Case No: T20197350

Neutral Citation Number: [2021] EWCA Crim 618

IN THE COURT OF APPEAL (CRIMINAL DIVISION)
ON APPEAL FROM CHESTER CROWN COURT
THE HON. MRS. JUSTICE MAY

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 28/4/2021

Before:

LORD JUSTICE EDIS
MRS. JUSTICE McGOWAN
and
MR. JUSTICE DOVE

- -

Between:

REGINA	**Appellant**
- and -	
WOOD TREATMENT LIMITED	**Respondents**
and	
GEORGE BODEN	

- -
- -

Tony Badenoch QC and Adam Birkby for the Crown
Dominic Kay QC and Harry Vann for the 1st Respondent
Simon Antrobus QC and Sandesh Singh for the 2nd Respondent

Hearing date: 27 April 2021

- -

Judgment

Note: publication of the judgment was postponed pending the conclusion of the trial, which has now taken place. The judgment may be published.

Lord Justice Edis:

Introduction

1. This is an application for leave to appeal, brought by the prosecution under s. 58 of the Criminal Justice Act 2003, against a terminating ruling. The relevant undertakings have been given and it is agreed that this court has jurisdiction in the matter.

2. The ruling was given by Mrs Justice May in the Crown Court at Chester on 22 April 2021. By her ruling the judge accepted the submission of no case to answer made, at the close of the prosecution case, on behalf of each of the two defendants, who were standing trial on four counts of manslaughter. The Crown indicated that it proposed to appeal against such ruling. The jury has been not been discharged, and whatever the outcome of this appeal the trial will continue on counts 9, 10 and 11 of the Indictment which allege offences under the Health and Safety at Work Act 1974 against Mr. Boden and two other employees of Wood Treatment Limited (WTL). WTL has pleaded guilty to an offence under that Act, and the factual basis for sentence remains to be established.

3. Given the nature of the proposed appeal and given the circumstances we have decided to grant leave. s.67 of the 2003 Act provides three tests for the exercise of this power in favour of the prosecution and it is not necessary to determine which of them is engaged where the point is that a submission of no case to answer was wrongly upheld on evidential grounds. There is power to entertain the appeal and to allow if we take the view that there was sufficient evidence to go to the jury on the manslaughter counts. s.67 provides:-

> 67 Reversal of rulings
>
> The Court of Appeal may not reverse a ruling on an appeal under this Part unless it is satisfied—
>
> (a) that the ruling was wrong in law,
>
> (b) that the ruling involved an error of law or principle, or
>
> (c) that the ruling was a ruling that it was not reasonable for the judge to have made.

4. It is common ground that the four victims of the manslaughter counts, Dorothy Lorraine Bailey, Derek William Barks, Derek Moore and Jason Roy Shingler, died on 17 July 2015 in an explosion at their place of work. That place of work is Bosley Mill, Bosley, Cheshire which was owned and operated by WTL, of which company Mr. Boden is the Managing Director. The Mill operates processes by which it grinds and mills wood into various grades of wood dust or wood flour. The raw material is various types of timber, often shavings, sawdust, offcuts and so on. Wood dust is a "dangerous substance" as defined by Regulation 2(c) of the Dangerous Substances and Explosive Atmospheres Regulations 2002, known as DSEAR.

5. It is also common ground that the explosion was caused by the ignition of a cloud of wood dust in air. Wood dust is an explosible substance in certain conditions. Mr. Andrew Summerfield, an expert witness on fire and explosion called by the

prosecution, explained to the jury that there is a "fire triangle" which describes the conditions required for such an explosion. In order to get fire or, as he called it, combustion, he said that you need three things. These were (1) the fuel, wood dust; (2) air to provide the oxygen to oxidise the fuel; and (3) a sufficiently energetic ignition source. This risk is well known, and requires control measures to limit it as far as possible and mitigating measures to prevent or limit damage should those conditions occur despite the control measures.

6. It is also common ground that there is evidence fit to go to the jury that the design and operation of the industrial process at the Mill was such that they could conclude that the risk of explosion was much higher than it should have been because of the negligence of WTL and Mr. Boden.

7. The issue on this appeal is whether the judge was right to conclude that there was no or no sufficient evidence to prove that the negligent acts or omissions alleged against WTL and Mr. Boden played any substantial part in causing the explosion which actually happened. She held, in summary, that on the evidence the explosion may well have happened if WTL and Mr. Boden had not been negligent in any of the ways alleged by the prosecution.

The Indictment

8. Counts 1-4 charged WTL with corporate manslaughter, and each of those who are died is the subject of a count. The counts say, taking count 1 as an example,

> STATEMENT OF OFFENCE
>
> CORPORATE MANSLAUGHTER, contrary to section 1 of the Corporate Manslaughter and Corporate Homicide Act 2007
>
> PARTICULARS OF OFFENCE
>
> WOOD TREATMENT LIMITED, on the 17th day of July 2015, being an organisation to which section 1 of the Corporate Manslaughter and Corporate Homicide Act 2007 applied, namely a corporation, caused the death of a person, namely Dorothy Lorraine Bailey, because of the way in which its activities were managed or organised by its senior management and the way in which its activities were managed or organised amounted to a gross breach of a relevant duty of care owed by it to the deceased.

9. Counts 5-8 charged Mr. Boden with gross negligence manslaughter. Taking count 5 as an example, it says:-

> STATEMENT OF OFFENCE
>
> MANSLAUGHTER
>
> PARTICULARS OF OFFENCE

GEORGE BODEN, on the 17th day of July 2015, unlawfully killed Dorothy Lorraine Bailey.

10. The judge ordered particulars of the Indictment, an Opening Note was circulated and Defence Statements also served. So far as causation is concerned, the prosecution particulars, which were reflected in the Opening to the jury, said this:-

> Causation
>
> 3. The Prosecution case is that an explosion of wood dust caused the deaths of four employees. The experts instructed by both Prosecution and Defence agree that wood dust was the only fuel present in sufficient quantities to cause the explosion.
>
> The range of credible mechanisms for the explosion include:
>
> • A primary dust explosion within the process, failing the equipment and stirring up previously settled dust within the mill, leading to a large secondary dust explosion.
>
> • A failure of a piece of equipment or pipe releasing a cloud of dust within the mill which found an ignition source leading to an explosion and stirring up previously settled dust within the mill, leading to a large secondary dust explosion.
>
> • A large release from a piece of equipment within the mill leading to settled dust and an explosive cloud and which was then ignited, levitating the settled dust from the release into the explosion without a separate secondary explosion.
>
> • An explosive failure of the high voltage switchgear within the mill, stirring up previously settled dust within the mill, leading to a large secondary dust explosion.
>
> 4. The most likely scenario is one of the first two, i.e. an explosion in previously settled dust leading to a much larger secondary explosion.
>
> 5. Relevant to the issue of causation are the following matters.
>
> 6. First, an **excessive accumulation of dust**:
>
> > a. Unacceptably high levels of dust (e.g. knee or even waist deep in the Riverside; up to a foot deep around the valves in the Main Mill; a couple of inches on pipework, ledges and the top of machines).
> >
> > b. Location of dust (e.g. high level; floor level; regular leakage points (e.g. valves, sock filters); airborne; upon electrical cabinets and electrical motors).

c. Speed at which dust accumulated (failure of containment)

d. Type of dust (i.e. fine dust which was explosible).

7. Second, **the excessive accumulation of dust was caused by**:

a. Leakage from process and machinery. The failure of containment arose from:

i. Ineffective and inappropriate repairs as part of a reactive maintenance regime;

ii. Unavailability of spare parts due to a lack of investment;

iii. Introduction of lower quality raw materials;

iv. Failure to respond to warnings and advice from suitably qualified third parties e.g. the vibration analysis conducted by RJW Engineering and the reports on the failures of the Local Exhaust Ventilation (APS); and

v. Reluctance to employ approved contractors for specialised maintenance.

b. The efficacy of **the cleaning regime**:

i. Inadequate resources invested in housekeeping e.g. a sole individual unable to clean at high levels;

ii. Failure to implement a cohesive system for cleaning e.g. to give effect to the "Site Cleaning Works Instruction";

iii. Cleaning as a reactive measure i.e. visits by regulators;

iv. Use of deception to prevent regulators from discovering the true state of parts of the site e.g. the Riverside;

v. Confusion over the roles and responsibilities of employees re cleaning; and

vi. The lack of leadership shown by senior management, in particular Shingler.

8. Third, **multiple sources of ignition**, for example:

a. Valves, blowers and other machinery;

b. Electrical sources (6 potential sources of electrical ignition - see Kenneth Morton);

c. Equipment modified by employees e.g. the bypassing of temperature sensors;

d. Failure to service equipment in accordance with manufacturers' instructions e.g. Firefly; and

e. Fires and smouldering dust piles.

9. Fourth, interconnecting rooms and doors which provided the potential for propagation of the initial event.

11. It is unnecessary to explain in detail all the matters referred to in the document giving these particulars, but the four bullet points in paragraph 3 are of central importance to this appeal. They are derived from a joint statement of expert witnesses, namely Mr. Summerfield and Dr. Neil Ketchell, who was instructed on behalf of the defendants. The statement was created on 20 October 2020, weeks before the start of the trial. The relevant part of the Joint Statement says this:-

2.1 Range of Credible Scenarios

2.1.1 WE AGREE that the cause of the damage to the Mill was a large dust explosion but that the precise nature of the early events will remain speculative. The point of difference is between the likelihood that can be given with respect to one of several mechanisms over the others.

2.1.2 WE AGREE that there are a range of credible mechanisms for the explosion, including:

• A primary dust explosion within the process, failing the equipment and stirring up previously settled dust within the Mill, leading to a large secondary dust explosion.

• A failure of a piece of equipment or pipe releasing a cloud of dust within the mill which found an ignition source leading to an explosion and stirring up previously settled dust within the Mill, leading to a large secondary dust explosion.

• A large release from a piece of equipment within the Mill leading to settled dust and an explosive dust cloud and which was then ignited, levitating the settled dust from the release into the explosion without a separate secondary explosion.

• An explosive failure of the high voltage switchgear within the Mill, stirring up previously settled dust within the Mill, leading to a large secondary dust explosion.

> 2.1.3 WE AGREE that it is impossible to differentiate beyond reasonable doubt between any of the above mechanisms.
>
> 2.1.4 WE AGREE that an explosive failure of the high voltage switchgear is the least likely of the above scenarios but DR KETCHELL considers that it remains more credible than MR SUMMERFIELD, who considers it the most unlikely by a large margin.
>
> 2.1.5 WE AGREE that the most likely scenario is a primary dust explosion stirring up previously settled dust and leading to a much larger secondary dust explosion; i.e. one of the first two scenarios above.
>
> 2.1.6 MR SUMMERFIELD favours a primary explosion within the process based on the history of ignitions within the process and previous incidents.
>
> 2.1.7 DR KETCHELL considers a primary explosion within the process would be most likely to vent safety, whereas a primary ignition of a dust cloud outside the process has no further safeguards to prevent a major explosion.
>
> 2.1.8 WE AGREE that it is highly credible that the main damage destroying the Mill was caused by a large explosion of a large dust cloud released within the main Mill, also levitating dust settled from that release before ignition. WE AGREE that there is no strong distinction between primary and secondary explosion for this type of scenario. WE AGREE that the release of sufficient material in the available time on the morning of 17th July 2015 appears credible. WE AGREE that a dust cloud of this size would be noticeable to anyone present but are aware of no witness evidence that could confirm or deny the presence of such a cloud.

12. It should also be added that "Firefly" referred to at 8(d) of the particulars is a reference to a system installed in the process at various points which detects ignitions inside the process. The evidence of Mr. Summerfield was that this is a "last resort" control measure because the system should be designed, maintained and operated so that sparks and burning are not common occurrences. He would expect a Firefly detection to be a rare event, and one which would require careful investigation. He said that there was evidence of frequent Firefly detections, and only limited evidence that they were properly dealt with.

13. The four "scenarios" in 2.1.2 of the Joint Statement are descriptions of the ways in which an explosion of the size of the one which occurred could be caused. It was a very substantial explosion which required a large quantity of wood dust to fuel it. In scenarios 1, 2 and 4 that quantity is assumed to include dust which had settled across the Mill in the past and not been cleaned up. There was a good deal of evidence that the Mill was dusty and that leaks from the machinery produced dust because of poor design and maintenance. There was also evidence that its cleaning system and other housekeeping systems were poor. The Crown alleged that the existence of a large quantity of dust capable of being ignited as a secondary explosion was the result of negligence and it is not suggested that this was not a proper basis on which the case

could be considered by the jury. However, scenario 3 did not require the involvement of any dust which had been left negligently in place in dangerous quantities. On this scenario the necessary amount of dust could become involved in the explosion by a single very large escape from a single failed machine in the system. An explosible mixture would be created in air, and on ignition it would explode and draw in the rest of the dust which had recently escaped from the process. If that quantity of dust was large enough, this might create an explosion of the necessary size. It would, therefore, be necessary to show that the failure of the machine was caused by a negligent act or omission for which WTL and/or Mr. Boden were criminally responsible. The negligence in allowing large quantities of dust to lie around in the Mill played no part in causing the explosion on this assumption.

The nub of the problem

14. The investigation could not show what event had actually caused the explosion. This was because the explosion was so powerful it destroyed large areas of the Mill and the plant within those parts. Obviously, destruction was likely to be concentrated at the place, wherever it was, where the explosion actually began and where any large secondary explosions took place. Moreover, in the process of extinguishing the fire, making the premises safe for entry and the recovery of the bodies, demolition of parts of the Mill was required and machinery was moved. A large number of experts of different disciplines investigated what had happened, but it was agreed that the mechanism by which this explosion had occurred could not be identified.

15. This problem has been addressed in the law of tort over a number of years in the case of premises or work systems which were unsafe and increased the risk of a harmful event, usually a disease, so that recovery is allowed even where the individual claimant who suffered the disease cannot show that it was caused by the premises or work system: *Fairchild v Glenhaven Funeral Services Ltd (t/a GH Dovener & Son)* [2003] AC 32. Mr. Badenoch, Q.C. for the Crown has not submitted that this approach can or should be adopted in the criminal law. It is one thing to say that the law of causation should be modified as a matter of policy to allow a claimant to recover damages for serious disease, and quite another to say that a defendant in criminal proceedings should be held liable for manslaughter even where his fault may not have caused death. All Mr. Badenoch can say is that the increase of risk of an event by fault is evidence from which it may be inferred that the event was caused by that fault when it transpires. The point for decision is whether that argument on causation can succeed where it is, in truth, the only evidence of causation.

The directions to the jury

16. At the start of the trial the Judge gave clear written directions to the jury about the elements of the offences of corporate manslaughter and gross negligence manslaughter. In respect of each offence she directed the jury that the prosecution had to prove, among other things, that a breach of duty by WTL (counts 1-4) and Mr. Boden (counts 4-8). In respect of counts 4-8 she directed them that this means that Mr. Boden's breach of duty made a significant (ie more than minimal) contribution to the death.

The submissions of no case

17. At the effective close of the prosecution case (there remained only agreed summaries of interview to be read to the jury) WTL and Mr. Boden each made submissions of no case to answer on the manslaughter counts. We have read their written documents and a transcript of the oral submissions.

18. In their skeleton argument dated 15 April 21, counsel on behalf of WTL stated at paras. 1-3:

> 1. At the close of the Prosecution case, Wood Treatment Limited ("WTL") submits that the evidence adduced by the Prosecution is incapable of proving to the criminal standard that any gross breach of duty on the part of WTL's Senior Management caused the deaths alleged in Counts 1 to 4. WTL is entitled to be acquitted of these Counts accordingly (*R. v. Galbraith* [1981] 2 All ER 1060).
>
> 2. Subsection 1(1) of the Corporate Manslaughter and Homicide Act 2007 ("the CMHA") provides as follows:
>
> "(1) An organisation to which this section applies is guilty of an offence if the way in which its activities are managed or organised –
>
> (a) causes a person's death, and
>
> (b) amounts to a gross breach of a relevant duty of care owed by the organisation to the deceased".
>
> 3. WTL submits that on the evidence which the Court has heard, it is impossible for the Jury to exclude, so that they are sure, all realistic possibilities for the cause of the explosion and deaths on 17th July 2015 consistent with innocence on the part of WTL. It is impossible to prove the central element of causation of Corporate Manslaughter to the criminal standard and Counts 1 to 4 must be withdrawn from the Jury".

19. In their skeleton argument 15 April 21, counsel on behalf of George Boden stated at paragraphs. 1-5:

> 1. It is submitted on behalf of George Boden that there is no case to answer in respect of Counts 5-8 (Gross Negligence Manslaughter).
>
> 2. This is an extraordinary criminal case in terms of causation, even by the standards of prosecutions arising out of fires or explosions. Whilst it is uncontroversial that this was a wood dust explosion, the Prosecution acknowledge that they do not know where it started within Bosley Mill ("the Mill"), how it started or even why it started and, thereafter, how it brought about the subsequent collapse of the Mill and the deaths of each deceased.

> 3. As the Prosecution cannot establish such basic underlying facts as to the cause of the incident, they have been forced to seek to prove causation by inference through the presentation of a number of credible hypothetical causal scenarios. Without direct evidence as to how this explosion occurred, for there to be a case to answer, each of the credible scenarios must only be reasonably consistent with guilt. If any of the credible scenarios are reasonably consistent with innocence, the case cannot continue.
>
> 4. The Prosecution have mistakenly approached the case on the basis that, howsoever the explosion may have been initiated, it could not have resulted in such a devastating fatal explosion in the absence of fuel in the form of accumulated wood dust within the mill brought about by the gross negligence of Mr Boden (and the company). They have presumed each scenario is consistent with guilt on that mistaken basis.
>
> 5. This approach fails to recognise the significance of the concession made by Mr Summerfield during the course of the joint meeting with Dr Ketchell in October 2020, now confirmed on oath, that he cannot exclude the realistic possibility that this explosion did not arise from accumulated wood dust at all, but instead from a dust cloud rapidly created during the course of the morning of 17th July 2015 from some piece of equipment within the Mill (and ignited by some unknown source).

The judge's ruling

20. The judge's ruling was given on 20 April 2021. She directed herself in accordance with *R v. Galbraith* [1981] 1 WLR 1039. She then directed herself about the proper approach to a case where the prosecution case on causation depended entirely on circumstantial evidence, as is the case here. She said:-

> 11. In a case where the prosecution invites the jury to draw an adverse inference from a combination of factual circumstances, the prosecution must be able to rule out any realistic, non-fanciful cause consistent with innocence: *R v. G & F* [2012] EWCA Crim 1756*; R v. Broughton* [2020] EWCA Crim 1093. In *G&F* Aikens LJ put it like this, at [36]:
>
> > "We think that the legal position can be summarised as follows:
> >
> > (1) in all cases where a judge is asked to consider a submission of no case to answer, the judge should apply the "classic" or "traditional" test set out by Lord Lane CJ in Galbraith.
> >
> > (2) Where a key issue in the submission of no case is whether there is sufficient evidence on which a

> reasonable jury could be entitled to draw an adverse inference against the defendant from a combination of factual circumstances based upon evidence adduced by the prosecution, the exercise of deciding that there is a case to answer *does* involve the rejection of all realistic possibilities consistent with innocence.
>
> (3) However, most importantly, the question is whether **a** reasonable jury, not **all** reasonable juries, could, on one possible view of the evidence, be entitled to reach that adverse inference. If a judge concludes that **a** reasonable jury could be entitled to do so (properly directed) on the evidence, putting the prosecution case at its highest, then the case must continue; if not it must be withdrawn from the jury" (all emphasis in original).

12. The case of *Broughton* concerned the failure of a young man to seek help for a young woman to whom he had given a cocktail of drugs at a music festival. The Crown's case was that he owed a duty of care to secure timely medical intervention when her condition deteriorated to the point where her life was obviously in danger. At the close of the prosecution case the defence had argued that the prosecution evidence was insufficient to prove to the criminal standard that the defendant's negligence had been at least a substantial contributory cause of his girlfriend's death. The submission was based upon unchallenged medical evidence to the effect that at the relevant time the negligence had deprived her of a 90% chance of survival, or put another way that there was a 10% chance that she would have died even with medical assistance. The trial judge had allowed the case to proceed and the defendant was convicted.

On appeal his conviction was quashed, the court deciding that the necessary causal link between negligence and death had not been established. The medical evidence had left open a realistic possibility that the young woman would have died anyway and in those circumstances no jury could have been sure that the negligence, however gross, was a cause of death. At [23], referring to the case of *R v. Gian* [2009] EWCA Crim 2553, Lord Burnett CJ said this:

> "[Gian] concerned a suggestion that there were theoretical or hypothetical possible causes of death which could not be excluded as a matter of theory but were entirely unrealistic. The jury must make judgments on "realistic not fanciful possibilities". To be sure that the gross negligence caused the death the prosecution must exclude realistic or plausible possibilities that the deceased would anyway have died."

At para 94

> "We respectfully agree with the observation made by the single judge, reflecting the submission made by Mr Kamlish, that the only evidence dealing with causation was that of Professor Deakin. …It was Professor Deakin who gave the evidence relevant to the issue of causation."

And at para 100-103:

> "100. It is unhelpful to attempt to contrast scientific certainty (put at 100%) with a different figure for legal certainty. Human beings asked the question whether they are sure of something do not think in those terms. In the context of causation in this very sad case the task of the jury was to ask whether the evidence established to the criminal standard that, with medical intervention as soon as possible after [her] condition presented a serious and obvious risk of death, she would have lived. In short, had the prosecution excluded the realistic possibility that, despite such treatment, [she] would have died?
>
> 101. In our judgment none of Professor Deakin's descriptive language achieved that. Even his description of a 90% chance of survival at 21.10, were medical help available, leaves a realistic possibility that she would not have lived…..
>
> 103. In our view, this is one of those rare cases… where the expert evidence was all the jury had to assist them in answering the question on causation. That expert evidence was not capable of establishing causation to the criminal standard."

21. The judge summarised the parties' submissions which had focussed on the third of the three scenarios which the prosecution had accepted was "credible" and which Mr. Summerfield did not relate causally to any of the alleged breaches. It was not dealt with in any further report following the appearance of the third scenario in the Joint Statement, or in his examination in chief. In cross-examination, defence counsel illustrated this scenario by consideration of a sifting machine which was brought into operation that morning in room 1(1)(b) at the Mill, on the Forest Fresh production line. In cross-examination by Mr. Kay, Q.C. for WTL and Mr. Antrobus, Q.C. for Mr. Boden, Mr. Summerfield had accepted that it was possible that the sifting machine had malfunctioned and caused sufficient dust to become airborne in one room in the Mill to fuel an explosion of the kind which occurred. He said that this could have occurred because it was being brought back into use that morning after repair and it may not have been re-connected properly, or perhaps its flexible connectors to the rest of the process had failed, or seals had failed. If this had happened, the quantity of wood particles being sifted by it would be about ten times

the quantity which would be required to cause an explosive mixture in a room of the relevant size. The time when the machine was restarted was known, as was the time of the explosion and this enabled a calculation of the amount of material being processed during that time. If the failure had been so catastrophic that all the wood material was ejected from the machine then that would be the result. He said that the risk of a machine failing when first connected to a system was a known one, and had frequently occurred in other cases. He cited Piper Alpha as an example. He agreed that such an explosion could account for the damage done to the Mill, and said that this was possible. He could not exclude it "beyond reasonable doubt", but felt, as did Dr. Ketchell, that a secondary explosion was more likely to have been the true cause of the deaths. He set out his reasons for taking this view.

22. The evidence concerning the sifter had been elicited from factual witnesses during the prosecution case. It was apparent that the defence were exploring that possibility as an example of an event which was within scenario 3, and the facts thus elicited were put to Mr. Summerfield when he was cross-examined. He accepted that the possibility of the sifter being involved was the kind of thing he and Dr. Ketchell had in mind when agreeing to scenario 3. He gave some reasons for thinking it less likely than other potential causes but accepted it as a reasonable possibility. The point being made by the defence, and being accepted by Mr. Summerfield, was that the actual cause was unknown, but here was an illustration of something within scenario 3 which might have happened. If it had, it would explain the explosion in a way which did not involve any of the other dust in the Mill which was allowed to accumulate and to remain in places where it should not have been over a period of time.

23. Having summarised this state of the evidence, the judge then set out part of re-examination of Mr. Summerfield by Mr. Badenoch on behalf of the prosecution. Mr. Badenoch was exploring, for the first time, ways in which it might be shown that one or more of the alleged faults of WTL and Mr. Boden had caused a scenario 3 event. The key passage is this:-

> Q. What mechanisms can a company have to prevent a plant failure of that kind?
>
> A. It's really down to maintenance and repair. It's making sure that the kit is in good condition and making sure that it's properly connected, that the flexible connections are sound and not leaking, and with regard to reconnecting equipment after a period of maintenance, it's a question of having the procedural controls in place that enable you to check that everything important has actually been reconnected and this is something which goes back a long way in history. We've had these sort of incidents before, where people forget to reconnect pieces of equipment and so there are management, safety management control systems in place to actually check that everything has been reconnected that should be reconnected.
>
> Q. And does that include, for example, a safe operating procedure for the sifter?
>
> A. Yes.

> Q. Does that include, for example, the proper training of the person who is concerned with the sifter?
>
> A. Yes.
>
> Q. And does it also include, for example, the proper use of sealants and assessment of them for the purpose of safety?
>
> A. Yes, it's important whenever you are making any repair that the material…. I'm sorry, I'm going too fast. It's important whenever you're making a repair on a piece of equipment that the materials you use are specified as being fit for that purpose and that they're used appropriately.
>
> Q. And so is the likelihood of an equipment failure informed by things of that kind?
>
> A. It is.

24. The importance of that piece of evidence is that it is the only evidence that the failure of the sifter, if it was the cause, was the result of negligence. It is also the only evidential basis for the proposition that any failure of the kind supposed in scenario 3 must have involved fault in one or more of the ways explained. The sifter was an example of the kind of machine failure which scenario 3 required. It could have happened equally well in one of the many grinders in the Mill, or one of the other sifters. There was evidence that the safety management systems at the Mill were bad, and there were no documented systems for maintaining the machines, or re-connecting them after repair to ensure that this was done safely. There was evidence that maintenance was shoddy and reactive and not systematic. There was no evidence that any of this actually caused a failure of a machine as postulated in scenario 3 on 17 July 2015 or even that there actually was such a failure. Scenario 3 was put forward as a possible cause of the explosion. Once accepted as such, it is submitted on behalf of the respondents that the prosecution had to prove that however it occurred, fault must have been involved.

25. The judge then moved to explain her decision. The final passage of her judgment at paragraphs 24-31 is as follows:-

> 24. In accordance with the *Galbraith* test I have asked myself whether the prosecution evidence, taken at its highest, is capable of establishing causation to the criminal standard of proof, ie making the jury sure that the defendants' negligence was at least a more than minimal cause of the explosion and the deaths. As indicated in *G&F* and *Broughton*, where the evidence on causation consists in drawing inferences from a variety of circumstances, the jury will only be able to be sure if it can rule out any realistic possibility consistent with innocence.
>
> 25. In this case, where the state of the Mill and remaining machinery after the explosion and rescue/recovery operation

was such that no firm conclusions could be drawn about the mechanism of the wood dust explosion, the challenge for the prosecution was always going to be to link acts and omissions (principally omissions in this case) on the part of company and Mr Boden to the explosion itself. The prosecution has sought to make this link by using expert evidence to draw a series of educated inferences from the evidence in order to identify possible causes. Whilst the jury have a great deal of evidence going to breaches of health and safety at the Mill generally, the expert evidence is all they have regarding the possible causes of the explosion on the day in question.

26. Pointing to breaches of the various health and safety regulations, which thereby increase the risk of occurrence of a wood dust explosion, may be sufficient for demonstrating the Health and Safety offences. But the very serious offences of corporate manslaughter and gross negligence manslaughter engage the much more exacting requirement of making the jury sure that the (gross) negligence was a cause of the deaths; in this case a cause of the explosion which led to the deaths.

27. In circumstances where the experts could say, with certainty, no more than that it was a wood dust explosion, the prosecution have sought to make the jury sure of the necessary causative link by asking their lead expert to take into account all the evidence in the case, including the evidence of all the other experts, for the purposes of giving an opinion on possible causes of the explosion. Expert input was necessary as there are many and various technical aspects involved in wood dust explosions, such as: the size of dust particles required for suspension in air, the mass of dust combined with size of room, configuration of the room assessing the scope for any venting, and many others. No jury could be expected to make those calculations or assessments on their own, without the assistance of an expert. When that expert input generates a number of realistic ("highly credible") possible scenarios for the presence of a cloud of explosible dust in the Mill on the morning of 17 July 2015, as happened here, the jury cannot logically be sure of causation unless the prosecution is able to show by evidence that all the possibilities can be attributed, at least in part, to the alleged negligence. In other words, that the jury can exclude any realistic possibility consistent with innocence.

28. Where the Crown has sought to make its case on causation by reference to expert evidence raising and critically examining possible scenarios, and has moreover, specifically instructed its expert to do so taking account of ALL the evidence in the case, it is not open to the jury to reject what the prosecution's own expert has identified as a realistic possibility. This is not a case where there is any other evidence which the jury could use to

test, temper or reject the expert opinion. The matters said by Mr Badenoch to be the premises upon which the Forest Fresh minisifter example was based, and which he said could easily be dismissed by a jury were not raised with the expert, nor were many of them addressed by the factual evidence: there was no evidence of who actually disassembled and re-built the Forest Fresh mini-sifter, what process they used, whether there even were any manufacturer's instructions, whether the sealant was in fact the wrong type, the list goes on. It seemed at some points in the argument as if Mr Badenoch was approaching this on the basis that it was for the defence to prove that the minisifter example was what in fact happened. But that is not so; the defence needed to do no more than raise a realistic possibility for the source of the dust which exploded. Once their expert has accepted the defence example as a realistic possibility, the Crown is obliged to make the logical causative link by demonstrating that the Forest Fresh minisifter example of Scenario 3 was attributable (at least in part) to negligence on the part of the company/GB.

29. As to this, the "wealth of evidence" referred to by Mr Badenoch amounted to a list of the ways in which the Crown say that WTL and GB breached Health and Safety legislation and regulations over the 6 years between 2009 and 2015. He asked Mr Summerfield to comment, in respect of each alleged failing, on the extent of the gap between what should have been done and what the company did do during that time. Mr Summerfield's evidence was that, in most cases, the gap was very wide. But the failings upon which Mr Badenoch invited such comment were put in general terms – the absence of a process design, of risk assessments, of written operating procedures, of plotted hazard areas in the mill, to name but a few. The furthest extent of Mr Summerfield's evidence, as illustrated by the exchange in re-examination set out above, was that these matters were very important in identifying and reducing/controlling risk such that, without them, the risk was very much heightened – "an accident waiting to happen", as Mr Badenoch put it. But as Mr Antrobus rightly pointed out, this is wrongly to elide risk with causation. Increasing the risk of something happening is not the same as causing it to happen. The fact that the risk of explosion may have been high cannot of itself demonstrate that the particular explosion occurred as a result of the negligence of WTL/GB. It is necessary to go further, to demonstrate how a risk assessment, or a written operating procedure or any other control measure which the prosecution say should have been in place but was not, would have acted to have prevented a breakdown of plant, as contemplated by Scenario 3 in general, or by the Forest Fresh mini-sifter example in particular. What is missing in relation to Scenario 3 is a forensic process linking the (possible)

mechanism of dust generation/explosion to the alleged negligence. Mr Badenoch's approach would require the jury to jump between health and safety failings generally and the specific failure of plant posited by the experts under Scenario 3, without any evidence, in effect to speculate about what a risk assessment might have said/recommended, or how any change of procedure implemented as a consequence of a risk assessment or written operating procedure could have prevented a failure of equipment on the morning of 17 July 2015.

30. I have reflected on one further point arising from Mr Badenoch's answer to a question which I put to him in argument: did he accept that there were any circumstances under which there could have been a non-negligent explosion at the mill? He said that he did not accept this, that any wood dust explosion, under any circumstances, must have resulted from a negligent failure to observe Health and Safety regulations at the Mill; it could not have happened unless there had been such failings. Clearly this is a circular argument, but it also, to my mind, sets a dangerous precedent in cases like this: if this approach is right then it would be enough for the prosecution in a health and safety manslaughter case to point to breaches of health and safety duties and say that those breaches of themselves are sufficient to demonstrate causation. That would be to reverse the burden to proof, to lay upon the defence the obligation in a health and safety case of showing that the death was not the result of such breaches.

31. It is for these reasons that I am not satisfied that the jury in this case would be able on the evidence to be sure of the causative link between gross negligence on the part of D!/D2 and the explosion causing the deaths. The presence of Scenario 3 as a "highly credible" possible cause, taken together with the absence of evidence addressing the link between breach of duty and a machine failure/rupture on the morning in question, means that the jury would be unable to rule out a possible cause consistent with innocence".

The Appeal

26. Mr. Badenoch advances six grounds of appeal.

Ground 1

The judge erred in her approach to the concept of factual and legal causation

Ground 2

> The judge incorrectly proceeded on the basis that the expert evidence addressed the legal concept of causation
>
> Ground 3
>
> The judge was wrong to conclude there was no evidence beyond the expert evidence relevant to the issue of causation
>
> Ground 4
>
> The judge incorrectly proceeded on the basis that the defence version of Scenario 3 was synonymous with innocence
>
> Ground 5
>
> The judge incorrectly approached the "realistic possibility consistent with innocence" element of the test to apply when considering a submission of no case to answer, in that she conflated a multi-stage test into one stage without properly analysing the evidence
>
> Ground 6
>
> The judge was incorrect to conclude that there was an insufficiency of evidence to link the suggested failure of the mini-sifter to the acts/omissions of WTL.

27. Mr.Badenoch demonstrated that the prosecution has always alleged that the systems for the design and maintenance of the plant at the Mill were deficient, with the result that machinery leaked dust. He referred us to the very large body of evidence called from employees of the Mill, past and present, and to two statements by Mrs. Deborah Barks, in which she records things said by her husband, who tragically died in the explosion, about his working conditions. This material can be summed up in the memorable phrase used by another witness who described the Mill as a "ticking time bomb", or in another phrase used by Mr. Badenoch, an "accident waiting to happen". He submits that the judge wrongly allowed the opinions of the expert witness, Mr. Summerfield, to displace the role of the jury as fact finders who are alone responsible for deciding, on all the evidence, what has been proved to the criminal standard.

28. We heard oral submissions on 27 April 2021 and must give judgment quickly because of the stage of the proceedings. We will not set out a full summary of the submissions, the essence of which sufficiently appears from what we have said above.

Discussion

29. In our judgment the judge was correct to conclude that scenario 3 was a realistic possibility, and that an event of that kind may have caused the explosion. Given the evidence of Mr. Summerfield, no other conclusion was properly open to her. Therefore, the question was whether there was evidence on which a properly directed jury could reasonably come to the decision that such an event must have been caused by the alleged fault of WTL and Mr. Boden. For present purposes, we, like the judge, treat those two respondents as being in the same position. Mr. Boden was closely

associated with WTL and in "hands on" control of its operation. The fact that he is an individual defendant does add to the need to be clear about what acts or omissions are alleged to have been causative of the death. It may be easy to attribute all acts or omissions to WTL, but in the case of an individual it is necessary to attribute them to him personally.

30. We accept without reservation Mr. Badenoch's proposition that the jury are the decision makers in a criminal trial and not experts. The distinction between scientific certainty and legal certainty is one which has been extensively examined in recent years. In *R v. Gian* [2009] EWCA Crim 2553 at [22] the court said this:-

> "In our judgment, the judge was correct in refusing to withdraw the case from the jury merely on the basis that Dr Jerreat could not exclude a theoretical or hypothetical possibility that the victim had died from cocaine poisoning. There is ample authority for the proposition that the mere fact that as a matter of scientific certainty it is not possible to rule out a proposition consistent with innocence does not justify withdrawing the case from a jury. Juries are required to consider expert evidence in the context of all other relevant evidence and make judgements based upon realistic and not fanciful possibilities. (See *Bracewell* [1979] 68 Cr App R 44, *Dawson* [1985] 81 Cr App R 150 and *Kai-Whitewind* [2005] 2 Cr App R 31 at paragraphs 88, 89 and 90). The Court of Appeal endorsed Boreham J's direction in Bracewell. In that case the defence raised the possibility that the victim had been strangled, recovered and then suffered a heart attack, a sequence of events which could not be ruled out as a matter of scientific certainty. The judge directed the jury not to judge the case scientifically or with scientific certainty but to decide whether, on the whole of the evidence, they were sure. The Court of Appeal endorsed that direction which correctly drew the distinction between scientific proof and legal proof. It pointed out that the medical evidence was only part of the material on the basis of which the jury had to reach a decision.."

31. The same principle was applied in other circumstances in *R v. Brennan* [2014] EWCA Crim 2387. It is open to a jury to reject uncontradicted expert evidence provided that, having regard to all the evidence, it is possible to identify a rational basis on which they could do so. The means by which such an exercise might be carried out safely at trial where highly technical and conflicting expert evidence was before a jury was authoritatively explained in *R v. Henderson* [2010] 1269.

32. This principle, however, does not address the issue before the judge and now before us. We do not accept Mr. Badenoch's central contention that the judge allowed the expert to determine the issue of causation when it should have been left to the jury. The question at the close of the prosecution case was whether there was evidence which a reasonable jury properly directed could decide had proved that the fault of the respondents had caused the explosion. Given the way in which the case had been put, this meant proving that all scenario 3 explosions must be caused by fault of the kind alleged and evidenced in the prosecution case. Whether this is so or not, as a matter

of fact, we do not know. It may, for all we know, be the case that a major failure of a piece of plant which permits the escape from the process of a large enough quantity of wood dust to cause an explosion of this size can only occur if the piece of machinery had been poorly maintained or treated, and that proper systems would always prevent such events. The problem for the prosecution was that they had adduced no evidence on this issue at all, until an attempt to address it was made in re-examination, see 23 above.

33. The evidence in re-examination sets out the ways in which a system should seek to avoid scenario 3 events. If a proper system of that kind were in place we can accept that it would have reduced the risk and made such an event less likely. That seems to us to be a reasonable inference from the evidence which was given. However, the evidence does not extend to a statement that if reasonable care had been taken in maintaining and operating the machinery the failure under consideration would not have happened. This passage of evidence also must be seen in context. Mr. Summerfield, in cross-examination, was asked about the kind of failure which may have occurred and said this:-

> Q. Absolutely, and so I am clear and I am perhaps repeating myself, I am not suggesting that we could in any way be sure of that. Simply, as you agreed a moment ago, that that is a realistic possibility that cannot be excluded?
>
> A. Correct.
>
> Q. Now there are a number of reasons how the release could have happened, just to complete the scenario. We know, do we not, that the sifters oscillate on flexible mounts over several inches as part of the sifting process?
>
> A. Yes, we saw it on the video, yeah.
>
> Q. The inlet and outlet connections are flexible, as we have seen?
>
> A. Correct.
>
> Q. They have to be because of the movement, and we know, do we not, that the sifter in the previous 24 hours had been taken apart as part of a maintenance or repair programme?
>
> A. Yeah.
>
> Q. And then reassembled?
>
> A. Yes.
>
> Q. It is perfectly possible that the plant malfunctions just after it has first started, having been taken apart and reassembled for maintenance or repair?
>
> A. Yes, it's happened many times before.

Q. It happens. It happens often?

A. Yeah, Piper Alpha was the classic example.

Q. It could be because, for example, the inlet or the outlet pipes failed?

A. Yeah, or weren't connected.

Q. The release could be because the bindings on the sieves, at the corner of the sieve have failed?

A. Yeah.

Q. Or any number of other explanations?

A. Yes.

Q. And those are all as we have said realistic possibilities that cannot be excluded?

A. Yes. They will influence the source term, but yes.

34. Obviously, a failure to connect the inlet or outlet pipes would amount to fault, and it may be possible to show that it would not have occurred had there been a proper system for training and supervision, but there was no investigation at any point into what might cause those pipes to "fail", or what might cause "the bindings on the sieves" to fail. There was no further exploration of what was described as "any number of other explanations". Still less was there evidence about similar considerations affecting other machines which might have failed in a way described in scenario 3. The failure of the sifter, it should be recalled, is an example of something which might have happened, and not something which can be shown to have happened.

35. We record that Mr. Summerfield also accepted that the spark on this scenario could have occurred when the machine failed, because that failure could involve metal components coming into forceful collision with each other. In any event, he later said this to Mr. Antrobus in cross-examination on the subject of ignition:-

Q. So those are the first two of those industries we talked about, but in the dust handling industries, explosion relief remains a widely used mitigation measure?

A. It does.

Q. And this is because it is often impossible to prevent, and this is something you were saying yesterday, the formation of dense dust clouds inside the process?

A. Yes.

> Q. And again, something you were saying yesterday, the dust itself or mechanical moving parts in contact with the dust, often create ignition risks that cannot be eliminated completely?
>
> A. That's correct.

36. "Explosion relief" refers to measures designed to enable combustion to vent safely within or from the premises. This is achieved in a number of ways which we need not describe here.

37. We accept the defence submission that on this state of the evidence it was necessary for the prosecution to address scenario 3 in terms, understanding that it did not require a contribution to the explosion from the negligently accumulated wood dust which permeated the Mill. It meant that the prosecution evidence about those accumulations of dust could not prove the necessary causal link between the fault and the explosion. Therefore, it was necessary to examine scenario 3 and to evidence, if possible, the extent to which it must inevitably have involved negligence which could be proved against WTL and also personally attributed to Mr. Boden. That exercise was simply not carried out, and no evidence on this issue was adduced.

38. We do not approach this case as one which requires any fresh consideration of the law relating to the respective roles of the expert witness and the jury in a criminal trial. It was entirely proper for the expert to give his opinion as to events which might possibly have caused the explosion, and also as to how those events could have been avoided by the exercise of proper care. It was then for the jury to decide whether they accepted his analysis and whether, applying it to all the evidence in the case, it enabled them to be sure of guilt or not. The problem in this case was that at the conclusion of the prosecution case there was no evidence which would enable them rationally to say that Mr. Summerfield's evidence about scenario 3 was wrong, and no evidence which would enable them to say that the negligent acts or omissions of WTL or Mr. Boden had caused the explosion if it had resulted from a scenario 3 event.

39. On our analysis the judge's observations in paragraph 30 of her judgment are unnecessary. The question for Mr. Badenoch to answer was whether he was saying that all scenario 3 explosions must involve fault of a kind which he had alleged, in respect of which he had adduced evidence which was capable of proving that fault. For his case to be viable, the answer must be "Yes". That answer could not be given on the evidence adduced in this trial, because the question had never been explored in evidence. There was no evidence about that point, still less any sufficient evidence capable of proving it.

40. For these reasons we confirm the decision of the judge. We order, under s61(7) of the Criminal Justice Act 2003 that WTL and Mr. George Boden be acquitted of the four counts of manslaughter faced by each of them.