check that the small Boa cable was in fact isolated at the time of the fire. This prompted Mrs Lawson to go back to Mr Nulty and to ask him if he could check the position. Thereafter, on 22 April 2005, Mrs Lawson had a telephone conversation with Mr Nulty during which he told her that the small Boa cable was still connected to the circuit breaker labelled "Small Boa Baler". Mrs Lawson then went to the site shortly afterwards and removed the cable, which was subsequently examined in Burgoynes' offices on 23 and 25 May 2005 by Mrs Lawson and Mr Bailey.

The investigation - the second fire

36. It is agreed by the fire experts that the second fire started in the vicinity of bunkers 4 and 5, which are not very far away from the domestic baler. Mr Catlin's conclusion following his initial investigation was that the second fire may have been a rekindling of the first fire, which had not been properly extinguished. The fire brigade were not happy with this conclusion and so it was decided to review the preliminary findings and to carry out a more detailed investigation into the origin of the second fire.

37. There is a copy in the trial bundle of the fire brigade's second report which gives the results of this further investigation and what follows in the next two paragraphs of this judgment is taken entirely from that report. It was not the subject of evidence.

38. The fire brigade decided to hold an informal meeting at the centre with the crew that was in attendance at the re-inspection that took place on the evening of 2 April 2005 following the first fire and the crew that was first in attendance at the second fire. This meeting took place on 29 June 2005.

39. On the basis of the descriptions of the location and observed spread of the second fire given during this meeting, the fire brigade concluded that it was not a rekindling of the first fire and, in the light of comments made about the lack of security at the centre, that the most likely cause was deliberate ignition by persons unknown. Many of the fire fighters who were interviewed for the purposes of this second investigation had not provided statements to Mr Catlin when he carried out his initial investigation.

40. Subsequently both Ms Brown and Mr Catlin endorsed this conclusion, presumably on the basis of the content of the fire brigade's second report because there is no indication that either of them carried out any further investigations or interviews.

Both sides served witness statements by Mr Catlin but in the event he was not called to give evidence.

41. In the course of her investigation, Mrs Lawson took statements from the two security guards who were on duty on the afternoon and evening of 2 April and during the early hours of 3 April. Mr Soor, who was on duty during the afternoon of 2 April, told Mrs Lawson that after the fire brigade had been called to deal with the first fire he waited by the gate, which he had opened, to let them in. After a second fire engine had arrived he says that he was told by the fire fighters to leave the gate open. Towards the end of his shift Mr Soor was told by Mr Aylmer that the fire brigade would be returning at about 19:15 hours to check that the first fire was out. He was relieved by Mr Sandhu shortly after about 18:45 hours and then waited at the gate because he had arranged to be given a lift home. In fact he was still there when the fire brigade arrived to carry out the check and presumably he let them in.

42. Mr Sandhu told Mrs Lawson that he heard the fire alarm go off at 00:18 hours, 3 April 2005. He went straight to the main building and saw "*an orange glow from somewhere in the middle*". He immediately arranged for the fire brigade to be called and then went and opened the gate, where he waited until the fire brigade arrived.

43. If these accounts are correct, and I see no reason to doubt them, it seems very likely that the fire brigade's criticisms of the lack of security at the site had been made without appreciating that the security guards at the centre had deliberately opened the gates prior to the arrival of the fire brigade so that they would not be held up when they arrived. In these circumstances the fact that the fire brigade found the gates to the site open on some of the occasions when they arrived was hardly an indication of any general lack of security at the centre.

44. Apart from deliberate ignition by an intruder, there is no other candidate for the cause of the second fire other than some form of rekindling from the first fire. It is not, I think, seriously challenged that the third fire was a rekindling of part of the remains of the second fire. Fortunately, it was not serious. Before turning to consider the cause of the first fire I propose to give a brief account of the evidence of each of the relevant witnesses and the views that I formed of it.

Mr Daffeh

45. Mr Daffeh was a senior team leader and supervisor for the domestic line. He had worked at the plant since 1995, and had been a supervisor since 1997. It became apparent very soon after he started to give evidence that he had one item at the top of his agenda. His home had been visited three times - twice when he was present - by a private investigator instructed by NIG, a Mr Durkan, and he regarded this as an unwarranted intrusion into his private life which, it was clear, he strongly resented. On two occasions during his cross-examination he interrupted Mr Graham Eklund QC, who represented NIG, to ask who the man was who had come to his house and, on the second occasion he said: "*Who giving [me] the information that Mr Daffeh smoke cigarette in front of his house*?". He thought that an attempt was being made to put the blame for the fire on him, about which he was most unhappy.

46. In spite of these outbursts I am quite satisfied that Mr Daffeh attempted to tell the court the truth even though in a number of areas his evidence was plainly incorrect.

For example, he said that the plant was only running one shift a day at the time of the fire, which does not accord with other evidence that I accept. Further, he had no recollection whatsoever of the power cut that undoubtedly occurred during the small hours of 2 April 2005, which is a little surprising since the power was not restored until several hours after Mr Daffeh came into work at 06:00 hours that morning and must have completely disrupted the day.

47. Much of his cross-examination was taken up with questions about the baling wire system for the domestic baler, the purpose of which was clearly puzzling Mr Daffeh and thus gave rise to a certain degree of impatience on his part. I have to confess that I had some sympathy with this: whilst I am sure that Mr Eklund had good reasons for asking the questions that he did, I can only assume that he was hoping to elicit some evidence that in the end was not forthcoming. In any event, at least so far as I can tell, ultimately this line of questioning did not lead anywhere.

48. As I have already indicated, the real problem with Mr Daffeh's evidence is that he had a poor recollection of the events leading up to the outbreak of the first fire. This is hardly surprising: this was the first time in the six years since the fire that he had been questioned in any detail about the relevant events. Mrs Lawson asked him a few questions on the afternoon of the first day on which she visited the site, but she quickly formed the impression that he had little relevant information to give and so, understandably, she did not spend much more than about five minutes with him. However, Mrs Lawson recorded that he told her that he left the site at 14:00 hours, whereas he said in evidence that he left the site at about 12:00 hours, or 13:00 hours at the latest. Accordingly, and this is not intended as a criticism of Mr Daffeh, I do not find that I can place much reliance on his evidence so far as matters of detail are concerned. However, I am quite satisfied that none of his evidence was given dishonestly. Where he understood the questions, which was not always the case, I think that he was telling the truth as he saw it.

49. It was not put to Mr Daffeh directly that he was smoking in the building on the day of the first fire and that he threw away a cigarette that caused the fire. However, in my view this was not necessary because Mr Daffeh had in effect already answered the question, as the following extract from his cross-examination makes clear:

> Q. ". . . you say you did not smoke while you were working?
>
> A. I don't smoke because of the smoking policy. That's one of my jobs.
>
> Q. That is one of your jobs?
>
> A. Yeah, if I see anybody smoke in the building, he will be out.
>
> Q. Yes?
>
> A. Because that is where my livelihood is.
>
> Q. All right?
>
> A. I have worked there long time, so."

In these circumstances, I consider that it would be quite unrealistic to suggest that Mr Eklund should formally have "put the case" to Mr Daffeh. In the exchange that I have quoted above Mr Daffeh had made it perfectly clear that he had never smoked in the

building - whether before the first fire or at any other time. He was correct also in saying that it was a dismissible offence.

50. Assuming that Mr Daffeh left the centre at 14:00 hours, as recorded by Mrs Lawson, then he was present on the site for the first hour of the "window of opportunity" within which the fire experts have agreed a cigarette end could have been discarded that could have led to a flaming fire at 15:55 hours. However, if he left the centre no later than 13:00 hours, as he said in evidence, then he would have been at site for just 5 minutes of that window of opportunity. On this point I consider that Mrs Lawson's note of what Mr Daffeh told her about his time of departure is more likely to reflect the true position than his evidence to the court about it.

51. But significantly, in the context of this case, I can find no conceivable reason why Mr Daffeh should have smoked in the relevant part of the building during his shift on 2 April 2005. The domestic baler was out of action, for one reason or another, until after the first fire broke out (and well after Mr Daffeh had left the site) and so Mr Daffeh would have had no particular reason to spend the whole of the shift in the area immediately around the domestic baler. In my judgment it defies belief that he would have put his job at risk by going into the building to have a smoke, or smoking whilst he was in the building, when there were other places where he was permitted to smoke and could have done so, so far as I can see, at almost any time during his shift on that day. I therefore reject unhesitatingly the suggestion that he might have discarded a cigarette that caused the first fire.

Mr Aylmer

52. Mr Aylmer was employed by Community Waste Ltd, a company partly owned by Cutt Brothers (Doncaster) Ltd ("Cutts"), as an Operations Manager at the centre, a position that he had held since 2003. Before that he was the night shift supervisor. Community Waste Ltd took over the operation of the centre in October 2004 from a company called Corey Environmental. Mr Aylmer said that everyone who came on to site to work, whether as an employee or an outside contractor, received an induction into the centre's processes, including the no-smoking policy.

53. Mr Aylmer gave a statement to Mrs Lawson when she was on site on 1 June 2005. His witness statement for the trial was based largely on this earlier statement. Mr Aylmer said that since he was employed at the centre since 1996 there had been no problems that he could recall with either trespassers or vandals, apart from two incidents in 1996. One was an occasion when someone broke a window. The other incident involved someone throwing some burning material over the fence which set light to rubbish in the yard - but on that occasion the perpetrator did not attempt to enter the premises.

54. Mr Aylmer said that in April 2005 the plant was running on a three shift basis, 24 hours a day Monday to Friday. On Saturdays the centre was operated for one shift only, between 06:00 hrs and about 13:00 hrs. At the end of each shift there was a 30 minute clean-up period when all the conveyors were run to empty and waste that had fallen onto the floor was swept up. This evidence was not challenged and I accept it.

55. He said that on Saturday, 2 April 2005, the day of the first fire, he received a call at about 09:00 hours telling him that there had been a power cut during the night. He

was told that the staff had been sent home. He called the electricity company when he came in, who arrived at about 11:30-11:45 hours. They identified a fault on the consumer side which was then tracked down to the commercial baler. He said that he was with the electricity company's engineers the whole time and that, as far as he was aware, they did not touch the circuit breakers in the low voltage distribution board, although they did look at them. He explained in his witness statement that the distribution board containing the circuit breakers was fitted with metal shutters that were secured with knurled bolts. This in turn was located in a cupboard with a door that was kept locked. The only members of staff with keys to it were himself, the security guard, the senior administrator and the head of maintenance.

56. Mr Aylmer told the court that at the same time there was an engineer from Boa working on the domestic baler repairing an oil leak. A forklift truck was used to provide additional lighting from its headlights. The oil leak was at the top flange of the hydraulic feed pipe to the ram below. Mr Aylmer said that it only leaked when the ram was in operation. The leak was fixed by about 11:00 hours and the Boa engineer then left.

57. According to Mr Aylmer, the employees or contractors who were on the site during the late morning and early afternoon of Saturday, 2 April 2005, were Mr Daffeh, Mr Homans, Mr Soor (the security guard), Ms Kayleigh Watson and Mr Nulty. Mr Aylmer said that Ms Watson was responsible for the weighbridge and, so far as he was aware, she would have had no reason to leave her place of work, which was the weighbridge cabin, in order to go into the main building. Mr Daffeh's usual place of work was within the process area of the main building, where he was likely to have been even though the domestic baler was not in operation. There is no evidence as to precisely what he was doing. Mr Homans was operating the large shovel in the yard outside the building. The security guards did not have an office in the main building, although they might have visited it from time to time for one reason or another. Mr Nulty was working in the main building, in the area of the domestic and commercial balers, from about 12:30 to about 15:30 hours.

58. None of this evidence was challenged and, again, I accept it. For what it is worth, Mr Aylmer was adamant that neither Mr Daffeh nor Mr Homans would have smoked on the job. He described each of them as a good and conscientious worker. He did not know whether or not Ms Watson was a smoker.

59. During his cross-examination Mr Aylmer was asked about the type of incident that usually caused breakdowns to the balers. The exchange went as follows:

> MR EKLUND: Now was there any particular feature of the baler which would break down, or is there any particular part that might break down?
>
> A. It could be any particular part. If it was mechanical, it was normally the needles or the chain. If it was electrical, it was in the control cabinet. Sometimes you might get a rat gnaw through a wire.
>
> Q. Sorry?
>
> A. Sometimes you might get a rat gnaw through a wire.
>
> Q. I see. Gnaw through what? A baler, one of the balers?

A. An electrical wire.

60. Mr Aylmer was asked about the small Boa cable, which he said was coiled up. However, his recollection during his evidence was that it was laid flat on the floor and not up against the frame of the baler as it is shown in Mrs Lawson's photographs.

61. I have no reason to doubt the reliability of any of the evidence given by Mr Aylmer, with the exception of his recollection about the position of the small Boa cable. Whilst his recollection may be right, I can see no obvious reason why anybody should have wished to move it. As far as I am aware, it was something that he mentioned for the first time when giving evidence.

Mr Homans

62. Although a witness statement was served on behalf of Mr Homans, he did not give evidence. This was because during the trial Mr Eklund made it clear that he withdrew any suggestion, if there was one, that Mr Homans might have started the fire by discarding a cigarette.

Mr Nulty

63. As I have already mentioned, Mr Nulty unfortunately died in December 2010. However, he has made several statements (both signed and unsigned), he was interviewed by both forensic experts and the police, he has written several letters (or, at least, letters have been written that he has signed) and he has spoken on the telephone to NIG's solicitors - these conversations being the subject of attendance notes which have been disclosed. There is therefore a significant body of material emanating from him, by one means or another, from which it may be possible to draw some conclusions about what he did or might have done on 2 April 2005.

64. He was born on 10 February 1958. At the time of the fires he had been an electrical engineer for about 30 years. By then he was self employed and worked on a freelance basis for any organisation who wish to use his services. About two years before the fires he was engaged by the operator of the centre, Cutts, to get the plant operating efficiently, which involved tasks such as adjusting conveyer speeds. During this period, which was almost a year (so he told the police), he spent several days each week working at the centre. When this had been done he continued to work at the centre as and when necessary to identify electrical faults and carry out appropriate repairs. There is no reason to think that, up to the time of the fires, he was anything other than reasonably well regarded by those who engaged him.

65. The first investigator to interview Mr Nulty after the first and second fires was either Mr Catlin or Ms Brown. In her report Ms Brown gives a summary of the information provided by Mr Nulty when she saw him on 4 April 2005. There is no reference in that summary to the small Boa cable.

66. Mr Catlin, in his interim report, records the information that he was given by Mr Nulty. Again, there is no reference to the small Boa cable. In the fire brigade's second report, of which Mr Catlin appears to have been one of the authors, it is

recorded that Mr Nulty was asked what he thought about the supposed cause of the first fire. It is worth setting out the relevant passages in that report:

> "Mr Nulty was asked what he thought about the supposed cause and he suggested an electrical fault [there is then a footnote which refers to a photograph] however other causes were considered including ignition of oil from the hot machinery that had evidently been leaking some time at the base of the domestic baler [another footnote referring to a photograph] and the careless disposal of smoking materials.
>
> . . .
>
> Faulty electrics were eliminated as the likely cause of ignition because of the burn patterns to the outer doors of the cabinet being more severe outside than inside [then another footnote referring to the first photograph]."

67. It was suggested by Mr Eklund, in his closing submissions, that the electrical fault suggested by Mr Nulty might have been to do with the small Boa cable. However, the passage that I have quoted when read as a whole suggests that the source of the possible electrical fault that Mr Nulty mentioned was the control cabinet for the domestic baler. The fact that Mr Nulty's reference to an electrical fault and the reference to the burn patterns to the doors of the cabinet are each followed by a footnote referring to the same photograph leaves little room for any other conclusion.

68. Mr Nulty said nothing to Mrs Lawson about the possibility that the small Boa cable was live at the time of the fire whilst she was on site between 5 and 8 April 2005. In a witness statement dated 23 August 2010 Mrs Lawson said this:

> "I first noted the roll of armoured electrical cable close to the domestic baler control panel on 6 April when I considered it was something which may need further investigation. It was clear this cable was not connected to any machinery but it was not possible for me to readily identify what this cable was. I later spoke to Mr Nulty and asked him, as an electrician familiar with the site, to identify what this cable was. On 22 April I again spoke to Mr Nulty who informed me that he had determined that the roll of armoured cable in question was connected to a circuit breaker labelled "Small Boa Baler". Once I discovered that this cable remained connected and was therefore capable of being energised, I felt it required a closer inspection and further investigation to assess whether it was possible cause of the fire."

69. At the conclusion of her evidence I asked Mrs Lawson if she was quite certain about the sequence of events described in this paragraph. She said that she was. I then asked her about her conversation with Mr Nulty about the redundant cable. She said that she spoke to Mr Nulty on the telephone after her initial site investigations. She said that he did not know what that cable was and so she asked him to try and find out. She said that she spoke to him again on 22 April 2005 and he said that he had been back to the site and had traced the cable and confirmed that it was the small Boa cable and that it was still connected to the MCCB. She said that she was quite certain that he did not say anything about the small Boa cable whilst she was on site between 5 and 8 April 2005.

70. I asked Mrs Lawson these questions because in the trial bundles there is a document that appears to have been written by Mr Nulty dated 6 November 2006. It is headed "*Fire at Milton Keynes Recycling Centre 5.4.05*". It reads as follows:

> "The afternoon following the fire, on inspecting the site with an investigator I noticed a large roll of cable with bare ends at the rear of the baler. The other end was connected to the board, the breaker of which had triggered. I pointed this out to the investigator, she took a photo of the board. I worked only at the front of the baler and nowhere near the rear."

71. Whilst the note incorrectly refers to the fire as having occurred on 5 April 2005, and not 3 April, it is clearly describing a conversation with a female fire investigator on the afternoon following the fire. This must have been a reference to Ms Brown, because Mrs Lawson did not arrive on site until Tuesday, 5 April 2005. However, it is quite clear from Mrs Lawson's evidence that Mr Nulty could not have told anyone that the small Boa cable was connected to the circuit breaker because he did not discover that until a couple of weeks later. The note was attached to a short letter to Mr Nulty's brokers of the same date following a chasing letter from Barlow Lyde & Gilbert, the solicitors acting for the Council's insurers, dated 30 October 2006 which warned Mr Nulty that there was a significant risk that proceedings would be issued against him.

72. A curious feature of these documents is that both the letter and the note are written in the same hand as a letter written to Berrymans Lace Mawer dated 21 March 2009 signed by Mrs Joan Nulty, Mr Nulty's mother, suggesting that the letter and note by Mr Nulty may have been written by his mother (although the signature on each appears to be his). I will refer to this point in more detail below.

73. Reverting to the sequence of events, on 3 February 2006 Mr Nulty was interviewed under caution by the police in relation to the fires. During this interview he was told that the fire brigade had intimated that a person had been seen at the centre during the night before the second fire that might have been him. He firmly denied that he had been there. It seems therefore that the police had been given information by the fire brigade that someone had been seen around the site whose description may broadly have fitted Mr Nulty. I assume that this was probably the reason for the interview. However, I have been unable to find any reference to a potential intruder in the documents disclosed by the fire brigade.

74. In the course of this interview Mr Nulty told the police that he was insured for £2 million. He denied that he had smoked anywhere in the building and said that he always went to the canteen to have a cigarette. He said: "*You've got no choice, because, if you've seen the oil and paper and cardboard all over the floor, you don't smoke in there, definitely not*". He was asked if he had any view as to how the first fire started and he said that the only possibility that he could think of was the small Boa cable. He said:

> "The only thing I can think of what started it - at the back of the baler, there's a roll of cable there and that cable has been there, I didn't know at the time, but that's been there for a long time and the ends were exposed. The other end of the cable is connected to the switchboard."

75. There was one further exchange in this interview on which the Council placed considerable reliance. Earlier in the interview Mr Nulty had been told that at least one discarded cigarette end had been found near the area in which he had been working. He denied that they belonged to him. A little later, the following exchange took place:

> Q Right, Mr Nulty, would you be willing - obviously, we've got those cigarette ends and we could certainly have a DNA test? Would you be willing to give us a sample of your DNA?
>
> A You've already got it.
>
> Q Pardon?
>
> A You've already got my DNA. Not here, but there is a sample of my DNA.
>
> Q We'll probably have to take it again; just a voluntary DNA sample, if you're willing to do that.
>
> A You've got to realise, I push all of that out the way. So, if there's a cigarette end there or cardboard there, I could have touched that anyhow.
>
> Q No, no, it will have your spit on it, won't it? If it's your fag that been in your mouth, it will have your spit on it, yeah?
>
> A Yeah.
>
> Q That's different to just moving the thing out of the way.

76. Mr Nulty's response to the suggestion that the police might take a DNA sample is illuminating. Instead of simply saying that he had no objection because nothing would be found - since he never smoked in the building, he immediately volunteered an explanation as to how a cigarette end found on the floor near the domestic baler might have his DNA on it. (I should make it quite clear that I attach no importance whatever to the fact that Mr Nulty said that the police already had his DNA, because this can happen for perfectly innocent reasons: for example, there are circumstances in which people can be asked to provide a DNA sample in order to eliminate them from an enquiry.)

77. It appears also, from the passages that I have quoted, that Mr Nulty was telling the police also that he did not appreciate at the time of the fires that the small Boa cable was connected to the circuit breaker. Indeed, had he known this it would have been remarkable if he had not done something about it. The significance of this for present purposes is that it is inconsistent with what he wrote nine months later, in November 2006.

78. The next relevant event concerning Mr Nulty is the expiry of his insurance at the end of August 2006. Mr Carmichael, a head office liability underwriter employed by NIG, said in evidence that the NIG invited renewal of the policy with effect from 1 September 2006 but received a note - presumably from the broker - to say that the policy was to lapse. The reason for this was not known.

79. On 10 October 2006 the solicitors for the Council, Barlow Lyde & Gilbert, wrote a formal letter of claim to Mr Nulty. The letter asserted that he started the fire by

carelessly discarding smoking materials. On 17 October 2006 Mr Nulty forwarded this letter to his insurance brokers, Matthews Comfort, together with a copy of the unsigned witness statement that had been taken by Mrs Lawson on 5 April 2005. Again, this letter appears to be in his mother's handwriting. In that letter he said:

> "I did not cause the fire at the rear of the domestic baler. I also dispute liability, I certainly did not smoke in the building. I enclose copy of my statement taken on 5th April 2005"

80. Not having received a response to the letter of 10 October 2006, on 30 October 2006, Barlow Lyde & Gilbert wrote a further letter. It was this letter that prompted Mr Nulty to write (or dictate) the letter and note dated 6 November 2006 to which I have already referred.

81. Mr Nulty's brokers duly forwarded the correspondence from Mr Nulty to NIG, who acknowledged the claim by a letter dated 10 November 2006 and then, on 29 November 2006, wrote to the brokers reserving its rights under the policy in the following terms:

> "In light of the very late reporting of this matter, and the fact that the Insured provided a statement to Burgoynes without first notifying us of the incident, reserve (sic) our rights under the policy until we have completed our investigations and are in a position to make a considered decision as to whether our position has been prejudiced and an indemnity can be granted under the policy."

The letter continued by saying that NIG had put in hand a full investigation and had instructed Berrymans Lace Mawer to carry out the investigation.

82. NIG then embarked on a rather sterile correspondence with Barlow Lyde & Gilbert which, after nearly 3 months, resulted in the disclosure on behalf of the Council of various reports, witness statements and photographs relating to the fires and their investigation. On 22 March 2007 Cathy Hawkins, a partner in Berrymans Lace Mawer, tried to telephone Mr Nulty, having written to him two days earlier. A woman answered the telephone and told Ms Hawkins that Mr Nulty did not live there now but that a letter had arrived for him and had been passed on. She gave Ms Hawkins Mr Nulty's mobile number.

83. Miss Hawkins then rang Mr Nulty. He told her that he had received her letter and then, as she put it in an attendance note, "*He immediately launched into how it happened i.e. that he was not there at the time and had gone to the canteen for a cup of tea and a cigarette and that he was a former fireman . . . he blamed a roll of cable which was near to the machine as being the cause of the fire*". She then arranged to meet him at the brokers' offices.

84. This meeting took place on 30 March 2007. During it Ms Hawkins recorded Mr Nulty as saying, amongst other things the following:

> "At present he is not working because he cannot get insurance. This is because of the problems caused by this case. He is therefore on the dole."

> "He does not recollect Jo Lawson suggesting that that there might be a claim against him but he cannot be completely positive about that - it is a long time ago."
>
> "I asked him how it came to his attention that there was a claim against him. He said that this was when he couldn't get more insurance and they said that this was to do with the problem at Milton Keynes."
>
> "I told him that Jo Lawson had reported that cigarette butts were found in various parts of the factory - one not far from the baler and one near the steps going to the office. It is therefore suggested that the no smoking rule was regularly flouted. He is not in a position to know whether this is the case. He is not there all the time and when he is it is usually not when the workforce is there. Once or twice he may have seen people with cigarettes."
>
> "He said that after doing work on the control panel of the domestic Baler, he wanted a cigarette so went to the canteen to get a cigarette and a coffee."
>
> "He is absolutely adamant that the seat of the fire appeared to be at the back of the domestic baler which is quite a long way from the front of the control panel. He remembers the seat of it being near a cable which they **later ascertained** was disused cable for a baler which is no longer used. Rather to their surprise, they found that this cable was still wired in and therefore energised. In photograph 10 of Burgoynes' report he marked an X where he saw the fire. He emphasised that it was difficult to be certain but it was on the floor near the cable and then sort of spreading laterally across the floor . . ."
>
> "Apparently Cutts used to use him at Sheffield as well. They now do not use him. He has outstanding invoices of approximately £2,000 although he cannot remember precisely."
>
> (My emphasis)

Ms Hawkins did not give evidence at the trial but attendance notes of her meetings and telephone conversations with Mr Nulty were in the trial bundles (with some occasional redactions of parts for which presumably privilege was claimed). Since she was acting as the agent of NIG, by whom they have been disclosed, I consider that I can properly treat their contents as evidence, at least to the extent of being a reasonably accurate record of what Ms Hawkins was told by Mr Nulty.

85. The explanation for Mr Nulty's inability to obtain indemnity insurance raises a question to which there is no obvious answer. As I have said, it was NIG's evidence that Mr Nulty was invited to renew his policy in September 2006 but that he did not do so. It seems unlikely that this would have been purely on financial grounds, because the premium was fairly modest - less than £150.

86. So far as one can tell from the documents, the first time that it was suggested to Mr Nulty that he was responsible for causing the fire was in the letter from Barlow Lyde and Gilbert of 10 October 2006. Whilst the police had raised the question of smoking

during the interview in February, and had hinted that there were grounds for suspecting that Mr Nulty might have been smoking in the area of the domestic baler on 2 April 2005, they came nowhere near accusing him of having done so.

87. I can well understand that the receipt of the letter of claim would have made it very difficult for Mr Nulty to obtain liability insurance thereafter but, if this letter was the first intimation of a claim against him, it cannot explain his failure to renew his policy six weeks earlier at the end of August 2006.

88. According to Ms Hawkins' attendance note of a meeting with Mr Nulty it appears that following the fires he received no more work from either the centre or the other premises owned by Cutts. This may have amounted to a substantial proportion of his work, although there is no evidence as to what this proportion was. It is possible that, at the time of the fires, Mr Nulty did not have much work from other clients and he might have found it difficult to obtain such work without a reference from Cutts, which, after the fires, they might have been reluctant to give - but this is speculation.

89. But this does not explain why he told Ms Hawkins that he was not working because he could not obtain insurance. However, it may be that he decided not to renew his insurance because he had no work but then preferred to say that he was not able to work because of the absence of insurance. This would have been understandable. However, I can make no finding about it.

90. Following the meeting of 30 March 2007 Ms Hawkins wrote to Mr Nulty asking for all documentation relating to the police investigation, including any witness statements. Over the next couple of months Ms Hawkins chased Mr Nulty for this documentation without much success. On 25 May 2007 he suggested that she should contact the police in order to obtain the information that she required, but she told him that without a suitable letter of authority from him she would get nowhere. On 6 June 2007 she sent him a partially completed Subject Access Application Form for him to sign and send to the police so that he could obtain a copy of the tape of the interview that had taken place in February 2006. Unfortunately, for one reason or another, Mr Nulty failed to complete and return this document. Eventually Ms Hawkins managed to speak to him on 6 November 2007 when he apologised for not getting in touch and said that he had been homeless and living rough in Oxford but that he would now deal with the form.

91. This did not happen and in May 2008 Ms Hawkins was still chasing Mr Nulty. She made contact with him on 27 May 2008 when he told her that he had been homeless for a long period but that he was hoping that he was about to be allocated some accommodation shortly.

92. After a further nine months or so of inactivity from Mr Nulty, NIG decided that it would not indemnify him. On 13 March 2009 Berrymans Lace Mawer wrote to Mr Nulty in the following terms:

> "We regret to inform you that, in view of your failure to co-operate with NIG by providing us with consent to enable us to access documents held by the police relating to their interview of you, NIG takes the view that you have failed to comply with the policy requirements to co-operate, and, in view of

> that, NIG will not be providing you with an indemnity, should this claim be pursued."

93. This letter did not elicit a response from Mr Nulty but it did prompt a letter from his mother, Mrs Joan Nulty. On 21 March 2009 she wrote a letter to Berrymans Lace Mawer. This letter was clearly written in the same hand as the earlier letters that had been sent and signed by Mr Nulty. However, I see no reason to doubt that this letter was written by Mrs Nulty, particularly having regard to its contents. It is the letter to which I have already referred at paragraph 72 above. It includes the following passages (unfortunately the photocopy in the bundle has been cut off on one side and so I have inserted, where possible, what appear to be the missing words in square brackets):

> "I am writing to you on behalf [of my] son Michael, read your letter dated 13 March [2009]. Michael uses my address and has given [me] permission to open his mail.
>
> It was a great shock to me to read [your] letter, as I was under the impression that [the] consent form had been returned to you.
>
> Michael, I am afraid, has been very [ ] due partly to the fact that he was unable [to obtain] indemnity insurance and consequently [could not] continue self-employed work. He is now [a] homeless alcoholic living on the streets.
>
> We are in the process of having [him] assessed by a Drug and Alcohol team with a view to treatment.
>
> This is a plea to see if the [decision] to represent him can be reversed. I shall [do] all in my power to ensure that you [receive] any relevant information, if this can be [done]. "

94. These documents reveal a very sad story, and I regret that it is necessary for me to have to tell it in such detail in this judgment. Looking at these events overall it seems to me that they do not provide any indication as to whether Mr Nulty was simply an unfortunate victim of a chain of events that was not of his making, or whether he did smoke a cigarette that caused the first fire thus bringing the subsequent events on himself. Whichever is correct, it seems that his involvement in the events of 2 April 2005 and their consequences may have led to some form of breakdown and, finally and tragically, to his death.

95. However, there are two incidents that point, albeit not very strongly, to Mr Nulty having caused the first fire. The first is his rather strange response - that he might have touched a cigarette lying on the floor when clearing away debris - when he was asked during the police interview if he would be willing to undergo a voluntary DNA test. It was hardly the response of a man who knew that he had not smoked in the area of the domestic baler on 2 April 2005, or at any earlier time.

96. The second pointer is the note that he wrote (or dictated) on 6 November 2006 to the effect that he had told Ms Brown, or possibly Mrs Lawson, when she was on site immediately after the fire about the small Boa cable being connected to the circuit

board and that its circuit breaker had tripped. For the reasons that I have already given, the contents of this note cannot be true. Whilst Mr Eklund submitted that, since it was written about 18 months after the event, Mr Nulty may have been confused, I do not consider that this provides a plausible explanation. I appreciate that Mr Nulty may well have been struggling with personal problems at the time when this note was written, but even if this was the case I find it difficult to accept that he could have been mistaken about such a fundamental point. When he was interviewed by the police nine months earlier he told them, as I read the transcript, that he did not realise at the time that the small Boa cable was still connected to the circuit breaker. He also said much the same to Ms Hawkins - nearly 6 months after writing the note - when he met her on 30 March 2007 (the relevant extract is emphasised in one of the passages that I have set out in paragraph 84 above).

Mrs Joanna Lawson

97. Mrs Jo Lawson is the forensic fire expert for the Claimants. She has been a consultant scientist with Dr J H Burgoyne and Partners since September 2001. By the time that she signed her witness statement in August 2010 she had investigated over 600 fires. She used to investigate about 80-90 fires a year, but she now works part time and so the number of fires that she investigates annually is proportionally less. This case is the first one in which she has given evidence. At the time when these fires occurred, therefore, she had been investigating fires for about 3½ years.

98. I should say at once that I found Mrs Lawson to be a good witness and a good expert. When giving evidence she answered questions clearly and directly, amplifying or qualifying her answers where appropriate. She was ready to make concessions where she considered it was right to do so, although she made no significant concessions during her cross-examination that she had not already made in the experts' joint statement. In my view she carried out a careful, thorough and professional investigation. She took extensive notes and photographs whilst she was on site. One criticism that can be made of her investigation is that she did not take any steps straight away to investigate the status of the redundant small Boa baler cable. Whilst she agreed in cross-examination that she had noted on 6 April - the second day of her investigation - that it might be of significance, she did not do anything because she said that all the information at that point was that the cable was redundant and therefore not live. In fact, it was not until after Mr Bailey became involved on 7 April 2005 that it was appreciated that this should be checked. Unfortunately, in the meantime the cable had been partly unrolled, probably by Mrs Lawson on Tuesday, 6 April. Criticism of this sort is easily made with the benefit of hindsight, and it is understandable that Mrs Lawson acted as she did. But it did mean that any expert who visited the scene subsequently would not have been able to carry out an examination of the small Boa cable in its position at the time of the fire.

99. Mrs Lawson was criticised by Mr Eklund on the ground that she had reached the conclusion that Mr Nulty might have discarded a cigarette that caused the fire on the basis of the fact that a spent cigarette end was found amongst the debris close to where he had been working shortly before the fire, although she accepted that the fire would not have been caused by that cigarette and that it could have been brought in as part of the waste or even dropped by a fire officer. This criticism was based on the contents of her first letter to her clients which was written on 13 April 2005, which mentioned the cigarette end found in the area where the fire started but did not

mention that discarded cigarette ends had been found in other places also. Mrs Lawson's response was that her conclusion as stated in a letter was not based on the findings of that one cigarette end, but on the circumstances as a whole including the fact that the presence of discarded cigarette ends in one or two other places appeared to suggest that the no smoking policy was not as rigidly observed as several of the witnesses had suggested. She made it clear that she was not saying that Mr Nulty might have smoked any of those other cigarettes.

100. Mrs Lawson was further criticised by Mr Eklund for reaching the conclusion that there had been breaches of the no smoking policy when she had subsequently accepted that it was possible that the cigarette ends may have come from the waste and had been washed by the water from the fire brigade's hoses. As to this point, there were two places where Mrs Lawson said she had seen discarded cigarette ends, although only one such cigarette end was shown in her photographs. One was a small well underneath some metal stairs that led from the processing floor to the gallery outside the offices above. There was a small landing some two or three steps up from the floor level, which was probably out of sight from the offices above, and it was below this that cigarette ends were found. Mr Eklund criticised Mrs Lawson for placing any reliance on this as evidence of non-observance of the no smoking policy when she had subsequently accepted that the cigarette ends could have arrived there by other means, such as being washed in by water from the fire hoses. The other place where Mrs Lawson said she had seen discarded cigarette ends was in a little foot well outside a fire door leading from the east side of the building to the area outside. In fact, none of the photographs that she had taken of this area showed any cigarette ends, but Mrs Lawson referred to their presence in those two places in her report dated 30 August 2005 and in her evidence she was adamant that she had seen them as described in her report.[3]

101. Whilst I accept the point that some of the cigarette ends in the shallow well underneath the metal stairs might have been swept in by the water from the fire hoses, it does seem to me to be pretty unlikely that they would have been found in one place only if this was the means by which they had got there: if there was a significant number of cigarette ends in the waste, one might have expected the odd cigarette end to be found at various points along the line that the water had reached, like debris washed up on a seashore, rather than in just one or two places. Further, this does not seem a very likely mechanism for the deposition of any cigarette ends that were found outside the door.

102. In addition, Mrs Lawson was not the only investigator to conclude that the no-smoking policy in the centre may not have been rigidly observed. There were in the trial bundles copies of reports by other investigators. An undated report by an Assistant Divisional Officer of the local fire brigade, Mr David Catlin, stated that:

> "Although there is a "No Smoking" policy within the process area, I noticed during my inspection, evidence of discarded cigarette ends in several places that did not appear to be as a result of the recycling work taking place."

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[3] The two places where cigarettes were found by Mrs Lawson are shown on Figure 2, marked with a star.

103. The fire brigade's independent fire expert, Ms Hilary Brown visited the centre very shortly after the first and second fires, on 4 April 2005, and in her report she said:

> "Although there was a no-smoking policy on site, it was not ruthlessly enforced. As the origin of fire was found to be the recently worked on Baler 1 and the factory itself was otherwise unoccupied, the most likely cause of the fire is likely to have been careless disposal of smokers' materials."

104. Whilst Mrs Lawson met Mr Catlin during the course of her investigation on 5-8 April 2005, she did not meet Hilary Brown. The reports of Mr Catlin and Hilary Brown are, of course, not primary evidence in the case, but they are evidence of the conclusions reached by Mr Catlin and Hilary Brown at the time when they wrote those reports. It seems to me that it is a little hard to criticise Mrs Lawson for reaching the conclusions she did about the observance of the no smoking policy at the centre entre, when two other investigators reached similar conclusions for much the same reasons. In any event, for the reasons I have given I am not persuaded that the premise on which Mr Eklund's criticisms are based is well founded.

105. During the course of his cross-examination Mr Eklund also challenged Mrs Lawson as to why she had not voiced any of her misgivings about Mr Nulty to him directly so that he would have an opportunity to respond. Her primary response to this criticism was that she did not feel that it was her duty to put allegations to witnesses on behalf of her clients. She saw her role as an expert as the gathering and analysis of information. I do not see that she can be criticised for this. But, at a practical level, her approach is perhaps best illustrated and justified by the following exchange with Mr Eklund during her cross-examination:

> A. . . . I am not postulating any particular manner by which he may or may not have extinguished his cigarette if he did smoke one in the building.
>
> Q. It follows from that, I think, that you didn't discuss that possibility or any of those possibilities with him?
>
> A. He told me he had not smoked in the building so I am not going ask him then: "How would you have stubbed your cigarette end out in the building?"

106. The one aspect of Mrs Lawson's investigation which in my view was not very satisfactory concerned the security of the site. She is, of course, a fire expert and not a security expert. However, it seems to me that she should have paid a little more attention to the security of the site because the evidence before the court about the effectiveness of the perimeter security is unfortunately not as comprehensive as it might have been. But in fairness to Mrs Lawson it has to be said that the fire expert instructed by the NIG, Mr Christie, had not visited the site at all. On his behalf it could perhaps be said that he was instructed so long after the fires that there was probably little purpose in visiting the site in case things had changed. However, so far as perimeter security is concerned, whether or not there had been any changes since the fire should have been fairly evident by carrying out a visual inspection of the site and then comparing it with Mrs Lawson's and other photographs.

107. But at the end of the day I am not convinced that any criticisms of Mrs Lawson's investigation, or indeed any criticisms of that of Mr Christie, really take matters very far, even if well founded, because the two fire experts are agreed on all the essential points. The real issues between those experts are the relative probabilities of the competing causes. So far as expert evidence is concerned, the real significant differences lie between the electrical experts.

Mr Clifford Christie

108. Mr Christie is a forensic scientist and was the fire expert instructed by NIG. He is the senior partner of Geoffrey Hunt & Partners, the well known Consulting Engineers and Scientists. He specialises in the investigation of fires and explosions, and in the course of his career he has carried out over a thousand such investigations. He has been with Geoffrey Hunt & Partners for over 20 years, and before that he spent five years in the Home Office Forensic Science Service.

109. I do not mean to imply any criticism of Mr Christie when I say that I did not find that his evidence added very much to the material already before the court. This was simply because, so far as the facts of the case are concerned, the two fire experts were in almost complete agreement. The only qualification to that is that Mr Christie had not visited the site, and was content to adopt Mrs Lawson's findings about the state of the site that she recorded during her visit. The two fire experts also produced a very helpful and comprehensive joint statement, for which the court is grateful.

110. Mr Christie's position, quite simply, was that he felt, as an expert, unable to choose between the three possible causes of the first fire in the terms of their relative likelihood. His view was that this was really a matter for the court to determine in the light of all the evidence. I would regard this as a legitimate position for him to have taken, particularly since he was not involved from the outset.

111. He agreed that in his experience, like that of Mrs Lawson, smokers do not admit to having smoked in areas where fires have started. He said that he could recall only two occasions where this had happened in the course of a thousand investigations. He said that it was also common ground that, where a fire had been caused by a discarded cigarette, one never finds the actual cigarette that caused the fire. Accordingly, there can be no suggestion that the cigarette end that Mrs Lawson found in the vicinity of the domestic baler was one that could have caused the fire.

Mr David Bailey

112. I have already mentioned that Mr Bailey is a partner in Burgoynes. He is a chartered engineer, with a degree in Electronic and Electrical Engineering, who has been employed by Burgoynes since February 1992 as a consulting engineer specialising in the investigation of fires, and explosions and so on. I found him to be a competent expert and a straightforward witness. Where his opinions differ from those of Dr Lipczynski, I generally prefer the views of Mr Bailey mainly because his views in those areas were based on scientific reasoning rather than impression and generalised assertions.

113. On the important issue of the resistance of the fault circuit, Mr Bailey's evidence and his calculation was not really challenged in cross-examination. This was because Mr Eklund was content to accept Mr Bailey's agreement to the proposition that, if there had been mechanical damage to the installation of the core of the cable so as to produce a short to earth, there could have been one or two previous arcing events that did not cause the small Boa cable MCCB to trip and did not cause a fire (see Day 4/137).

Dr Richard Lipczynski

114. Dr Richard Lipczynski, a partner in Geoffrey Hunt & Partners, was the electrical expert instructed by the NIG. He has a first degree and a PhD in Electrical and Electronic Engineering (his PhD thesis was on the Computer Control of Thyristor Drives). He has been with Geoffrey Hunt & Partners since 1996. For some 20 years before that he was a lecturer at the University of Bath, specialising in Control and Systems Engineering and related topics associated with computers and electronics.

115. I have to say that I did not find Dr Lipczynski to be an expert on whose evidence I felt able to rely. Mr Andrew Rigney QC, who represented the Council, was critical of several passages in his reports, with some justification in my view. I will give two examples.

116. Paragraph 3.5 of the joint statement of the electrical experts read as follows:

> "There can be very little doubt that when the Small Boa Baler was removed from site in 1996 that the MCCB labelled Small Baler on DB 1 was either switched off or manually tripped by depressing a small yellow trip pushbutton on the front fascia of the MCCB, prior to the Small Boa Baler cable being disconnected from the baler. However, there was nothing to prevent anyone from switching this MCCB back on subsequently."

117. However, at paragraph 3.1 of his first report Dr Lipczynski wrote:

> "It has also been agreed that there was nothing to prevent the MCCB from being readily put to the "on" position and the cable being made live."

118. Mr Rigney criticised Dr Lipczynski's insertion of the word "readily" in his recital of what had been agreed. When asked why he had done this he said that: "*It was my interpretation of how easy it was to switch the circuit breaker back on*". Whilst it may be a fairly small point in the context of his evidence overall, it reflected a tendency to present facts with a gloss that favoured his client's case and hence a lack of impartiality on his part.

119. In paragraph 3.2 of his first report he described the small label on Distribution Board No 1 which said "Small Boa Baler" and then said:

> ". . . it is not known when this label was attached. It is possible this may have been attached following an inadvertent operation of the MCCB prior to 2 April 2005 in a limited attempt to prevent the MCCB being operated again."

120. In other words, he was suggesting that the label may have been attached after the small Boa baler had been removed from site. Three paragraphs later he said this:

> ". . . it would not be negligent to turn [the MCCB] on in my view, as an electrician would not expect this to energise a redundant cable that had been left lying on the ground that had potentially sustained mechanical damage. The fault would lie with the electricians who decommissioned the Small Boa in 1996 and possibly with the person who attached the small label at a later date and as a response to another arcing and tripping event and as a limited attempt to prevent this happening again."

121. It can be seen that what was postulated as a possibility in paragraph 3.2 has been treated as if it was a fact in the passage quoted above. This is not acceptable reasoning in an expert's report, particularly when it is on a matter that is arguably not within the expertise of the particular expert at all.

122. I refer below to Dr Lipczynski's evidence that hydraulic oil could degrade the XLPE insulation on the cable cores. This was an example of him expressing a view in strong terms when in fact he had done no research whatever to check whether the relevant facts and available information supported that view.

The security of the site and the possibility of entry by an intruder

123. Since the suggestion of deliberate ignition by an intruder is made in relation to both the first and the second fires, it is convenient to consider first the general security of the site and the likelihood of entry by an intruder. I can deal with this at the outset because it is not an issue that depends on any disputed evidence: it is a matter of inference for the court to be reached in the light of facts that are not in issue.

124. The west, north and east sides of the site were enclosed by a metal palisade fence which was about 1.5 metres high. The vertical bars of the fence were made of angle iron and splayed at the top to form a triple point. In my judgment, it was not a fence that anyone would be likely to attempt to climb over unless they had some robust form of padding to provide protection from the spikes. It would also have been very difficult to gain a foothold from which to get over it without a step or ladder.

125. The southern boundary of the secure area of the centre was formed partly by the face of the building itself - including the office block - and, at the eastern end, by the gate (which was parallel to, but set back from, the line of the south wall of the main building). The gate was connected to the palisade fence which formed the eastern boundary to the site. At the southern end of the site there was direct access to the offices from a car park, which was outside the secure area.

126. At the western end of the southern boundary there was a wall which ran from the end of the building to the palisade fence on the western side - alongside the car park. Because the site was on sloping ground there was a drop of about 6 metres from the top of the wall into the yard outside the processing area. However, on the car park side there was a much lower drop, 1-2 m, from the top of the wall to ground level. An agile intruder would therefore have little difficulty in getting onto the top of the wall from the car park.

127. At the southwest corner of the site was a CCTV camera (No 1) which covered the car park, apart from the area immediately below the camera. On the south side of the car park was a thick hedge. According to a 2004 plan, the car park entrance was towards its western end. It was only partly in view of the CCTV camera. Thus a person entering the car park and walking straight across it towards the wall would probably be seen by the CCTV camera. But if a person turned sharp left on entering the car park, he or she could probably reach the wall at a point adjacent to the camera without being seen. However, the camera was positioned at the top of a tall pole and the precise area that it covered would probably not be apparent to an observer, although it would be reasonably obvious that if a person was immediately below the camera he or she would be out of its view.

128. The wall that I have just described did not extend the full length of the southern boundary to the west. A small length of the remainder of the southern perimeter was formed by the palisade fence. At the point where the wall met the fence the wall turned due north (into the site) for a short distance, gradually reducing in height. This can be seen on Figure 1. At the point where it stopped there was a fairly steep bank leading up to the palisade fence. It would not have been difficult for a reasonably agile person who was in the yard to get onto the wall at this point and then walk along it towards the car park. The problem from an intruder's point of view was that at the corner where the wall changed direction (to run alongside the car park) there were some dense bushes that grew over it: Mrs Lawson's photograph of this area indicates that these bushes covered perhaps a 3-4 m stretch of the wall. The wall and its immediate vicinity were not covered by any camera other than the one in the car park.

129. To sum up, it would in my judgment have been possible for an intruder to gain access to the car park and climb onto the wall without being seen by the CCTV cameras although he or she might not appreciate this by just looking at the site. Having climbed onto the wall, the intruder could walk towards its western end, then turn north and walk down the sloping section from which he or she could jump down into the yard. The problem with this operation would lie in the negotiation of the bushes at the southwest corner: a careless move could lead to a fall of some 6 metres into the yard below. In addition, the lowest end of the sloping section of the wall, at its north end, was probably visible from the weighbridge control room.

130. Whilst I consider that a fairly intrepid intruder could probably gain access to the centre via this route he or she would appreciate also that it was not without risk, not only from a physical point of view but also of being seen - he or she would be very exposed for the minute or two that it probably would have taken to negotiate the bushes growing over the wall. It might also be evident to an intruder that it might not be easy to make a quick escape if spotted. The intruder would probably anticipate that if he or she was pursued the obstacle presented by the bushes could prove a significant delay to swift escape.

131. So far I have only discussed the means of entry into the yard outside the building containing the processing area. What I have said so far about this substantially reflects the views of the fire experts in the joint statement. However, at the time when the statement was prepared Mrs Lawson was under the mistaken impression that the palisade fence was a chain link fence and that the drop from the top of the wall into the yard was about 3 metres, not 6 metres. NIG's expert, Mr Christie, had not visited the site and so he was entirely dependent on what he was told by Mrs Lawson about

the perimeter security. Had the experts known the true position at the time of preparing the joint statement, in particular that the fence was a metal palisade and not a chain link fence, they might have expressed more confident views about the adequacy of the security - but I do not find that anything turns on this.

132. If the intruder's purpose was to set a fire, then he or she would have had ample combustible material in the yard with which to do so. It was full of assorted rubbish and bales of inflammable waste. I share the inability of the experts to think of any obvious reason why an intruder would want to go deep into the building and in amongst the machinery in order to start a fire in the area of the domestic baler or anywhere nearby.

133. So far as the first fire is concerned, what the fire experts had to say in the joint statement was this:

> "If the fire was initiated by an intruder it would almost certainly have been started using a flaming ignition source and it is therefore very probable that they would have initiated a flaming fire. If this was the case then the "window of opportunity" for the initiation of such a fire is from approximately 15:35 hours to 15:50 hours. Between 15:37 hours and 15:40 hours Mr Nulty walked towards the west side of the building and whilst it is not known precisely where he went, he would for at least some of that time have had a view of the area across which an intruder would have to have travelled to access the processing area. This effectively reduces the "window of opportunity" for an intruder to enter the building in order to start a deliberate fire. An alternative scenario is that an intruder entered the building at sometime earlier while Mr Nulty was away from the area, i.e. prior to 15:37 hours, although if an intruder entered the building much before 15:35 hours there would have been a significant delay between that person entering the building and initiating the fire."

134. In the light of all these considerations I consider that the only factor that favours arson by an intruder is that it cannot be discounted as physically impossible. By contrast, the following factors mitigate against the likelihood of an intruder starting the first fire:

(1) The only realistic means of access was from the car park and this involved two risks of being seen. First, that of being picked up by the CCTV that covered the car park. Second, that the intruder would be very exposed whilst walking along the wall and negotiating the bushes at the south west corner.

(2) The bushes overgrowing the wall provided an obstacle to a swift escape.

(3) There is no obvious reason why an intruder would go well into the building to start a fire when there was so much combustible material outside. It is even more unlikely that, having gone into the building, he would have chosen - quite by chance - to start a fire very close to the area where Mr Nulty was working.

(4) The intruder might well have known that the centre did not operate on Saturday afternoons, with the result that he would have expected the main

building to be deserted. He would have had no means of knowing that Mr Nulty was working there and, if he entered before 15:20 hours, it is reasonably likely that Mr Nulty would have seen him.

(5) It would be an extraordinary coincidence if the intruder timed his visit for the only two periods between about 15:20 hours and 15:50 hours, each one of just a few minutes, when Mr Nulty was not in or near the building.

(6) There is no evidence that anyone had broken into the centre during the 9-10 years prior to the first fire.

(7) The intruder would probably have been aware that the centre was patrolled by security guards, even if somewhat infrequently.

(8) There is no evidence that anyone had a motive for setting fire to the centre.

135. Taking these factors together, particularly (3), (4) and (5), I regard it as extremely unlikely that the first fire was deliberately started by an intruder. I therefore reject it as a possible cause. I deal with the second fire later in this judgment.

136. I now turn to the other potential causes of the first fire.

The small Boa cable

137. The cable is a four core armoured cable which was originally connected to the small Boa baler when it was installed by an operator called Crop in about March 1996. The cable ran partly above the floor and partly under it in a conduit that lead back to Distribution Board No 1.

138. Crop's period of operation of the centre was short and after about 6 months it left, taking the small Boa baler with it. The cable was subsequently coiled up and left beside the domestic baler: either just lying on the floor or looped over a projecting part of the steel frame supporting the domestic baler. Importantly, and dangerously, the cable was left connected to the MCCB in Distribution Board No 1.

139. Over the final 60 cm of the cable the 4 cores were exposed in the sense that the armoured sheath and outer and inner insulation had been stripped off to permit the cable to be manipulated within the baler control panel. Each of the 4 cores was insulated with a layer of cross-linked polyethylene, known as XLPE, about 1 mm thick. XLPE is a hard plastic material which is generally used in armoured cables with cores of 16 mm^2 cross section and above. As Mr Bailey explained at paragraph 4.15 of his first report, it is much thicker and tougher than the standard PVC insulation found on the ordinary cable used by electricians in domestic installations, and it can tolerate significantly higher temperatures. I have been provided with a sample of both types of cable and XLPE is noticeably harder than the PVC insulation. One would have to hit it with a hard, heavy and sharp implement to make any impression on it.

140. The final 1.5 cm of each core was stripped of insulation in order to make the final connections to the terminals of the MCCB. These bare ends were in some way insulated when the small Boa baler was removed and, so far as anyone can tell, that

temporary insulation maintained its integrity until that time of the first fire, and so I need say no more about it.

141. Examination of the final lengths of the four cores after the fire revealed that arcing had taken place in two of the cores along the last 60 cm of their length with a severity that had resulted in one or two of the copper strands being severed. The cores consist of about seven strands of copper wire packed tightly together to form a composite conductor within the XLPE installation. In the case of the blue core conductor, one of the copper strands had severed and in the case of the yellow core conductor, two of the strands had severed and, in addition, there was minor pitting to two strands of that core at a different point.

142. The points at which the strands of the two cores had been severed were about 18.5 cm apart when the cores were laid out side by side. This means, applying simple geometry, that they could only have been next to one another when the cable was coiled up if the coil had a diameter of about 6 cm. The diameter of the coil at the time of the fire was significantly greater than this: indeed, I doubt very much if an armoured cable of this rigidity could be coiled up that tightly.

143. The significance of this is that if the arcing damage to the two cores was the result of some form of physical damage to the cable, it is unlikely that it was caused by a single incident or that any resultant short took the form of a core to core contact. It is agreed between the two electrical experts that the minor pitting to the two strands of the yellow core was also the result of arcing. This pitting was approximately 13.5 cm away from the point where the strands of the yellow core had been severed, and about 5 cm away from the point where the strand of the blue core had been severed. Again, therefore, core to core shorting is a most unlikely cause of this pitting.

144. Dr Lipczynski's view was that the two arcing events that severed the strands of the blue and yellow cores could not both have occurred during the same fire. He made this point in his reports and on several occasions during his cross-examination (for example, at Day 4/170-172; Day 5/28). His view was that both arcing events would have caused the MCCB controlling the circuit to trip within 20 milliseconds (or 0.02 seconds) so that unless, by some extraordinary coincidence, they both occurred at different places within a few milliseconds of each other, there could not have been two separate arcing events during the fire. Dr Lipczynski therefore contends that one of the arcing events must have occurred on a previous occasion.

145. As to the incident that caused the pitting to the two strands of the yellow core, Dr Lipczynski's final view was that there was a 55% chance (approximately) that this would have produced a fault current sufficient to trip the MCCB (his previous view was that this chance was 50%). Mr Bailey's position is that he cannot say. In the light of this, I consider that it is clearly possible that this pitting might have been the result of a separate incident that occurred before the first fire but did not trip the MCCB. Alternatively, it could have occurred during the first fire (without tripping the MCCB) but before the arcing that severed one or more of the strands in the blue and yellow cores.

146. It is NIG's case that there must have been one (or two) arcing events prior to the occurrence of the first fire followed by a second (or third) arcing event which actually caused the fire. Alternatively, it contends that there might have been one arcing event

during the first fire (after it had been caused by an earlier arcing event), but there could not have been more than one arcing event during the first fire. It follows that if Dr Lipczynski is wrong about the impossibility of two or more arcing event occurring during the first fire, it is also possible that all the arcing events were the result of the fire, rather than one of them being the cause of it.

147. In my view, it is logical to consider first the question of whether or not Dr Lipczynski is right about the extreme unlikelihood that the two severe arcing events that caused the strands of the blue and yellow cores to sever could have occurred during the first fire. This is because if he is right it would demonstrate that the occurrence of some form of earlier damage to one of the cores exposing a section of the conductor followed by that exposed section of conductor being brought into contact with another earthed conductor, being the scenario for which NIG contends, is very likely to have happened and is not simply a matter of speculation.

148. However, if Dr Lipczynski is wrong then the court must assess the likelihood of one of the cores being damaged in the way that I have just described and then subsequently being brought into contact with another earthed conductor so as to produce at least one separate arcing event prior to the first fire.

149. However, before I turn to this I should mention that NIG made a much more wide ranging submission in relation to the small Boa cable. NIG submitted that:

> "It is sufficient for the purposes of this case, to find that the cable was left in a dangerous condition because there was a risk of fire, which would come about if there was removal or breakdown of insulation and one copper core came to be in contact with another live conductor or with metal to earth and although the precise mechanism of the removal or breakdown of the installation may not be known or the precise mechanism by which one copper core came to be in contact with another live conductor or with metal to earth may not be known, the risk did come to pass and the danger did manifest itself, in the way which could be anticipated when the cable was left on site."

150. Leaving aside the fact that the reasoning in this submission appears to be circular, I disagree with it. In my judgment the court can only assess the probability that the first fire was caused by the small Boa cable by analysing all the various ways in which such a fire could have come about. It is not good enough simply to say that there was a risk and leave it at that. The fact that a particular state of affairs creates a risk of damage merely informs one that the occurrence of such damage is a possibility: without further analysis of precisely how that risk might have eventuated, I cannot see how the court can assess the probability that the risk caused the damage in suit unless there are no other possible causes.

Whether or not the two severe arcing events could have occurred during the first fire

151. The answer to this question depends on the level of fault current that would be generated when an exposed conductor of the small Boa cable is brought into contact with a route to earth. By Ohm's law the current in an electrical circuit is equal to the voltage (or potential difference) divided by the resistance of the circuit. In the present case, the resistance of the circuit under consideration can be divided crudely into three components. First, the section of cable "upstream" of the point where the arcing event

occurs. Second, the section comprising the earthed conductor "downstream" of the point where the arcing occurs. Third, the resistance of the electrical path between the exposed section of conductor of the small Boa cable and the earthed metalwork with which it has come into contact. This is the point where the arcing event occurs.

152. Both experts are broadly agreed that the first component of the overall resistance will be very low, probably less than 0.1 ohm. They are not agreed about the resistance of the third component, although both accept that it will be low: Dr Lipczynski says it would be significantly less than 0.1 ohm, but Mr Bailey considers that this value is arbitrary.

153. However, Mr Bailey does not regard this difference as being of great significance because in his view the crucial component is the second: the resistance of the electrical path between the exposed section of cable and the earthed conductor with which it has come into contact. Mr Bailey fundamentally disagrees with Dr Lipczynski's assumption that this is effectively nil.

154. Mr Bailey's view is that an electrical connection with a resistance of a small fraction of an ohm might be achieved if the contacting surfaces of the cable conductor and the earthed metalwork were "*clean and shiny*" and if the two conductors were pressed firmly together. At paragraph 7.5 of his Third Supplemental report he said:

> "It is also very unlikely that the domestic Baler metalwork and attached cable trays would have been clean and shiny. Bearing in mind that there had been hydraulic oil leaks in the area, it is in prospect that this metalwork, and indeed the small Boa Baler supply cable, was contaminated with hydraulic oil, which is an electrical insulator. Furthermore, the available evidence indicates that the domestic Baler metalwork in the vicinity of the cable was protected by a painted surface and, as already stated, paint is generally a poor electrical conductor. Any steel metalwork of the small Boa Baler that was not painted for some reason is likely to have been coated with oil or grease in order to reduce the risk of corrosion. Oil and grease are also not usually good electrical conductors. Furthermore, it is common knowledge that a good electrical contact is unlikely to be achieved with steel when its surface has been allowed to corrode and form an oxide layer (often referred to as rust). Given the operating environment inside the recycling centre building, i.e. the handling of large quantities of waste material, the domestic Baler metalwork and attached cable trays near to the small Boa Baler supply cable would inevitably have been covered with dirt and dust, quite possibly to a significant extent. This contamination would have been a further obstacle to achieving a good electrical contact."

155. This report was served in response to Dr Lipczynski's second Supplemental report. At paragraph 2.14 of that report, Dr Lipczynski wrote:

> "However, a $16mm^2$ copper cable (each core of the baler cable was $16mm^2$) has a resistance of approximately 1.15 milliohms per metre. The length recovered from site was approximately 15 metres and there was another link that ran underground to the switchroom. This section of cable was not recovered and its length is unknown. Each core of a 15 metre length of the

> baler cable would therefore have a resistance of 57.25 milliohms (15 x 1.15). Assuming a similar or even greater length was buried underground, each core of a 50 metre length of the baler cable would have a resistance of 57.5 milliohms. A similar or smaller resistance through the "earth" path back to the voltage source would be expected. Thus one of the baler cable's cores contacting earthed metalwork would be highly likely to have a circuit resistance of some 115 milliohms or 0.115 ohms (assuming 50 metres of cable from the switchboard to the earthed metalwork, a core resistance of 57.5 milliohms and a similar resistance from the point where the core earthed to the metalwork back to the voltage source). On those assumptions, a source voltage of 230 volts would result in a fault current of some 2000A. This is 40 times the rating of the 50A MCCB, a level of current more than sufficient to trip the MCCB within the maximum clearing time. The MCCB would trip in less than 20 milliseconds or 0.02 seconds."

156. It is apparent from this that, as Mr Bailey noted, Dr Lipczynski has assumed a perfect electrical connection, or at least one with a negligible resistance, at the point of contact between the exposed conductor of the small Boa cable and the metalwork with which it has come into contact. Dr Lipczynski provided no written response to Mr Bailey's third Supplemental report, which was dated 8 July 2011, prior to the hearing which began on 19 July 2011, and so the point was dealt with only by way of cross-examination.

157. Dr Lipczynski's evidence about this was given in the following exchange during cross-examination on 27 July 2011 (J 7/43-46):

> Q. . . . You have read Mr Bailey's third supplemental report, I assume?
>
> A. Yes.
>
> Q. He is right, isn't he, that you have omitted various resistances when carrying out this calculation?
>
> A. Yes.
>
> Q. In particular, you have omitted the resistance between the cable core on the one hand and any earth metalwork on the other?
>
> A. Yes.
>
> Q. Why?
>
> A. Because I do not know what the exact values are.
>
> Q. But Dr Lipczynski, according to Mr Bailey -- and I am trying to do this as quickly as possible -- there are four or five areas of resistance which you have simply omitted from your calculation, haven't you?
>
> A. Yes.
>
> Q. And the most important one of those is what he has referred to as R4. Shall we just have a look at it on the circuit. It is page 1390. Shall we just look, please, at the formula that is given, 1390.
>
> A. Yes.
>
> Q. We can see you have the total earth impedance, ZS. That equals ZE, plus -- and then the various resistances which are set out there.

A. Yes.

Q. You see that?

A. Yes.

Q. You can see that ZE is the internal impedance of the distribution transformer which is at the top of the diagram?

A. Yes.

Q. Your calculation takes no account of which of those resistances.

A. I have assumed we have 230-volts at his point 4 in the distribution board 1. I guesstimated or estimated a value for R3.

Q. Yes.

A. Right. I assume we have got good contact - good metal to metal contact with the earth metalwork on the basis that we need a metal to metal contact to start the process off.

Q. So that is R4, yes?

A. Yes.

And, at page 48:

Q. The basis, I think, on which you indicated that you had effectively assumed that R4 was zero or had left R4 out of account altogether was because you were assuming that there would be a very good contact between the cable and any earth metalwork, yes?

A. I was assuming we need a good metal to metal contact to start the process off.

Q. The conditions at the recycling centre would have been dirty conditions, wouldn't they?

A. Yes.

Q. What we don't have here is one bright shiny clean conductor coming into contact with another bright shiny clean conductor, do we?

A. Apparently not.

Q. The baler and the metalwork would be dirty. It is also right - and you have referred to it to on a number of occasions - that there were hydraulic leaks, yes?

A. Yes.

Q. Hydraulic oil is an insulator, is it not?

A. Yes.

Q. The paint on the baler would also be a poor conductor, wouldn't it?

A. It is an insulator.

Q. And if there were areas which weren't painted but nevertheless were greased in order to prevent rust, grease also is a poor conductor, isn't it?

A. It is an insulator, yes.

Q. There is no basis at all, is there, for assuming that R4 is zero or close to zero?

A. It has to be to start -- we have to have metal to metal contact to start the process off.

Q. The only reason you have made that assumption, Dr Lipczynski, is because it was essential for you to do so to support what is an unsupportable thesis.

A. No, it is essential to have a good metal to metal contact to start the current flow which starts the arcing process. If we have paint or grease or something between then, we are not going to get conductivity to start the process off.

MR JUSTICE EDWARDS-STUART: You seem to be assuming an all or nothing situation. In other words, you either have a good contact or no contact. Is there not an in between position?

A. If I put two conductors either side of this paper, I can sit them there for days, weeks, months, years. The process will never start. As soon as I have got metal to metal contact, I now have current flow and the process starts.

158. In spite of this and other opportunities to do so, Dr Lipczynski simply would not address Mr Bailey's point, namely that, whilst there may be metal to metal contact, in the conditions prevailing at the centre it will not be perfect so that there will be a resistance. Since the voltage is assumed to be constant, the higher the resistance at the point of contact, the lower the current. The extreme situation is where the presence of paint, dirt, etc, at the point of contact effectively amounts to insulation so that no current can flow.

159. Finally, I should mention that in the electrical experts' joint statement, which preceded Dr Lipczynski's reports, it was agreed that either area of severe arcing could have resulted in the production of sparks "*but may not have resulted in sufficient fault current to trip the MCCB*" (paragraph 3.12). I do not recall that Dr Lipczynski ever gave any explanation for his change of position, so I shall put it down to second thoughts.

160. On this issue, I accept the evidence of Mr Bailey and, as a result, I find that it is more likely than not that an initial short to earth created by the fire burning off the XLPE installation from the yellow and blue cores would not have been perfect (in that there would have been a resistance across the point of contact that was not insignificant) so that the fault current would have been significantly less than the 2,000A postulated by Dr Lipczynski. For example, if the overall resistance of the fault circuit is taken as 0.5 ohm (as against 0.1 ohm assumed by Dr Lipczynski), the current produced would be a 400A. According to the manufacturer's table produced by Mr Bailey, this would cause a 50A rated MCCB to trip at any time between zero and about 3 seconds. If the resistance is any higher than this, the MCCB will not trip for at least 1.5 seconds.

161. This is consistent with the evidence of Mrs Lawson that in her experience it is possible for multiple areas of electrical arcing damage to occur as a result of external fire attack to a live cable (see paragraph 5.7 of the fire experts' joint statement). I therefore reject the evidence of Dr Lipczynski on this aspect and find that the fault resistance would not necessarily have been so high as to make it unlikely that all three arcing events could have occurred during the fire and as a result of it.

162. Dr Lipczynski advanced a further argument based on the similarity of the damage to the cores at the two points where they had been severed. However, Mr Bailey does not agree that the damage at the points where the strands were severed on the yellow

and blue cores is similar. At paragraph 5.1.2 of his first report Dr Lipczynski said this:

> "However, in my opinion, the similarity of the damage visible at the two points of arcing makes it much more likely that if any one arcing event had resulted in the MCCB tripping, then the other arcing event would also have resulted in the MCCB tripping. The external fire attack to the cable that supplied the domestic baler only resulted in one area of arcing whereas there were multiple areas of arcing to the small Boa baler cable."

It was on the basis of this opinion that Dr Lipczynski concluded that it was highly likely that both arcing events would have been sufficient to trip the MCCB, with the result that if both arcing events had resulted from the first fire they would have had to have happened at almost exactly the same time (within milliseconds) in different locations - this is also the consequence of his assumption about the resistance of the fault circuit that I have already discussed. His view is that such a coincidence was highly unlikely.

163. The reference in the passage quoted above to the area of arcing on the cable that supplied the domestic baler is to damage to the live cable that supplied the domestic baler. This occurred at a point along the length of the cable that passed underneath the domestic baler where it was clipped to a cable tray. There was severe arcing damage to this cable at one point. It is not suggested that this occurred before the first fire.

164. Mr Bailey considered that the character of the damage at the two points of severe arcing on the yellow and blue cores was markedly different, although in this context he did not regard this as significant because it "*did not assist in determining how the arcing was initiated at each point or the magnitude/duration of the fault current involved*" (paragraph 2.3 of his Supplemental report). Mr Bailey referred to two published papers in which the authors concluded that there was no robust and reliable way of telling whether arcing damage to cables was the cause of a fire or the result of it.

165. Mr Bailey's view was that an MCCB with a current rating of 50A would not necessarily have been caused to trip by the energy dissipated at each of the two areas of severe arcing, although it might well have done so had the two incidents of arcing overlapped in time. Conversely, he accepts that the fault current produced at either of the two severe arcing events could have been sufficient to trip the MCCB (but not necessarily instantaneously) if it had not already been tripped by the other arcing events. In other words, Mr Bailey was not able to commit himself either way as to whether or not each of the two severe arcing events would have caused the MCCB to trip. This was in fact the agreed position of the electrical experts at the time of their joint statement.

166. On this issue, again I prefer the view of Mr Bailey. Dr Lipczynski has advanced no convincing reasons for concluding from a visual inspection alone that the two severe arcing events would have caused the MCCB to trip (and to do so virtually instantaneously). It seems to me that making an informed assessment of the magnitude of the likely fault current, as Mr Bailey did in the way that I have

described, is a more reliable way of reaching a view than simple visual inspection of the damaged cores. I conclude, in agreement with Mr Bailey, that it is possible, but not necessarily probable, that each of the two severe arcing events would have caused the small Boa cable MCCB to trip (and, if it did, probably not instantaneously).

When the small Boa cable MCCB was caused to trip

167. In the light of the conclusion set out in the previous section, there are effectively four scenarios (the electrical experts took five scenarios, but two of them can be conflated):

(1) All the arcing events occurred prior to the first fire.

(2) At least one arcing event occurred before the first fire, and a subsequent one caused the fire.

(3) The first arcing event caused the first fire, and the subsequent arcing events were caused by the first fire.

(4) All the arcing events were caused by the first fire.

168. Because, as I have explained, the cores of the small Boa cable were damaged in two places, in the case of alternatives (1) and (2) I consider that there have to have been at least two separate events that caused damage to the cable such as to remove a significant amount of the insulation from one of the cores and to cause the relevant part of the core, either at the same time or subsequently, to be brought into contact with an earthed conductor - probably part of the metalwork of the domestic baler or the cable trays. In relation to the possible occurrence of previous incidents of damage to cables, I consider it most unlikely that any such incident could have happened whilst the cable was live without someone realising it. If, say, a metal implement had been dropped or otherwise forced into contact with the conductor of a live cable so as to remove part of the insulation, it is likely that there would have been some sort of sparking. I am assuming that the relevant implement or object would be made of metal because I cannot see that an object made of any other material would be likely to cause the necessary damage. However, there is the possibility that a heavy non metal object might fall on one of the cores where it crossed a cable tray and I discuss this below.

169. By way of a further preliminary consideration, I consider that it is most unlikely that the MCCB for the small Boa cable was in the tripped position when the electricity company checked the distribution boards on the morning of 2 April 2005. If the small Boa cable MCCB had been in the tripped position at that visit, it would have been noticed when the distribution boards were checked and Mr Aylmer would have been asked about it. This was Mr Bailey's view and I agree with it - in fact Dr Lipczynski also gave evidence to much the same effect at the end of his evidence (Day 6/64-65). Mr Aylmer's account of the events given at the time makes no mention of any such observation or comment. However, if the MCCB was in either the On or the Off position it would not have attracted comment.

170. More generally, I consider that if the small Boa cable MCCB had tripped at any time prior to the fire, it is likely that someone would have asked why. In my view it is

highly unlikely that any electrician who was familiar with the centre and knew that there was no such machine as the small Boa baler would not want to find out why an apparently redundant MCCB had tripped. Even if it was noticed by an electrician who was not familiar with the plant at the centre, it would be very surprising for such an electrician just to reset the MCCB without making any enquiry as to why it had tripped. For these reasons, which are essentially much the same as those given by Mr Bailey at paragraph 4.5 of his first report, I consider it most unlikely that at any time prior to the first fire there was a prior arcing event that tripped the small boa cable MCCB.

171. The table attached to Mr Bailey's Third Supplemental report shows that, for a 50A rated MCCB, if the fault current is greater than about 75A, the MCCB will always trip (but not necessarily immediately). If the fault current is between 50A and 75A it may or may not trip. I have already concluded that the current in the fault circuit at each of the two severe arcing events may have been sufficient to cause the MCCB to trip at some point (ie. within a few seconds), which means that the current would be greater than 75A.

172. Accordingly, I consider that:

(1) it is very unlikely that any damage that caused the removal of part of the insulation of either of the cores of the small Boa cable occurred whilst the cable was live (otherwise it would have been noticed and the MCCB would probably have tripped); and

(2) that if one of the two severe arcing events did occur prior to the first fire, it did not cause the MCCB to trip .

This leaves the arcing event that caused the minor pitting in the two strands of the yellow core.

173. In his first supplemental report Dr Lipczynski said that he thought that the pitting damage, if caused by arcing (as it is now agreed it was), would have had about a 50% chance of tripping the MCCB.

174. In his second supplemental report, in which he set out his assessment of the likely fault current, he revised this probability so as to conclude that there was a 55% chance (approximately) that the arcing that caused the pitting on the strands of the yellow core would have caused the MCCB to trip. His explanation for this change of view was that it was the result of his further consideration of the probable circuit resistances involved if an exposed core of the live small Boa cable contacted earthed metalwork. Since I have rejected Dr Lipczynski's approach to the assessment of the likely resistance of the fault circuit, I also reject his revised assessment of the probability that the arcing that resulted in the minor pitting would have had a 55% chance of causing the small Boa cable MCCB to trip.

175. Mr Bailey did not express a view on this particular question but, in the light of his conclusions as to the likely consequences in terms of tripping the MCCB of the two severe arcing events, it can be assumed that either he is unable to reach a conclusion about this or that he would have regarded it as unlikely that the arcing resulting in the minor pitting would have tripped the MCCB. I am content to assume, in favour of

NIG, that Mr Bailey's position would have been that he could not say one way or the other. This would be in accordance with Dr Lipczynski's initial view.

176. These considerations lead me to the conclusion that the small Boa cable MCCB was either switched on at some time prior to 2 April 2005 and remained in that position until the first fire (without tripping), or was switched on for the first time after the electricity company's visit on 2 April 2005.

177. I must now turn to the question of the inherent likelihood of an incident causing damage to one of the cores of the small Boa cable such that a sufficient amount of insulation was removed so as to enable the exposed section of core to form a contact with some earthed metalwork and that contact occurring (either at the same time or subsequently). The inherent likelihood of this sequence of events must depend on all the circumstances, and to that question I now turn.

The likelihood of damage to the small Boa cable leading to an arcing that caused the first fire

178. In his first report Dr Lipczynski said "*I believe the cable may have been moved or disturbed on many occasions and this could have provided the opportunity for mechanical damage to occur*" (paragraph 4.3). Nowhere in his reports or his evidence did Dr Lipczynski provide an example of how such mechanical damage might be caused, apart from the possibility of impact from a forklift truck.

179. The small Boa cable was coiled up at the point where it emerged from the underfloor conduit. There was little scope for moving it without uncoiling it, although it could perhaps have been turned around the point where it entered the floor or laid down horizontally instead of being leaned up against something. I cannot see any way in which this cable or, more specifically, the 60 cm lengths of the cores that were not protected by the armoured sheathing, could have been damaged whilst the cable was being moved to an extent that involved the loss of insulation. No mechanism for this has been suggested and I can conceive of none.

180. In my view the only way in which the relevant damage could be caused accidentally would be by some form of severe mechanical impact. It must be remembered that, as is common ground between the experts, a simple cut in the insulation would not be sufficient because that would not enable the conductor to come into contact with anything apart from the implement that caused the cut. What has to be envisaged is some form of stripping of insulation so that a section of the conductor becomes exposed which is of sufficient length to form a contact with another conductor or earthed metalwork. I have already explained that the fact that the two severe arcing events were about 18.5 cm apart makes it very unlikely that the yellow and blue cores could have been damaged in the same incident. It also makes very unlikely the possibility of a phase to phase short between the exposed conductors of the blue and yellow cores.

181. Apart from impact from the fork of a forklift truck, no one has been able to suggest a credible mechanism by which the cores of the small Boa cable could be damaged in the manner required to create the possibility of a short to earth. Mr Bailey said that he was struggling to think what was or could have been in the vicinity of the cable that might have provided sufficient impact to damage the insulation (Day 4/65). At this

point I should describe in more detail the location of the small Boa cable. It was coiled up so that the diameter of the coil was, to judge from the photographs, about 40-50 cm. At the time of the fire it was looped over a protruding part of the supporting steel frame of the domestic baler, and was at a slight angle to the vertical. Close to the position of the cable, and perhaps about 0.5 metres from the side of the baler, was the domestic baler control panel. This was positioned at right angles to the side of the baler. In effect, therefore, the control panel and the side of the baler created a small corner in which the cable was located. It was not in a position in which it appeared to be obstructing anything, nor was it in any form of thoroughfare. I consider that its vulnerability in this location would not have been very much greater if it had been lying horizontally on the floor (as Mr Aylmer thought he might have seen it), rather than standing almost vertically and looped over the adjacent steelwork of the domestic baler (as it appears in some of the photographs taken after the fire).

182. However, there was a metal cable tray that ran at about ground level from the control panel to the domestic baler on part of which the small Boa cable was resting. As I have already mentioned, it is possible that if one of the cores of the cable had been lying across the vertical side of the cable tray, it could have been damaged if some heavy object had fallen on it at the point where it crossed the edge of the cable tray. If such an incident resulted in the forcing of a sufficient amount of insulation from the core it could, at the same time, have forced that section of the core into contact with the metalwork of the cable tray. Assuming that the core remained in that position a short to earth, and possible arcing, could be expected to occur immediately, if the small Boa cable was live, or, if it was not, as soon as the cable MCCB was switched on.

183. On NIG's case there has to be at least one such incident prior to the first fire. I have already concluded that, if this happened, it is probable that the cable was switched off at the time otherwise there would have been immediate arcing and sparks which I would expect someone to have noticed. Thus the hypothesis requires that the cable remains in that condition for some time until its MCCB is switched on at some point after about 03:00 hrs on 2 April 2005, when the electricity supply to the centre was cut.

184. An alternative scenario is that one of the cores sustained similar damage but was not at the same time brought into contact with earthed metalwork. The latter event then occurs in a separate incident which would lead to an immediate short to earth if the small Boa cable MCCB was live at the time. Alternatively, if the core remained in the same position following the second incident the short would occur as soon as the MCCB was switched on.

185. Either scenario involves the impact by a heavy or strongly driven object on one of the cores in a way that I have described. Apart from a forklift truck, with which I will deal in a moment, no one has suggested what sort of heavy object might have caused such damage, how it would have done so and what type of operation could have created the opportunity for it to happen. I can see that an everyday implement that would have been in use at the centre, such as a shovel, might (in theory, at least) have been dropped onto the cable. If a shovel with a fairly sharp end had been dropped on the cable from a height of, say, 1 to 1.5 metres, I suppose that it might have caused the required damage to the installation of one of the cores. However, I can think of no circumstances (and none have been suggested) in which an operator at the centre

would be using a shovel at a height of 1-2 metres above the point where the small Boa cable was coiled up.

186. Leaving aside the inherent improbability of such an incident occurring, it would be necessary also to assume that whoever was responsible for it did not trouble to inspect the cable after causing the damage or, if he did, said nothing to anybody about it or took any steps to ensure that the exposed conductor was not left in contact with some other metalwork. I consider that the occurrence of such an incident is no more than a remote possibility.

187. Of course, one can never exclude deliberate sabotage - but in this case the potential saboteur would have to have known that the small Boa cable was still connected to the distribution board, otherwise there would be no point in damaging it. There is absolutely no evidence of a motive for such sabotage, or that anyone had the relevant knowledge, and no one has advanced sabotage as a possibility. I consider that it can be safely disregarded.

188. The only candidate for a source of impact that has actually been suggested is the forklift truck that was brought up to the rear of the domestic baler in order to provide additional lighting for the engineer who was carrying out the repairs on the morning of 2 April 2005 during the power cut. The forklift truck in question did not have conventional forks, rather the forks took the form of vertical blades that were, I assume, designed for picking up bales of waste. On the basis of a photograph taken by Mrs Lawson my impression is that they would have been capable of causing the necessary damage to the cores of the cable if the truck was driven into the coiled up cable.

189. However, there is no evidence whatever that this happened. If it had, one might have expected some signs of damage to the steelwork or cable trays against or on which the coiled cable was resting (because the core would have to be pushed against something rigid for the damage to occur). It can be reasonably assumed that those manoeuvring the forklift truck in this fairly confined area would have tried to take care when doing so and would have avoided allowing it to come too close to any structure. There was a diagram attached to the Casella Stanger report, prepared by Ms Brown, which showed the forklift truck in the area of the domestic baler but it is not shown as being immediately against the side of the baler or close to its control panel. I accept that this is not evidence of very much weight, particularly as it only purports to show the forklift truck in the position in which Ms Brown found it - it does not provide any basis for an assumption that the truck never came any closer to the domestic baler whilst it was being manoeuvred into position or whilst it was being used as a source of lighting. However, Ms Brown did not consider that it might have played any part in the events leading to the start of the first fire.

190. In my judgment, the theory that the damage to the small Boa cable might have been caused by the fork lift truck is nothing more than speculation. The purpose of bringing the forklift truck to the domestic baler was to provide a source of light so that the Boa engineer who had been brought in to repair the domestic baler could see what he was doing. The engineer was replacing or tightening a flange of the hydraulic pipe that fed the ram of the baler. It is difficult to be precise from the photographs, but it looks as if the flange in question is a good two metres above floor level. From the photograph of the forklift truck it appears that the lights are at high level - perhaps a

little higher than the head of the driver. Nevertheless, in order to illuminate the area of the flange with the headlights, I consider that the truck would have to be parked a little way away from the baler. If it had been brought up so close to the domestic baler as to create a risk of contact between the forks and the small Boa cable, I doubt whether the angle of the beams of the lights would have been wide enough to illuminate the area of the flange. For all these reasons, I consider that the forklift truck theory can be excluded.

191. NIG also suggested in argument that one of the mobile platforms for the baling wire, or a wheelie bin, might have caused the damage. Having considered the photographs and having regard to the position of the cable that I have already described, I regard these two suggestions as fanciful.

192. Two further candidates have been put forward as possible non-mechanical causes of damage to the insulation of the cores of the small Boa cable: rodent activity and contamination by chemicals, in particular hydraulic oil. As to rodent activity, NIG's case on this aspect received an unexpected boost from the evidence given by Mr Aylmer (set out above) that there had been cases of electrical wires being gnawed by rats. It is well known that some electrical cables, for example those under the bonnets of cars, are vulnerable to rodent activity. Unfortunately, there was no evidence before the court as to whether or not rats will gnaw insulation made of XLPE as well as the PVC insulation that is typically used on smaller cables. The small Boa cable was in an area in which there was human activity 24 hours a day save for the period from about 14:00 hours on Saturday until 06:00 hours the following Monday. Any rodent activity, whether inside or outside one of the balers would, I am sure, be confined to this week-end period when the plant was not in operation.

193. Assuming, for the moment, that a rat might have gnawed away enough of the XLPE insulation to expose a sufficient length of the core to enable contact to be made with other metalwork, the exposed core then has to be brought into contact with that other metalwork. Obviously the rat would not do this. It would require some human intervention, perhaps someone moving the cable and inadvertently bringing the exposed section of core into contact with, say, a cable tray. However, as I have already indicated, if this happened whilst the cable was live there would be immediate sparking as soon as the core came into contact with the other metalwork that would alert those responsible to the problem. What has to happen, in my judgment, is for the cable to be moved whilst the MCCB is switched off (or the power to it cut) so that if and when it is subsequently switched on a short circuit to earth and subsequent arcing will occur. As I have already indicated, this applies to any situation in which the stripping of the insulation from the core and the bringing of the core into contact with earthed metalwork happen at different times.

194. When considering this potential cause and sequence of events, I remind myself again that the burden of proving the cause of the fire rests firmly on the Council and not with NIG. In the light of the evidence I consider that rodent damage to one of the cores cannot be discounted and that there is the possibility that this happened and that subsequently an exposed section of core was brought into contact with nearby metalwork whilst the small Boa cable MCCB was not live. However, this could only have been the cause of the first fire if the cable was energised again on the day of the fire.

195. Mr Nulty told Mrs Lawson when she interviewed him on 5 April 2005 that he isolated the two baler control panels locally (in other words using the isolator on the outside of the control panel itself) before starting to work on them. At this stage he would not have been concerned to turn on any circuit: he wanted the control panels to be dead not live. So even if, contrary to this account, he did go to the distribution board to isolate the relevant circuits before starting work I regard it as inconceivable that at that stage he would have turned on the small Boa MCCB by mistake. I consider that this suggestion can be dismissed.

196. In my view the only occasion that would have provided an opportunity for Mr Nulty to switch on the small Boa MCCB was when he was reconnecting the supply to the commercial baler after completing the repairs. But it is highly unlikely that he did so, since the MCCB for the small Boa cable is on the left-hand side of the distribution board towards the top, whereas the MCCB for the commercial baler is on the right hand side at the bottom. In addition, the small Boa cable MCCB was still marked with the label saying "Small Boa baler". Accordingly the scope for mistake was very limited, particularly to an engineer who was reasonably familiar with the system such as Mr Nulty. I therefore reject the suggestion by Dr Lipczynski that it was "*entirely plausible*" that in his attempts to re-power the commercial baler Mr Nulty inadvertently switched on the small Boa cable MCCB (first report, paragraph 3.3). On the contrary, I consider that it is very, very unlikely that Mr Nulty would have switched on the small Boa MCCB by mistake. Indeed, in its closing submissions NIG effectively accepted this. This suggestion by Dr Lipczynski was, I regret to say, another illustration of his lack of impartiality.

197. But the other difficulty facing the suggestion that Mr Nulty might have started the fire by inadvertently switching on the small Boa MCCB is that he cannot have completed the repairs until about 15:10, since he left the area having reconnected the power to the commercial baler before 15:20 hours. The two fire experts agree that the "window of opportunity" for a fire initiated by a source of ignition that began with a smouldering fire but was not evident as a flaming fire until 15:55 hours is from approximately 12:55 hours to 15:40 hours. Accordingly, it is possible that if the arcing event occurred between 15:10 and 15:20 hours, it could have resulted in a flaming fire by 15:55 hours. But, if this happened, Mr Nulty would probably have been back in the area of the small Boa cable within less than half a minute of the arcing event taking place and it would involve him not noticing any smell from the insulation which must have been burned off during the arcing.

198. The only other scenario is that the insulation was stripped from one of the cores at a time when the core was live but not in contact with earth or, perhaps more likely, when the core was not connected and not in contact with earth (and then subsequently became connected at some time before 2 April 2005). In this situation it might be possible that during the power cut on the day of the fire someone moved the cable so as to bring the exposed core into contact with earthed metal. Of course, at this stage nothing would happen because the cable would be dead.

199. However, in this situation an arcing event would have occurred as soon as power was restored to the building - which I find was probably at about 12:30 hours (if it was much later Mr Nulty would have been very close to where the arcing would have occurred and, if it happened, must surely have heard it) - assuming that all the relevant MCCBs controlling the supply to the small Boa cable were all switched on.

But this is outside the fire experts' "window of opportunity" for an event that starts a smouldering fire that subsequently turns into a flaming fire by 15:55 hours. Had such an arcing event occurred, either it would not have caused a fire at all or any subsequent fire would have set off the alarm well before 15:55 hours. However, the difficulty about this scenario is that it is not certain that at 12:30 hours there was power to Distribution Board No 1 in the low voltage switch room: the fact that Mr Nulty had to go back to the main distribution board in the PLYSU area after completing the repairs suggests that it might not have been (see paragraphs 16 and 17 above).

200. Whilst such a sequence of events cannot be excluded altogether, because the experts may be wrong in their assessment of the "window of opportunity" and it may well be that Distribution Board No 1 was disconnected at the time, on the evidence before the court I consider that it is highly improbable. In this context I should point out that whilst the experts have agreed that the "window of opportunity" starts up to 3 hours before a flaming fire sets off the alarm, Mrs Lawson's view is that 90 minutes represents a more realistic limit. The figure of 3 hours is derived from studies involving the ignition of various materials by cigarette ends. There was only one case (a real incident involving a waste bin) in which it took 3 hours for the fire to start: in all the other cases where a fire started, it was within less than about 100 minutes.

201. The final candidate that has been canvassed as a possible cause of damage to the insulation of the cores of the small Boa cable is chemical attack. This was mentioned by Dr Lipczynski in his first report, but he did not elaborate on it - either in that report or in his subsequent reports. In his evidence, Dr Lipczynski said this (Day 5/127-128):

> Q. . . . Can we just take those points in sequence. First of all, the hydraulic oil leak. You are not suggesting, are you, that that could have led to some sort of chemical breakdown of the XLPE?
>
> A. Show me a piece of cable that's been contaminated by hydraulic oil for nine years. I've seen cable insulation definitely softened and degraded by being with oils and that sort of material.
>
> Q. Would it have been compromised to the extent that it would have are laid bare the copper conductors underneath as a result of hydraulic oil?
>
> A. It might not have laid bare the copper but it might well have contaminated the plastic so that its properties have been degraded.
>
> Q. I ask, you see, because in the joint statement this is a matter that Mr Bailey covers. You don't say anything about this of course in the joint statement, do you?
>
> A. It is Mr Bailey's comments.
>
> Q. Yes, and at paragraph 4.3.2, he says that the XLPE insulation was unlikely to be degraded by any of the chemicals that were in this processing area, including the hydraulic oil. Do you agree with that or not?
>
> A. I disagree. I think that contamination with chemicals can affect cable insulation.

MR JUSTICE EDWARDS-STUART: There must be technical specifications of XLPE which say to what it is vulnerable?

A. But I have not seen any data with sort of long-term exposure to materials.

MR JUSTICE EDWARDS-STUART: Have you looked --

A. I have had a look.

MR JUSTICE EDWARDS-STUART: -- for the purposes of this report?

A. Not for the purposes of this report but I have looked previously to see what sort of things can damage cable insulation.

MR JUSTICE EDWARDS-STUART: Yes, but we are talking not just generally. Some things may damage PVC which won't damage XLPE and vice versa. Have you looked at any technical information in relation to this type of insulation to show to what chemicals it might be vulnerable?

A. No, not to that specific insulation.

202. The reference in the passage quoted above to paragraph 4.3.2 of the joint statement of the electrical experts should be to paragraph 4.2. Mr Bailey was not challenged in cross-examination about his statement that the XLPE insulation would be very unlikely to be degraded by any chemicals one would normally expect to find at a waste recycling centre. Indeed, some questions during Mr Bailey's cross-examination (at Day 4/68-69) gave me the impression that Dr Lipczynski may not have been aware when he wrote his first report that the insulation was XLPE and not PVC. However, Mr Bailey described the small Boa cable in his first report, and stated specifically (at paragraph 2.6) that the insulation covering each cable core was XLPE, so Dr Lipczynski must have been aware of the position from then on.

203. Since Mr Bailey's evidence on XLPE's vulnerability to degradation by hydraulic oil was not challenged and since I regard Dr Lipczynski's evidence on the point as very unsatisfactory, I have no hesitation in rejecting the suggestion that the insulation of any of the small Boa cable cores may have been damaged by exposure to hydraulic oil that had leaked from the domestic baler.

My conclusions on the likelihood that the first fire was caused by arcing between one of the cores of the small Boa cable and earthed metalwork

204. Although I have set out my conclusions and the reasoning that leads to them in the previous sections of this judgment, it may be convenient if I now summarise them as concisely as I can.

(1) I do not accept Dr Lipczynski's evidence (as summarised in paragraph 2.19 of his second supplemental report) that the severe arcing damage on the conductors of the yellow and blue cores would have caused the small Boa baler cable to trip almost instantaneously. I accept that either of them might have caused the MCCB to trip, but I prefer Mr Bailey's evidence to the effect

that, if this happened, it would probably be within a time measured in seconds and not milliseconds (Dr Lipczynski's view).

(2) It is therefore possible that all the arcing damage on the cores of the yellow and blue cables could have been caused during the first fire.

(3) I consider it highly unlikely that the insulation on either the yellow or the blue core of the small Boa cable was damaged by impact and that, either at the same time or subsequently, the damaged core was accidentally brought into contact with earthed metalwork.

(4) If such damage and contact did occur, I find that it is most unlikely that the small Boa cable was live at a time when the exposed core was brought into contact with some nearby earthed metalwork. This is because if the cable had been live there would have been arcing which would have been noticed by the person who was responsible for the incident that brought the cable into contact with the earthed metalwork.

(5) I find it unlikely that the MCCB of the small Boa cable had tripped prior to the occurrence of the first fire. Had it done so, it is likely that it would only have been reset by an electrician who could be expected to have investigated the cause of the tripping. Alternatively, if it had not been reset and was still in the tripped position when the electricity company's engineers were checking the distribution boards on the morning of 2 April 2005, I find that it would have been the subject of comment and investigation at that stage.

(6) I find that the small Boa cable MCCB was not switched on by Mr Nulty on 2 April 2005; it is far more likely that it had been switched on at some time prior to the day of the first fire although, like everyone else, I am at a loss to understand how this came about.

(7) It is possible, but in my view unlikely, that one of the cores of the small Boa cable had been damaged - possibly as a result of having been gnawed by a rat - so that some of the insulation had been removed and that it was subsequently disturbed during the power cut on 2 April 2005 so that the exposed core was then brought into contact with earthed metalwork. This could then have resulted in an arcing event occurring as soon as the power was restored to the building at about 12:30 hours on 2 April 2005 if the various MCCBs controlling the small Boa cable were all switched on (which they may well not have been). But any such arcing event could not, on the basis of the "window of opportunity" agreed by the fire experts, have given rise to a fire that set off the alarm at 15:55 hours: it would have been set off rather sooner.

205. For all these reasons I consider it very unlikely that arcing of the small Boa cable caused the first fire. There is a remote possibility that it did, but I regard the likelihood that this happened as no higher than that.

A discarded cigarette end

206. For the reasons that I have already given, I find that Mr Daffeh did not smoke in the building on 2 April 2005. There is no evidence that he, unlike Mr Nulty, had to carry

out any particular task that required him to remain in the area of the domestic baler for any length of time on that day. If he needed to smoke a cigarette, he could have gone outside the building in order to do so. For him smoking inside the building would mean the loss of his job if he was caught. I simply cannot see him taking such a risk for no reason.

207. Mr Nulty was working in fairly close proximity, by which I mean a few metres, to the point where the first fire is thought to have started. He was carrying out that work during the "window of opportunity" in which a smouldering fire could have led to a flaming fire that set off the alarm at 15:55 hours.

208. Mr Nulty was a smoker. From about 14:00 hours onwards, if not before, he was on his own in the building and would not have expected to be disturbed. The only person who might have disturbed him would have been the security guard, either on a routine tour of the centre or for some reason making a special visit in order to ask Mr Nulty to do something.

209. By 14:00 hours or so, Mr Nulty would have been working for about 1½ hours without a break and would have known that there was probably a further hour or so of work ahead of him. As someone who smoked 10-15 cigarettes a day it would have been understandable if he had wanted to have a cigarette. It would also be understandable if, having decided to do so, he stood behind one of the control panels so that he would not be so readily seen by someone unexpectedly visiting the area.

210. I do not think for one moment that Mr Nulty, or indeed any other smoker who might have been in the building at that time, would have been so reckless as to throw a cigarette end that was still alight into some nearby waste. If a person did have a cigarette, I would have expected him to stub it out, perhaps on the floor, and having done so to then kick it to one side into some nearby rubbish in order to conceal it. If, for whatever reason, such as local unevenness of the floor, he did not stub out the cigarette effectively it could - in these circumstances - have started a smouldering fire leading to a flaming fire that set off the alarm at 15:55 hours.

211. It was suggested by NIG in its closing submissions that it is entirely plausible that after leaving the building and assisting the security guard with the gate Mr Nulty went back to his car to get his cigarettes, leaving his fluorescent jacket in the car as he did so, so that he could go back to the canteen for a smoke. I agree that this is plausible, but if Mr Nulty did not have any cigarettes with him when he was carrying out the repairs to the control panel, so that he had to go back to his car to fetch them, one might have expected him to say so: but he did not.

212. I have said already that I consider it possible that the tragic sequence of events by which Mr Nulty first lost his livelihood and then subsequently, it seems, his reason - leading eventually to his death - may have arisen not because he caused the first fire, but because he was suspected of having done so. It seems to me that, perhaps understandably, those in charge of the centre who had previously engaged Mr Nulty's services may have decided to dispense with them after the fires. I say "understandably" because they would have been aware of the conclusion, which they would have had no reason to question, of both Ms Brown and, after a rather fuller investigation, Mrs Lawson, that the first fire was probably caused by a cigarette end discarded by Mr Nulty.

213. But the fact that Mr Nulty was suspected of having caused the first fire does not mean that he did so. Accordingly, as I have already explained, I do not consider that the tragic sequence of events that followed the fires can in themselves be any indication that Mr Nulty was in truth responsible.

214. However, there are the two other pointers that I have mentioned which in my view are consistent with the conclusion of Ms Brown and Mrs Lawson that Mr Nulty did cause the first fire: his curious reaction when asked during the police interview about providing a sample of DNA and the note that he wrote in November 2006 in which he suggested, incorrectly, that he told either Ms Brown or Mrs Lawson about the small Boa cable. The latter tends to suggest that he was concerned to try and cast doubt on the conclusions of the fire investigators.

My conclusion as to the cause of the first fire

215. Accordingly, of the three suggested causes of the first fire, none of which , if taken on its own, is one that is inherently likely, I find that a cigarette end carelessly discarded by Mr Nulty is the most probable. In the light of this conclusion I must now turn to the authorities in order to decide whether or not that finding is sufficient for me to hold as a result that the Council has in law discharged the burden of proving that Mr Nulty caused the first fire.

The authorities

216. NIG relies on the well known case of *Rhesa Shipping S.A. v Edmunds ("The Popi M")* [1985] 1 WLR 948, and in particular on the passages in the speech of Lord Brandon at 951A-G and 955F to 956G. This decision was applied by Akenhead J in *Fosse Motor Engineers Limited v Condé Nast and National Magazine Distributors Limited* [2008] EWHC 2037 (TCC), a fire case.

217. In *Fosse* Akenhead J considered all the major decisions on this point since *"The Popi M"* and summarised their effect in the following terms:

> 60. There was a very substantial debate as to what principles could or should be applied so far as causation in relation to the fire was concerned. There can be no doubt that in a civil case such as this, it is incumbent upon the Claimants, to prove on the balance of probabilities that the fire was caused by a cigarette carelessly discarded by one of the four agency workers. That is their pleaded case (paragraph 5 of the Re-Amended Particulars of Claim) . . .
>
> 61. Causation is essentially a matter of fact. The courts over the years have not laid down any strict rule of causation as to how damage or loss or an event has been caused is to be proved.
>
> 62. In *Rhesa Shipping Co v Edmunds* [1985] 1 WLR 948, the House of Lords considered the case which involved the sinking of a ship, the Popi M which sank in calm weather in the Mediterranean in deep water when laden with a cargo of bagged sugar. The issue was in effect what had caused it to sink. Lord Brandon gave the lead judgment. He said at page 951A-G as follows:

> "… the appeal does not raise any question of law, except possibly the question what is meant by proof of a case 'on a balance of probabilities'. Nor do underwriters challenge … any of the primary findings of fact made by Bingham J. The question, and the sole question, which your Lordships have to decide is whether on the basis of those primary findings of fact, Bingham J and the Court of Appeal were justified in drawing the inference that the ship was, on the balance of probabilities, lost by perils of the sea.
>
> In approaching this question it is important that two matters should be borne constantly in mind. The first matter is that the burden of proving, on a balance of probabilities, that the ship was lost by perils of the sea, is and remains throughout on the shipowners. Although it is open to underwriters to suggest and seek to prove some other cause of loss, against which the ship was not insured, there is no obligation on them to do so. Moreover, if they choose to do so, there is no obligation on them to prove, even on a balance of probabilities, the truth of their alternative case.
>
> The second matter is that it is always open to a court, even after the kind of prolonged enquiry with a mass of expert evidence which took place in this case, to conclude, at the end of the day, that the proximate cause of the ship's loss, even on a balance of probabilities, remains in doubt, with the consequence that the shipowners have failed to discharge the burden of proof which lay upon them.
>
> This second matter appears clearly from certain observations of Scrutton L.J. in *La Compania Martiartu v. Royal Exchange Assurance Corporation* [1923] 1 K.B. 650. That was a case in which the Court of Appeal, reversing the trial judge, found that the ship in respect of which her owners had claimed for a total loss of perils by sea, had in fact been scuttled with the connivance of those owners. Having made that finding, Scrutton LJ went on to say, at p. 657:
>
> 'This view renders it unnecessary finally to discuss the burden of proof, but in my present view, if there are circumstances suggesting that another cause than a peril insured against was the dominant or effective cause of the entry of seawater into the ship … and an examination of all the evidence and probabilities leaves the court doubtful what is the real cause of the loss, the assured has failed to prove his case.'
>
> While these observations of Scrutton L.J. were, having regard to his affirmative finding of scuttling, obiter dicta only, I am of opinion that they correctly state the principle of law applicable …"

63. Lord Brandon then went on to consider the approach to the evidence adopted by the first instance judge and referred to the well-known saying of Mr Sherlock Holmes:

> "How often have I said to you that, when you have eliminated the impossible, whatever remains, however improbable, must be the truth?"

Lord Brandon considered that it was inappropriate to apply this dictum and indeed set aside the lower courts' finding.

64. At page 955H to 956F, he continued:

> "The first reason [why it is inappropriate to apply Mr. Holmes' dictum] is one which I have already sought to emphasise as being of great importance, namely, that the judge is not bound always to make a finding one way or the other with regard to the facts averred by the parties. He has open to him the third alternative for saying that the party on whom the burden of proof lies in relation to any averment made by him must be able to discharge that burden. No judge likes to decide cases on burden of proof if he can legitimately avoid having to do so. There are cases, however, in which, owing to the unsatisfactory state of the evidence or otherwise, deciding on the proof is the only just course for him to take.
>
> The second reason is that the dictum can only apply when all relevant facts are known, so that all possible explanations, except a single extremely improbable one, can properly be eliminated. That state of affairs does not exist in the present case: to take but one example, the ship sank in such deep water that a diver's examination of the nature of the aperture, which might well have thrown light on its cause, could not be carried out.
>
> The third reason is that the legal concept of proof of a case on the balance of probabilities must be applied with common sense. It requires a judge of first instance, before he finds that a particular event occurred, to be satisfied on the evidence that it is more likely to have occurred than not. If such a judge concludes, on a whole series of cogent grounds, that the occurrence of an event is extremely improbable, a finding by him that it is nevertheless more likely to have occurred than not, does not accord with common sense. This is especially so when it is open to the judge to say simply that the evidence leaves him in doubt whether the event occurred or not, and that the party on whom the burden of proving that the event occurred lies has therefore failed to discharge such burden.
>
> In my opinion Bingham J adopted an erroneous approach to this case by regarding himself as compelled to choose between two theories, both of which he regarded as extremely improbable, or one of which he regarded as extremely improbable and the other of which he regarded as virtually impossible. He should have borne in mind, and considered carefully in his judgment, the third alternative which was open to him, namely, that the evidence left him in doubt as to the cause of the aperture in the ship's hull, and that, in these circumstances, the shipowners had failed to discharge the burden of proof which was on them."

65. This case was picked up in the recent case of *Ide v ATB Sales* [2008] EWCA Civ 424 by the Court of Appeal. Thomas LJ giving the judgment of the court reviewed the *Rhesa Shipping* case and also a more recent House of Lords

decision in *Datec Electronic Holdings Ltd v United Parcels Service Ltd* [2007] 1 WLR at 1325. He then said this:

> "6. As a matter of common sense it will usually be safe for a judge to conclude, where there are two competing theories before him neither of which is improbable, that having rejected one it is logical to accept the other as being the cause on the balance of probabilities. It was accepted in the course of argument on behalf of the appellant that, as a matter of principle, if there were only three possible causes of an event, then it was permissible for a judge to approach the matter by analysing each of those causes. If he ranked those causes in terms of probability and concluded that one was more probable than the others, then, provided those were the only three possible causes, he was entitled to conclude that the one he considered most probable, was the probable cause of the event provided it was not improbable."

66. I do not consider that Thomas LJ was suggesting that there was anything wrong with Lord Brandon's conclusion; indeed the House of Lords decision was binding on the Court of Appeal. He was simply considering what might happen if there were three possible causes, by weighing up the inherent probability or improbability of each of those causes and come to a conclusion on the balance of probabilities as to what the cause was.

67. What is not acceptable, at the very least in a case like the current one, is to identify that there are, say, (as here) five possible causes, rank them each in percentage terms as possibilities and then select the possibility with the highest percentage as the probable cause. The only circumstances in which it would be legitimate would be if the highest ranked cause was the one which on all the evidence the judge was satisfied was the probable cause of the incident or loss in question. This proposition was, I believe, accepted ultimately by Counsel for both parties. I consider that it is dangerous and generally a fruitless occupation to seek to rank possibilities or probabilities in percentage terms in any event. If there are five possibilities of which four are remote or extremely improbable, that conclusion may go to support a judge's finding that the remaining "possibility" is in fact the probable cause or explanation for the event in question.

68. There are numerous cases at first instance and in the Court of Appeal which deal with causation largely as a matter of fact. One such case was *Kiani v Land Rover Ltd and Others* [2006] EWCA Civ 880. The unfortunate facts of that case were that Mr Kiani went to work at the Land Rover plant; his dead body was found in a tank in the area in which he worked. He had died of asphyxia. His personal representative sued on the basis that Mr. Kiani had accidentally fallen into the tank; Land Rover suggested that his death was suicide. There were thus two possible explanations. The first instance judge had found suicide to be a less than probable explanation, he found that it occurred as a result of accident because the tank had its hatch left open and that Mr. Kiani had probably gone over to have a look, overbalanced and fallen in. Waller LJ giving the lead judgment, dismissing the appeal, said this at paragraph 30:

> "It seems to me that some of the criticisms made of the recorder are on any view not justified. First it does not seem to me legitimate to say that [certain] evidence established that an accidental fall was 'impossible'. … Second it is not in my view fair to criticise the recorder for not setting out precisely how any accident occurred anymore than it would be fair to say to the defendants that they should show precisely how a deliberate act of suicide would have occurred. As long as accident can be demonstrated to be possible, it is open to a court which has discounted any other possibility to be of the view that accident has been proved on the balance of probabilities. That must be particularly true where a breach of duty, a duty to guard against the very type of injury with which the case is concerned, has been established. Third, **I do not myself think that it is false logic to reason that where only two possibilities are under consideration both of which seem unlikely, if one seems much less likely than the other, the less likely can be discounted thus making the first likely to have happened on the balance of probabilities**. …"

I do not consider that this approach is different broadly from the views which I have expressed above."

(My emphasis)

218. I agree with Akenhead J's analysis of these authorities and I gratefully adopt it.

219. In my judgment there are only three possible candidates for the cause of the first fire and they are the ones that I have mentioned. I accept that it might be regarded as unlikely that an experienced electrical engineer, who had in the past been a part-time fireman, would choose to smoke in a building to which he knew a no-smoking policy applied and then discard the cigarette end - albeit one that he thought he had stubbed out - into flammable waste lying on the floor. But if the only other possible causes of this fire are very much less likely, as I find they are, then in law the discarded cigarette becomes the probable cause of the first fire. As Waller LJ observed in the passage that I have emphasised above, this process of reasoning is not false logic.

220. In these circumstances, I find that the Council has proved that the first fire was caused by the negligence of Mr Nulty.

The cause of the second fire

221. In her first report, dated 9 May 2005, Ms Brown said that:

> ". . . it is likely that heat transfer occurred from the conveyor belt involved in the first fire, and ignited debris (smouldering) on the other conveyor belt. Unfortunately, this was undetected and later developed into a large fire."

222. In her initial report dated 30 August 2005, Mrs Lawson said:

> "In theory this second fire could have been completely separate to the first, caused either deliberately or by an electrical fault, as some of the equipment

> remained energised (although switched "off") after the first fire. However, the area described by the Fire Service as being initially involved in the fire on 3 April 2005 was linked to the area involved in the first fire by a hopper and a conveyor, as described earlier. Furthermore, due to the power failure on 2 April 2005 there was waste material on the conveyors, including that linking the bunkers to the balers. Therefore, I consider it much more likely that a pocket of smouldering material, left unextinguished by the Fire Service following the first fire, underwent a transition to flaming and gave rise to the second fire."

223. In paragraphs 36 to 44 above I have described the course of the investigation carried out by the fire brigade and how it changed its conclusion about the likely cause of the second fire following the meeting at the centre with some of the firefighters that was held on 29 June 2005.

224. In a further report dated 30 August 2005, Ms Brown changed her conclusion about the cause of the second fire. She said:

> "Based on scene evidence and actions carried out by the fire brigade, it is my opinion that the second fire was caused by the deliberate application of a naked flame to debris by the sorting area."

It is not clear what she meant by "scene evidence", unless she was referring to the outcome of the meeting with the firefighters of 29 June 2005, because she does not appear to have paid a further visit to the site since she first went on 4 April 2005.

225. In Mrs Lawson's report dated 15 April 2011, which was her first report in these proceedings and was written with knowledge of the fire brigade's change of mind, she said:

> "I remain of the view that the cause of the second fire could, in theory, have been completely separate from the first fire. However, I also still consider that it would be a remarkable coincidence two entirely unrelated fires to have both occurred within 9 hours of each other in the same part of the building, separated physically by approximately 12-15m. Hence in my view it is far more likely that the two incidents were in some way related."

Mr Christie's position was that there was no evidence that indicated whether the second fire was maliciously started or was a continuation of the first fire. He considered that this was a matter for the court.

226. In the joint statement of the fire experts, it was agreed that:

> "If the second fire was a re-ignition of the first, the most likely mechanism of initiation is the emission of a burning brand from the first fire landing within combustible materials in or close to the bunkers."

The bunkers referred to in that paragraph are those where the second fire was seen to originate.

227. I have already explained why I consider that the conclusion reached by the fire brigade that there was a lack of security at the centre on 2/3 April 2005 was probably based on a misunderstanding of the actions of the security guards at the centre. The fire brigade found the gate open on most of the occasions when they attended the centre because the guard on duty had opened the gate in anticipation of the fire brigade's arrival (which was known or anticipated on each occasion) so that they would not be held up: it was not a question of just leaving the gate open generally so that anyone could enter the site.

228. Although the authors of the second report of the fire brigade concluded that an intruder was the most likely cause of the second fire, I consider that this conclusion needs to be approached with a little scepticism having regard to the circumstances in which it came to be reached. I am not questioning the integrity of those who wrote the report, but I consider it possible that their judgement may have been influenced by a mistaken assessment of the security at the gate and coloured by the desirability of arriving at a particular outcome. In addition, the discussion with the firefighters at the scene took place about three months after the occurrence of the fire, by which time their recollections of the incident would have diminished in quality. Two of the firefighters who were principally involved in the re-inspection that took place after the first fire (Messrs Rhodes and Cross) gave statements to Mr Catlin when he carried out the first investigation, when the incident would have been fresh in their minds, so he would have been well aware of their firm view that they had located and extinguished the one surviving hot spot.

229. Whilst the case for an intruder causing the second fire is stronger than in the case of the first fire, because it does not require the fire to have been started within a particular 15 minute window in time, any intruder would have to surmount the difficulties of access, and escape, that I have already discussed in the context of the first fire. Again, there is no reason for an intruder setting fire to material in a bunker or conveyor belt well inside the building when there was more accessible material that could easily be set on fire. In addition, the fact that the third fire occurred, particularly after the experience of the second fire, shows that re-kindling of a fire in the waste that existed throughout the centre can happen in spite of the fire brigade's precautions to prevent it. As a matter of probability, therefore, I consider that it is more likely that the second fire was caused in the manner described in the fire experts' joint statement, namely that it was effectively a continuation of the first fire, than by an intruder.

230. It follows, therefore, that Mr Nulty is liable for the damage caused in the second fire as well as for the damage caused in the first fire.

The coverage dispute

The issue of the policy

231. The first point taken by the Council was that there is no evidence that the policy was ever issued to Mr Nulty and, accordingly, no evidence that he knew of its conditions. If he did not, so the Council submits, then he could not have been in breach of a condition of whose existence he was unaware.

232. In the end, the evidence about this was fairly clear. Mr Carmichael told the court that when a risk presented by a broker to an NIG underwriter was accepted a policy schedule and wording were generated automatically in duplicate. The two copies of these documents were then sent to the broker. At the end of the month NIG would send the broker a statement showing the premiums due for that month, which would constitute the request for payment.

233. Having received this documentation and, subsequently, the monthly statement the broker would then pay the premium, presumably having by then received it from the insured. Mr Carmichael said that he had seen the record on NIG's computer system that showed that the premium in respect of Mr Nulty's policy had been paid. I accept his evidence.

234. I conclude therefore, as a matter of probability, that Mr Nulty's brokers received two copies of the policy schedule and wording. The normal procedure would have been for them to send one copy of each document to the insured. Mr Nulty's brokers had an agency agreement with NIG, which I understand was in force at the time when this insurance was arranged. The agency conditions provided that no policy was to be given to the insured until the premium had been paid.

235. Since the premium had been paid by Mr Nulty's brokers I consider that it is most unlikely that it had not already been paid by Mr Nulty, and I find that it was.

236. Although there is no evidence as to whether or not the brokers sent Mr Nulty a copy of the policy schedule and wording, in the ordinary course of events they would have done so under the arrangements that I have described. In the absence of any information to the contrary, I conclude as a matter of probability that Mr Nulty did receive the policy wording.

237. For what it is worth, and it is probably not very much in the circumstances of this case, there has never been any suggestion on behalf of Mr Nulty that he did not receive the policy or was unaware of the claims conditions.

The terms of the policy

238. The policy was a liability policy written specially for tradesmen. It contained the following Claims Conditions:

> 1 **Action by the Insured**
>
> The Insured shall on the happening of any incident which could result in a claim under this Policy:
>
> a immediately notify and send written confirmation to the Company
>
> b . . .
>
> c make no admission of liability . . . without the Company's written consent
>
> . . .

> f produce to the Company such books of account or other business books or documents or such other groups that may reasonably be required by the Company for investigating or verifying the claim

239. There was no term in the policy that imposed any general duty of co-operation upon the insured. Such a term might be implied, but not so as to make it a condition precedent.

240. It was accepted by NIG that the obligation to give immediate notice was not a condition precedent so that the extent of its liability to indemnify Mr Nulty could only be reduced if it could show that it had suffered prejudice as a result of any failure by Mr Nulty to give immediate notice.

The facts

241. NIG called three witnesses. The first, Mr Passey, was employed by NIG as a Technical Claims Consultant and had some 30 years experience of claims handling in the insurance industry. He joined NIG in March 2005. Where a reported claim was in excess of £1 million he was required to refer it to his line manager, Mr Neil Francis. Mr Francis was also a witness. The third witness called by NIG was Mr Carmichael. He was a Liability Underwriter in NIG's Head Office.

242. Mr Passey and Mr Francis both said in evidence that if the fires had been reported to NIG at the time by Mr Nulty, even at a time when no one had accused him of starting the first fire and he did not know how it started, they would have instructed a fire expert to investigate straightaway. The first question that I have to decide is whether or not they would have done so in the unusual circumstances of this case. If I find in their favour on this issue, then the next question is to what extent, if at all, NIG has been prejudiced by Mr Nulty's failure to give prompt notice of the occurrence of the fires.

243. It will be apparent from what I have already said that NIG first declined to provide Mr Nulty with an indemnity in its letter dated 13 March 2009 on the ground that he had "*failed to comply with the policy requirements to co-operate*" in that he had not provided NIG with a letter of authority to unable NIG to obtain various documents from the police relating to an interview with Mr Nulty carried out by the police in February 2006.

244. Since the policy contained no obligation of co-operation, save to the extent that some obligation of reasonable co-operation might be implied as a matter of law, this was hardly a firm basis on which to decline cover. It became clear in the course of the evidence of both Mr Passey and Mr Francis, that neither of them had a clear understanding of the terms of the policy.

245. Having taken this stand in March 2009, six months later by a letter dated 27 October 2009 NIG declined cover on different grounds. This letter, which Mr Passey and Mr Francis both accepted would not have been written without their authority, contained three errors. First, it was said that the obligation to give immediate notice of any incident which could result in a claim under the policy was a condition precedent, which it was not - as both Mr Passey and Mr Francis accepted in cross-examination. Second, it was said that in the light of the fact that Mr Nulty had been interviewed by

Burgoynes "*about the cause of the claim*", and also by the police, notice to NIG "*should have been given at that time, notwithstanding that you deny having caused the fire, as the incident could have given rise to a claim (and has done)*". The problem with this formulation of the breach is that the interviews with Burgoynes and the police took place about nine months apart, and so it is not clear what is meant by giving notice "at that time". Third, the letter asserted that it was not necessary for NIG to prove that it had been prejudiced by the late notification: that was also wrong, as Mr Passey and Mr Francis accepted in evidence.

246. Whilst it appears that this letter was probably drafted by NIG's solicitors (by whom it was sent), I consider that both Mr Passey and Mr Francis should have had a sufficient knowledge of the terms of the policy, and the timings of the two interviews, at least to query the terms in which this letter had been drafted, particularly in relation to the condition precedent and prejudice points. I accept that in matters such as the construction of an insurance policy claims managers would naturally defer to the advice of their solicitors, but both these witnesses were very experienced and could be expected at least to have questioned the basis on which it was proposed to decline cover. As they both said, to decline cover to an insured is a very serious matter.

What NIG would have done if it had received prompt notice of the fires?

247. I did not find either Mr Passey or Mr Francis to be a witness upon whose evidence the court could safely rely. Each of them having said that if Mr Nulty had given prompt notification of the circumstances in the terms that I have set out paragraph 242 above he would have instructed a fire expert straightaway. However, each agreed, when pressed, that he had never encountered a situation in which an insured had reported circumstances that might lead to a claim where (a) the insured did not know the cause of the loss and (b) no one had alleged that he was responsible for it.

248. Both Mr Passey and Mr Francis were very concerned to keep costs to a minimum, for reasons that are perfectly understandable. They did not want to instruct an expert until they felt that they had all the relevant material, with the result that there was a significant delay before Mr Christie was finally instructed to investigate the fire.

249. I am fairly sceptical as to whether Mr Passey and Mr Francis would have instructed a fire expert straightaway if the occurrence of the fire had been notified in circumstances that I have described. However, at this stage I shall assume, without deciding, that they would have done so.

250. Mr Nulty was on site on 4 and 5 April 2005 and was involved in the investigations carried out by Ms Brown and Mrs Lawson on those days. Mrs Lawson says that she did not suggest to him that he had been smoking in the building and had discarded a cigarette that had caused the first fire, and I doubt very much whether Ms Brown did so either. In fact, there is no evidence that during the week after the fires anyone suggested to Mr Nulty that he might have been responsible. However, since I have already concluded that, on the balance of probability, an unextinguished cigarette end discarded by Mr Nulty caused the first fire, it must follow that Mr Nulty would have appreciated that he might have started the fire even though no one had said so (although he would almost certainly have wanted to believe that he had extinguished his cigarette properly and could not have been so careless as not to do so).

251. In these circumstances a person in Mr Nulty's position who was aware of the terms of his policy should have appreciated that an incident had occurred which could result in a claim against him in respect of which he was covered by the policy and that in consequence he was under an obligation to notify his insurers immediately. However, I do not think that he could be reasonably expected to have done so until it had become reasonably clear that there was no obvious alternative cause of the fire. I consider that this would have been the case by the morning of Wednesday, 6 April 2005 (at that point no-one appreciated the potential involvement of the small Boa cable).

252. If that day he had telephoned his brokers, then NIG ought to have known of the incident by the end of that working day or early the next day. Even if they had then reacted promptly, I doubt whether any fire expert whom they might have instructed would have been able to attend the scene of the fire before Thursday, 7 April 2005, at the earliest. Since Dr Rose, the expert instructed by the insurers of the fire brigade, did not attend the site until 12 April 2005, my assessment as to when NIG‘s expert would have attended may well be optimistic.

253. At this stage it is likely that NIG would have instructed a general fire expert because there would have been no information to suggest that either of the fires had been caused by an electrical fault. By the time that this expert would have arrived at the centre, the small Boa cable would already have been disturbed (as shown in Mrs Lawson's photographs taken on 6 April 2005 and subsequently) and the forklift truck would no longer have been in the position near the domestic baler when it was being used as an additional source of lighting.

254. Since at that stage no one at the centre appreciated that the small Boa cable might have been live at time of the fire, I think it unlikely that any general fire expert would have paid it any particular attention. Whether or not he or she might have done so later would depend on being notified by Mrs Lawson of the information that was subsequently obtained from Mr Nulty to the effect that the small Boa cable was still connected to Distribution Board No 1.

255. In any event, even making every assumption in favour of NIG, I am unable to see how any independent fire expert instructed by NIG would have seen the small Boa cable in its position at the time of the fire. Indeed, I consider it highly unlikely that he or she would have inspected it before it was removed from the centre by Mrs Lawson and taken to Burgoynes’ offices some weeks after the fires.

256. All this is based on the assumption made above at paragraph 249. I will now revisit that assumption. I consider that, if notified promptly in the terms I have set out above, NIG’s first reaction would not have been to send an expert to site at once but instead to consider whether or not to do so. It is far from obvious that NIG would have decided to do so because it might have feared that this would communicate the fact that Mr Nulty had reported the incident to his insurers, which might then lead those acting for the Council to think that a claim against Mr Nulty might have some merit.

257. I strongly suspect that NIG’s second reaction would have been to arrange for Mr Nulty to be interviewed, probably by Mr Christie. It is probable that by the time such an interview took place, Mr Nulty would have discovered that the small Boa cable

had been connected at the time of the first fire so that he would have told Mr Christie about it. Given this information, I consider that NIG would then have instructed Mr Christie to find out where the cable was and to arrange for it to be examined. He would probably have been instructed also to visit the site, but I doubt whether all this would have happened much before the end of June 2005, at the earliest.

258. In my judgment, and basing myself on what I regard the most likely sequence of events, these are the circumstances against which NIG's claim to have suffered prejudice must be assessed.

Has NIG suffered prejudice and, if so, to what extent?

259. NIG submits that "*the prejudice is obvious and lies in the delay of 18 months before notice*". NIG also submits, and to an extent I agree, that what happened after October 2006 (when Mr Nulty was first put on notice of the claim) is not a reliable guide to what would have happened if notice had been given when it should have been. I bear that point in mind.

260. In its closing submissions NIG gave the following examples of prejudice:

(1) There were on-site discussions between the experts, to which NIG were unable to be a party.

(2) There was no opportunity to discuss with Mrs Lawson the value of her evidence and in particular for her to agree that the cigarettes she found and relied upon had no relevance to Mr Nulty smoking, as she now accepts and accepted in the joint statement.

(3) There was no opportunity to seek to put to Mr Aylmer or other witnesses the contemporaneous evidence that Mrs Lawson was relying on in relation to smoking and seek their explanation for the presence of a cigarette ends. She did not do that, but forensic investigators instructed by Mr Nulty would surely have done so.

(4) The cable was moved and having been identified as being something which was worthy of investigation, would surely have been the subject of greater investigation in situ by other forensic investigators.

(5) There was no opportunity to examine the discarded cigarette end found by Mrs Lawson near where Mr Nulty had been working, or any of the plant and equipment in that area.

261. I do not understand the first of these points. Ms Brown, of Casella Stanger, Mrs Lawson and Dr Rose, of Hawkins, were not on-site at the same time. The only person who was on site with each of the independent fire experts was Mr Catlin. As to the second point about the lack of opportunity to discuss with Mrs Lawson and the value of her evidence about cigarettes, that evidence was fully explored and tested in cross-examination but that did not change her opinion. I can see nothing in this point.

262. It is true that NIG had no opportunity immediately after the fire to put to Mr Aylmer or other witnesses the evidence about the presence of cigarette ends. But even if they

had said, as they were likely to have done, that there was a rigidly enforced no-smoking policy and that the cigarette ends must have found their way in as part of the waste, this would have been no more than opinion or speculation on their part. In the light of this submission, it is perhaps surprising that NIG did not explore these points during the cross-examination of Mr Aylmer. For whatever reason it did not do so.

263. I have already dealt with the submission about the loss of opportunity to inspect the cable in situ. For the reasons I have given, this opportunity was almost certainly lost before NIG could (or would) have had an expert on site even if the claim had been reported very promptly. The extent to which NIG lost the opportunity to inspect other items depends on when it would have first instructed an expert to go to the centre.

264. In its statements of case NIG referred also to the fact that it was no longer possible to examine the CCTV footage prior to 15:20 hours on 2 April 2005 which might have established the presence and identity of persons entering the site prior to that time, and that no site security audit of the premises was carried out after the fires.

265. I doubt if the examination of this CCTV footage would have made any difference, although I cannot exclude that possibility. As I have already explained, the most likely route for an intruder was one that was largely out of view of the CCTV cameras. In any event, since Mr Nulty's presence in the building on the afternoon of 2 April 2005 could not have been known to a potential intruder, if the intruder had entered the building and made for the domestic baler at any time before 15:20 hours, he would have encountered Mr Nulty.

266. It is true that any expert instructed shortly after the fire could have made a thorough examination of the security of the site. However, there is no evidence that the site has altered significantly since the fire and, if such an examination was as important as NIG now appears to suggest, it is surprising that it did not instruct Mr Christie to visit the site after notification of the claim. The value of the exercise would not have been greatly diminished by the delay.

267. I am not persuaded that any of these grounds have much force when considered individually. Even when taken together they are not very powerful. However, I consider that it is self-evident that a cold trail always puts an investigator at a disadvantage. What NIG contends it has lost as a result of the delay is the opportunity to demonstrate that a cigarette end discarded by Mr Nulty was not the most probable cause of the fire or to investigate, closer to the time, the reason for the second fire.

268. I accept that the delay in notification of the occurrence of the fires has impaired NIG's opportunity to investigate the claim thoroughly at a much earlier stage than it was able to in the event, and perhaps to demonstrate that one of the other possible causes of the fire that have been identified had a higher probability of being the true cause of the first fire than I have concluded. In addition, and in my view more significantly, there was room for a more thorough investigation of the cause of the second fire. Whilst I have found - on the balance of probability - that it was a consequence of the first fire, I certainly cannot exclude the possibility that a differently conducted investigation might have persuaded me that the fire brigade's conclusion in its second report was correct. I therefore conclude that there has been a loss of a chance that is more than nominal.

Is loss of a chance the correct basis on which to assess any prejudice suffered by NIG?

269. I did not understand it to have been submitted on behalf of the Council that NIG must show, as a matter of probability, that the outcome of this litigation would have been different if the circumstances had been promptly notified by Mr Nulty. If that were the case, NIG's claim would fail because I have no hesitation in concluding that NIG cannot show this. Accordingly, any loss of a chance, if that is the right basis - which I think the Council accepted is the correct position, must be assessed at less than 50%.

270. Mr Rigney referred me to the case of *Friends Provident Life v Sirius International* [2005] 2 Lloyd's Rep 517, at 531, in which Mance LJ (as he then was) said, in the context of a claim by insurers for damages for breach of a claims notification clause:

> "32. If they can prove serious consequences, then these will often be capable of quantification, in one way or another, even if only as losses of a chance or opportunity, and can be set off against the claim.
>
> 33. Of course, there are cases, like the *Bankers Insurance* case decided by Buckley J, where it may be said that the consequences are too intangible to measure in precise financial terms, although, where an insured's breach has caused this difficulty, courts should incline to a quantification favourable to insurers."

271. In Jackson and Powell on *Professional Liability*, 6th Edition, at 11-302, under the heading "*Loss of Opportunity to Defend Proceedings*", the authors say:

> "Where a solicitor fails to put in a defence or to take some other procedural step, with the result that his client loses the opportunity to contest the claim against him, the court must consider the merits of the proposed defence. The damages should represent the value of the opportunity which has been lost, and many of the principles which have been discussed above will be applicable."

The principles referred to in that last sentence of the principles relating to the assessment of damages for the loss of a chance. It seems to me that the position of an insurer who asserts that as a result of late notification he has been deprived of the opportunity to contest the claim against his insured, or at least that his opportunity to do so has been impaired, is in a similar position to the client of the negligent solicitor who has been deprived of the opportunity of defending a claim against him.

272. On the basis of this fairly exiguous authority I conclude that the correct approach in this case is to assess NIG's claim for damages against Mr Nulty on the basis of a loss of a chance or opportunity unless I consider that the claim is simply too intangible for me to do so.

The valuation of the loss of NIG's opportunity to defend successfully the claim against Mr Nulty

273. To put a value on this loss is fraught with difficulty. Whilst I have no hesitation in rejecting NIG's submission that it should be assessed at 100%, or even 50%, I do not

think that it can be put at nothing. For the reasons that I have given, I do not accept that NIG would have instructed a fire expert to go to the site immediately, but I consider that it might well have sent an expert to the centre within a few weeks of the fires and to interview relevant witnesses. In addition, that expert would probably have been able to interview some of the firefighters who were amongst the first on the scene of the second fire. It is possible, but I put it no higher than that, that if such evidence was obtained the court might, for example, have been persuaded that the second fire was not a rekindling of the first fire.

274. There is no logical way of arriving at an appropriate percentage - I have to do it largely as a matter of impression looking at the circumstances of the case as a whole. I have already indicated that I consider that the chances are less than 50%, but greater than nil. Within this bracket I consider that the appropriate answer must lie at the lower end of it. However, I do not think that the prejudice can be said to be so nebulous as to be intangible. In my judgment, and doing the best I can, I would assess the prejudice to NIG - in the form of its loss of opportunity to secure a different result - at 15%.

275. This means that, whilst NIG remains liable to indemnify Mr Nulty, it has a claim for damages that it can set off against Mr Nulty's claim for indemnity. Mr Nulty is therefore entitled to be indemnified to the extent of 85% of his liability or, if this exceeds the limit of indemnity of £2 million, as it almost certainly will, to the extent of £1.7 million (I have not been asked to consider the precise basis of indemnity - for example, whether or not it includes items such as claimant's costs and defence costs, if any).

276. Since the Council has made it clear that it will not seek to enforce any judgment against the estate of Mr Nulty, the Council will in practice not recover more than Mr Nulty's entitlement under the NIG policy.

The counterclaim by Mr Nulty in the coverage action

277. Finally, I must deal with a counterclaim that was made by the Council (in the name of Mr Nulty) against NIG. Briefly, it alleges that NIG wrongfully failed to accept its liability to indemnify Mr Nulty. Had NIG accepted liability to indemnify Mr Nulty when it should have done, the action by the Council - so it is alleged - would have been started much earlier and judgment obtained by no later than, say, 10 October 2008.

278. The Council contends that the result of this is that interest has accrued on the claim since that date, when if NIG had acted properly it would not have done, and that Mr Nulty has sustained a loss in the form of his liability for that interest.

279. It seems to me that there are various difficulties in the way of this counterclaim. First, the Council did not bring its action against Mr Nulty until 1 July 2009, having issued a letter of claim in October 2006 - that itself being 18 months after the fires. On 29 November 2006 NIG wrote to Barlow Lyde and Gilbert notifying them of NIG's interest as liability insurers of Mr Nulty and to tell them that they were considering the claim under a full reservation of policy rights. In spite of sporadic chasers from Barlow Lyde and Gilbert NIG maintained its reservation of rights until, on 13 March

2009, Berrymans Lace Mawer wrote to both Mr Nulty and Barlow Lyde and Gilbert to say that NIG would not be granting indemnity.

280. However, back in June 2007 Barlow Lyde and Gilbert had written to Berrymans Lace Mawer to say that if they did not receive an appropriate letter of response from either them or Mr Nulty within the next 14 days the Council would issue proceedings without further warning. In spite of this sabre rattling, the sword remained in its sheath for a further two years. The Council could have issued proceedings by July 2007 but decided to wait. In my view, it cannot be said, as a matter of causation, that the delays by NIG caused the two year delay in issuing proceedings between July 2007 and July 2009. By this I do not intend to exonerate NIG from any criticism: on the contrary, it is quite clear that throughout this period it was more concerned to find a way of escaping any liability to Mr Nulty than to protecting his interests by defending the claim against him.

281. Second, I consider it unlikely that this claim would ever have been brought to trial within the timeframe that would have resulted in a judgment in October 2008. If the claim form had been issued in July 2007, instead of July 2009, the trial would probably have taken place in July 2009, instead of July 2011. This would probably have resulted in a judgment in October 2009, two years earlier than it is being given now.

282. Third, Mr Nulty, and now his estate, was never in any position to meet any part of this claim. Whether or not the claim was for £4 million or £5 million was, for practical purposes, a matter of indifference to Mr Nulty. In these circumstances, I do not consider that the Council would ever have attempted to pursue any claim over and above the amount recoverable from NIG and, indeed, that is now its stated position.

Afternote

283. I have found this an anxious and difficult case. To make a finding against a person who has been unable to come to court and defend himself is not something any court would wish to do lightly. It is for that reason that I have explored in detail, and perhaps some may think in excessive detail, the possible alternative causes of this fire and, in particular, the likelihood of arcing from the small Boa baler cable.

284. Whilst I have found that Mr Nulty's negligence caused the first fire, I doubt very much if he thought that he was doing anything that created a serious risk. But, on my findings, on this one occasion he was mistaken. The fact that the first fire led to the much more serious second fire is a particularly unfortunate aspect of this case. However, in all other respects Mr Nulty appears to have been a competent and careful engineer who had provided valuable services to the centre.

285. I am particularly grateful for the full and careful submissions by counsel on both sides and to those who provided the court with the very helpful trial bundles.

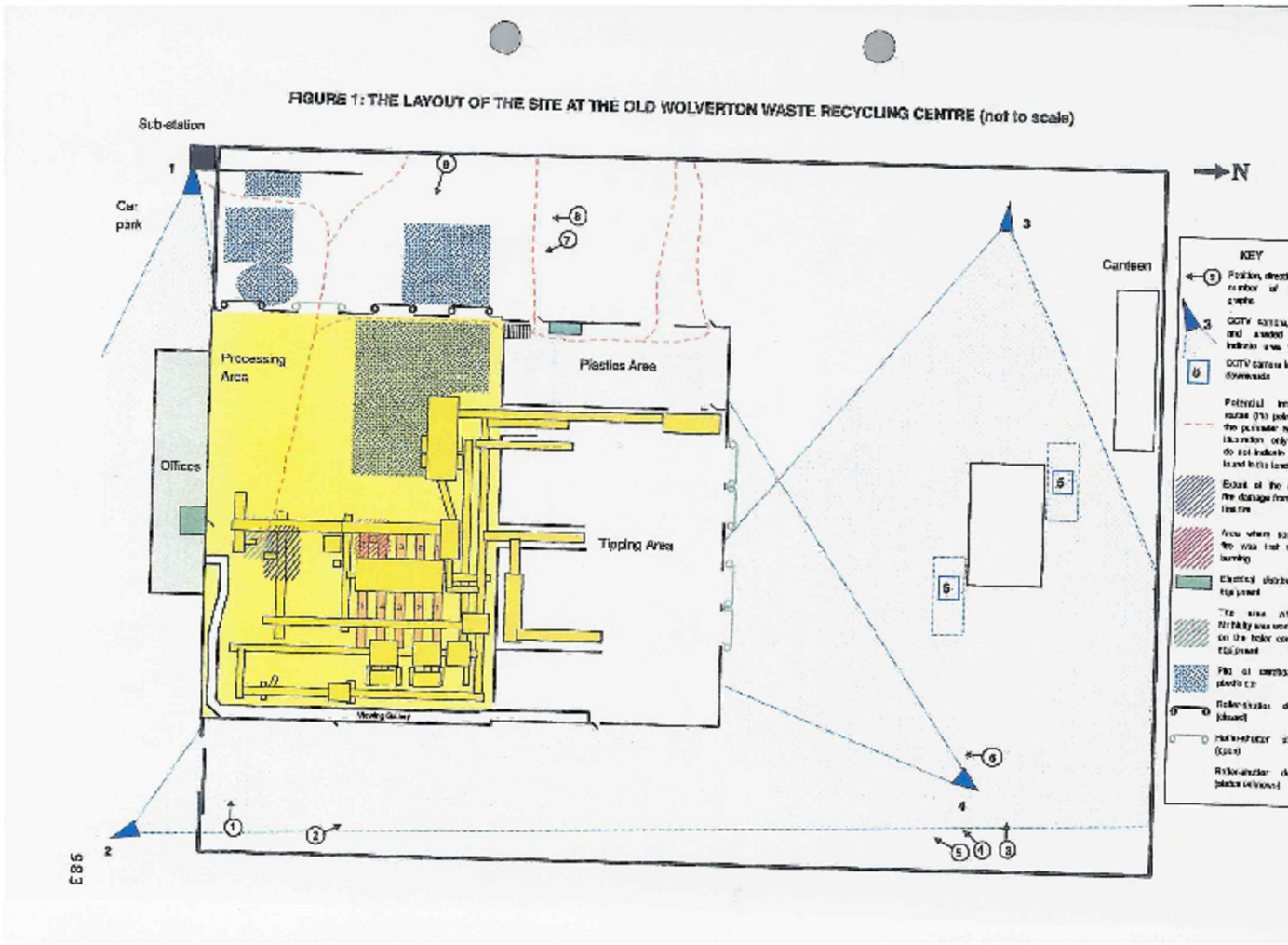
FIGURE 1: THE LAYOUT OF THE SITE AT THE OLD WOLVERTON WASTE RECYCLING CENTRE (not to scale)
Sub-station
Car park
Processing Area
Offices
Plastics Area
Tipping Area
Canteen
N
KEY
583

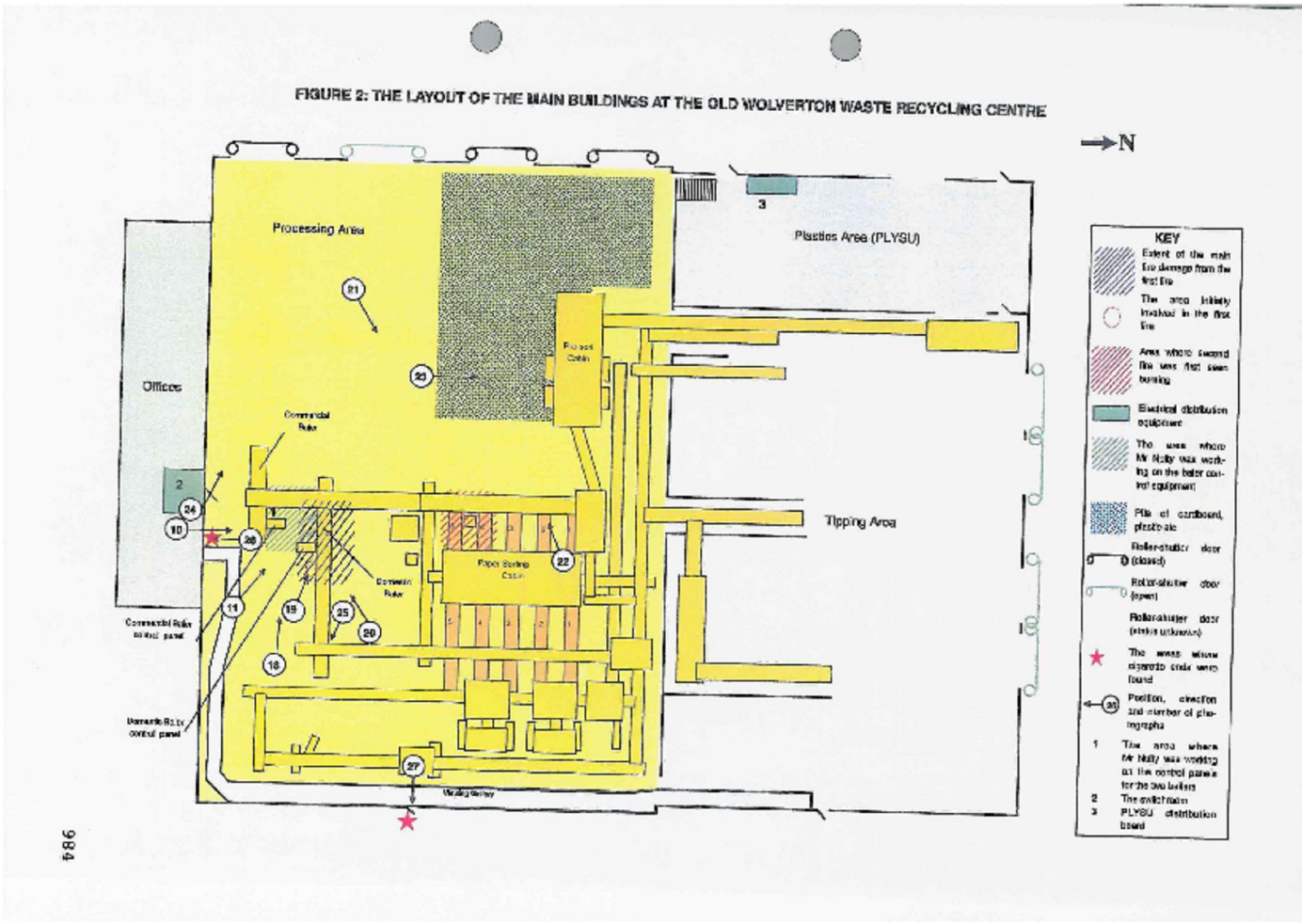
FIGURE 2: THE LAYOUT OF THE MAIN BUILDINGS AT THE OLD WOLVERTON WASTE RECYCLING CENTRE
N
Processing Area
Plastics Area (PLYSU)
Offices
Tipping Area
Commercial Baler
Domestic Baler
Paper Sorting Cabin
Weighbridge
KEY
Electrical distribution equipment
Roller-shutter door (closed)
Roller-shutter door (open)
The area where Mr Nulty was working at the control panels for the two balers
The switch room
PLYSU distribution board
984