Baker v Zinifex Port Pirie Pty Ltd **[2008] SAIRC 49**

MAGISTRATES COURT OF SOUTH AUSTRALIA
(INDUSTRIAL OFFENCES JURISDICTION)

BAKER, Neill Thomas

v

ZINIFEX PORT PIRIE PTY LTD

JURISDICTION: Prosecution

FILE NO/S: 6055 of 2006

HEARING DATES: 31 March, 1 and 2 April, 12, 13, 14 and 15 May 2008

JUDGMENT OF: Industrial Magistrate R E Hardy

DELIVERED ON: 25 July 2008

CATCHWORDS:

Prosecution - Not Guilty plea - One charge - Failure to ensure safety of an employee so far as reasonably practicable - Employee crushed within confines of a large treatment and storage shed by heavy front end loader - Alleged failure to provide safe working environment, safe system of work and such information, instruction, training and supervision as was reasonably necessary to ensure that employee was safe from injury and risks to health - Injuries sustained to employee were sufficient to cause death but not known when they were sustained or whether employee had died before injuries sustained - Whether necessary to prove that death was a result of injuries - Forensic evidence - Whether autopsy examination incomplete - ***Held:*** *Autopsy report accepted. Finding that death occurred as a result of injuries -* ***Held*** *further that co-treatment shed was a dangerous environment and measures taken to lock out and separate man and machine were not extreme or reactionary but instead appropriate and reasonably practicable -* ***Held*** *further that defendant failed to maintain safe working environment by permitting co-existence of employee and working loader, failed to prevent entry of employee whilst loader operating within shed - Employer failed to fully instruct or train employee and failed to supervise employee - Employer's procedures for entry and egress to the shed were inadequate - Charge proved - Adjourned for submissions on penalty - S 19(1) Occupational Health, Safety & Welfare Act 1986.*

REPRESENTATION:

Counsel:	
Complainant:	Mr M A Nicholas with Ms A Hughes
Defendant:	Mr M A Griffin QC with Mr R J Manuel
Solicitors:	
Complainant:	Crown Solicitor's Office
Defendant:	Finlaysons

1 The defendant company Zinifex Port Pirie Pty Ltd has pleaded not guilty to the following charge: (that)

> "Between 7pm on17 October 2004 and 3 am on 18 October 2004 at Port Pirie in the State of South Australia, the defendant, being an employer, failed to ensure so far as was reasonably practicable, that its employee, namely GREGORY SLEEP, was, while at work, safe from injury and risks to health.
>
> Contrary to section 19(1) of the Occupational Health, Safety and Welfare Act, 1986
>
> Particulars
>
> 1.1 At all material times, the defendant carried on business as a metal smelter from premises at Port Pirie in the State of South Australia.
>
> 1.2 At all material times, Gregory Sleep ('the employee') was employed as a plant operator by the defendant.
>
> 1.3 On 17 October 2004 the employee commenced night shift in an area known as the mixing facility of the sinter plant located within the defendant's smelter at Port Pirie.
>
> As part of his duties, the employee was required to enter an enclosed shed known as the Co-Treatment Shed in order to check the level of ore being deposited into an area within that shed known as storage bay 12D.
>
> 1.5 Between 7 pm on 17 October 2004 and 3 am on 18 October 2004the employee was exposed to a risk of injury at work when he entered the co-treatment shed while a front-end loader was operating inside that shed.
>
> 1.6 On or about 17 October 2004, whilst inside storage bay 12D, the employee was struck and run over by a front-end loader resulting in the employee sustaining fatal crush injuries.
>
> 1.7 The defendant failed to provide and maintain so far as was reasonably practicable a safe working environment in that it failed to ensure:
>
> 1.7.1 that the employee could not enter the ground level of the Co-Treatment Shed without the assistance of his supervisor.
>
> 1.7.2 that the employee could not enter the ground level of the Co-Treatment Shed at any time while the front-end

loader or other mobile plant was operating inside that shed.

1.8 The defendant failed to provide and maintain so far as was reasonably practicable a safe system of work in that it failed to ensure:

1.8.1 that the employee could not enter the ground level of the Co-Treatment shed without the knowledge and approval of the employee's shift supervisor;

1.8.2 that the employee could not enter the Co-Treatment Shed without the knowledge and approval of the control room operator;

1.8.3 that the employee could not enter the Co-Treatment Shed without the knowledge and approval of the operator of the front-end loader;

1.8.4 that the front-end loader was not present within the Co-Treatment Shed at any time while the employee was anywhere inside that shed;

1.8.5 that the employee's shift supervisor prevented all entry to the Co-Treatment Shed until that supervisor was satisfied of his/her own direct knowledge that there was no front-end loader within the shed;

1.8.6 that all access and egress from the Co-Treatment Shed was possible only with the specific authorisation and supervision of the employee's shift supervisor.

1.9 The defendant failed to provide such information, instruction, training and supervision as was reasonably necessary to ensure that the employee was safe from injury and risks to health in that it:

1.9.1 failed adequately to instruct and train the employee with respect to the safe entry into and egress from the Co-Treatment Shed;

1.9.2 failed adequately to supervise the employee in appropriate procedures with respect to the entry and egress from the Co-Treatment Shed."

2 This charge arises out of an incident which occurred on either the evening of 17 October 2004 or the early morning of 18 October 2004 when the body of the employee Gregory Sleep was discovered in the storage bay 12D in the co-treatment shed on the defendant's premises.

3 The evidence is clear that the employee had been run over by the front end loader which had been operating during that period within the co-treatment shed and that he had sustained very substantial crush injuries which were of a degree sufficient to cause his death. What is less certain is whether these injuries actually caused his death or whether he had died prior to being crushed by the loader. Further it is not clear whether if the injuries actually caused the death, the employee was conscious or unconscious or incapacitated at the time.

4 The basic facts, most of which are not in dispute, are that the deceased was working on night shift at the defendant's smelter at Port Pirie. He was employed as a plant operator and was rostered on a small team of other workers for the night shift which was between 7.00 pm and 7.00 am. The deceased was recorded as having entered and left the co-treatment shed on three occasions before 9.30 pm. It was part of his duties to keep an eye on the unloading process of concentrate or ore into, in this case, one particular storage bay, bay 12D. The information he obtained and conveyed was used to regulate the depositing and location of material so that some regular observations were necessary.

5 At the conclusion of the third visit to the shed, Mr Sleep, via a small handheld two-way radio, communicated to Mr Paul Haren who was operating the sinter plant control room at a distant location, at 9.30 pm, that he had left the shed. I note that he had also communicated the three previous entries and two exits and that they were all recorded by Mr Haren in his log. These communications were all consistent with the procedures set in place by the defendant for entry to the shed. I will return to these procedures.

6 At about 10 pm another employee Mr Evans noticed that Mr Sleep was missing and briefly looked for him. It was not until just before 2.00 am that Mr Evans began again to look for him and found his body in bay 12D.

7 During the shift, another employee, Mr Thomson, had been operating a front end loader inside the shed. On none of the three occasions had he previously been notified that the deceased was about to enter the shed either by Mr Sleep or Mr Haren. It was only on the third occasion that Mr Thomson knew that the deceased was in the shed because the deceased waved to him as he entered and this occurred at about 9.30 pm. This was the first time for the shift that the two were together.

8 The co-treatment shed was large. It measures 167 m long by 55.5 m wide although it is slightly narrower at 49.1 m at its western end. The shed is comprised essentially of two parts. On the eastern side is an area known as the storage shed which on either side is comprised of eight bays rather like those seen at a large gardening or outdoor centre except that in this

case each bay was significantly larger and measured about 15.3 m wide and 33.8 m deep. Bay 12D where Mr Sleep's body was found was of these dimensions. Mounted high up in the roof of the storage shed was a moveable overhead conveyor belt gantry system by means of which ore delivered by a ship could be transferred into each of the bays. As previously indicated, on the night of 17 October 2004 ore was being delivered by that system into bay 12D. On the western side of the shed was an area known as the flux annexe which was comprised of a further twelve bays of varying size but which were generally smaller than those within the storage shed. There was no overhead gantry system for loading this area.

9 Near the centre of the flux annexe was located an opening covered by a grid called the 'number seven boot'. It was into this opening that the ore and flux was deposited by the front-end loader in various proportions dependent upon a particular production run. Typically, the front-end loader operator would be given instructions as to the type and amount of product required. From the boot, the product was taken by another conveyor belt underground to another section of the smelter, the mixing plant, just outside the co-treatment shed.

10 On the southern side of the building and close to the boundary of the storage shed and the flux annexe is located a pedestrian access door. The door is located alongside bay 12D. Within 5 m or so a person entering the shed through that door could be in that bay. Just inside the shed and opposite the door is a safety rail comprising two uprights and a horizontal bar made of tubular steel.

11 Vehicular access to the shed was through a door on the western side on the far side of the flux annexe.

12 The deceased worker, Mr Sleep, was part of a small workgroup which included Mr Haren, Mr Douglas Evans who was the mixing plant operator and who was the deceased's mentor or "buddy", and Mr David Thomson who was the operator of the front-end loader. Mr Thomson was not employed by the defendant but by Brambles Industries and his loader duties for the shift required him to attend at various locations within the defendant's smelter area and also included operating the front-end loader within the co-treatment shed.

13 The evidence was that as at 17 October 2004 the defendant had certain written protocols in place relating to entry and egress from the shed. The prosecution case was that these were inadequate. Whatever the situation, the deceased was required to notify the control room and the driver that he had completed his task and was leaving the shed. As indicated above, it is not known whether Mr Sleep re-entered the shed after 9.30 or gave

notification that he was leaving it before he had actually departed. The evidence is inconclusive.

14 It was the evidence of **Mr Thomson** that on the night in question he was driving the front end loader within the co-treatment shed. He said that the conveyor belt running from the wharf to inside the shed was operating that evening at all times that he was within the shed and depositing product into bay 12D. He said that he entered the shed on two occasions to perform his “flux runs”. The first of these commenced at 8.30 pm on the 17th and the other at 12.30 am on the 18th. On each occasion he said that he was inside the co-treatment shed for between one and a half to two hours. He described the front-end loader as having wheels anywhere between five and six feet high and said that it weighed about 24 tonnes. He worked in an enclosed cabin and said that his view to the rear was obstructed by air filters, the bonnet over the motor and the exhaust pipe which all made it very hard to see behind. He was unable to see “a fair way back” because of these obstructions.

15 He said of the lighting conditions inside the shed at about 9.30 pm that they were ‘not very good’. Some of the lights were switched off but others were on. Visibility was “reasonably dusty” but had improved because he had used the water cart to settle the dust before the first flux run at about eight o’clock.

16 The first occasion upon which he was aware that Mr Sleep had been injured was when he was told of it by Mr Evans at about 2.00 am.

17 Prior to starting work within the shed on the night in question there was a meeting at the mixing plant in which he was provided with information about the mixture he needed to deposit in the boot for the purposes of the sinter plant. He said that there were three runs in a shift which were approximately the same but that at the start of the first shift he was told of the concentrate mix he was to prepare. The mixing would occur in bay 22 which was in the south-western most corner of the flux annexe. He would take a load from whichever bay held the ingredients he required and travel from them to bay 22 to deposit them. The loader was able to indicate the weight he moved each time of each ingredient and he would calculate the total amount required. No physical mixing of those products occurred in bay 22 and he would then remove them from there as required and deposit them into boot seven, again using the loader, when he was directed by radio to do so. Interspersed with the mixture he would load product or ore into the boot.

18 The first run took a little longer because of the making of the mixture. He estimated that it could take two and half to three hours but that would depend on how much mixture was left from the previous shift. Although he would move and deposit the mixture, at other times he to did not

move any product to get it ready before it was required for the next shift. He said that the mix could change for different shifts. During a shift he could move up to 400 tonnes to go to the mixing plant. This could involve up to 100 bucket-loads of varying weight. The scoop was capable of carrying up to 10 tonnes at a time of lead ore but other ingredients were lighter.

19 He would receive his night shift instructions at a meeting at about 8.00 pm and be told the details of what was going to be involved in the flux runs for that shift. After the meeting he would go off to prepare for the work he was to do in the co-treatment shed.

20 It was his evidence that the forward speed of the loader inside the shed would not usually be any greater than about 20 km per hour and when reversing would be slower than that. Speed would vary depending on the load in the bucket because spillage increased when the loader bounced.

21 After July 2004 he recalled a change in procedure whereby if people came into the shed on foot they would either radio him to tell him of their presence or stand at the bollard by the pedestrian door to get his attention. In the latter case he knew they were in the shed and they knew that he had seen them. He worked in an air-conditioned and enclosed cabin and wore a mask. He agreed that outside the loader the environment was unpleasant in that it was humid, dusty and noisy. The loader was diesel driven so that you were able to hear it and tell where it was in the shed even if you were unable to see it.

22 It was his experience that if anyone ever entered the shed on foot it was common for that person only to be in the shed for a short time. He understood that the usual reason for someone to enter the shed on foot while he was there in the loader was to check the bay into which a ship was unloading to see how full it was. This would only take from three to five minutes. There were times when he, himself, would radio the control room when a bay was full. He was generally aware of where the unloading was taking place. When he was aware that someone was in the shed he usually slowed to stop creating as much dust and wait until that person had gone. He knew where the unloading was taking place so he also knew where the person would go to check that bay and was careful to keep away from it. He would also be careful about travelling anywhere near the line of travel from the door to the bay in question. Sometimes he would be informed by a wave or by radio that the person had finished and was leaving. A few times he was notified that someone was in the shed but he did not receive a radio message or a signal that they had actually left. He had sometimes not been told that someone had left by radio or had not seen them leaving but he continued to adopt the altered measures of driving more slowly and keeping a better lookout and not going anywhere near the bay that they were interested in.

23 When working in the shed he had his headlights turned on as well as a permanent floodlight at the back of the loader at all times. On the day in question he was able to say that all the lights were functioning properly but he could not remember whether the reversing beeper was operating. It could have been but it was not always audible.

24 On 17 October he had commenced to make up 100 tonnes of mix in Bay 22 until about 7.30 to 7.45 pm. He finished the mix at about 8.10 pm and made his way to the meeting to obtain instructions for the night for the run. Although Mr Sleep had twice been in the shed at 7.18 pm and at 8.10 pm when he was at the mixing meeting, Mr Thomson saw him only once, just before half past nine in the shed. So far as he was concerned Mr Sleep was conscientious and compliant with safety requirements. Each time he saw Mr Sleep in the shed he had either radioed or stood at the bollard until he caught his eye so that he was aware of his presence.

25 On the day in question he started the first flux run at about 8.40 pm. He said that he and the loader were moving in all parts of the shed. But could not be specific about them. At about 9.30 pm he saw Mr Sleep at the bollard. At that time he still had about an hour to go before finishing the run and was on his way from the boot to pick up some more concentrate from bay 3 and was travelling in an easterly direction. He presumed that Mr Sleep was in the shed to check on the level of material in the 12D bay. He was travelling in reverse at the time to reverse into bay 12C or 12D to turn around and then proceeded forwards to bay 3. He realised that Mr Sleep was interested in bay 12D so did not reverse into it but into 12C. He kept away from 12D for the remainder of the shift because he knew that Mr Sleep would have been around there somewhere. He did not see Mr Sleep leave the shed. The first flux run finished at about 10.30 pm that night. At the end of the run he commenced to make another mix of 200 tonnes and whilst preparing that mix he caught sight of Mr Evans at the entrance door at about 10.30 pm and assumed that he was also most likely to be interested in bay 12D. He finished the mix at about 11.15 pm and left the shed in the loader.

26 At about 12.30 am he again started back in the co-treatment shed on the second flux run. He was under no particular pressure that night. On this run he was required to go down to bay 9A or 9B for a particular material of which he required about 50 tonnes to be taken to boot seven. The bucket held about five or six tonnes at a time and so some seven to ten buckets (and trips) were necessary. It was during this second flux run of the night, some time after 12.30 am, that he began to reverse into bay 12D and use it as an area in which to turn with an empty bucket, before turning right to travel down to bay 9A. At some time after 12.30 am he felt a bump or that he was driving over something when he reversed into 12D. Also during that second flux run he noticed something that he thought was rubbish within bay 12D and determined to pick it up later.

He thought that it was old roofing material or a broken pallet or some such. He finished the second flux run at about 1.45 am and saw Mr Evans again enter the shed. Mr Evans signalled him and then waved quite furiously at him. Mr Evans then told him that he had found Mr Sleep on the ground.

27 It was the evidence of **Mr Paul Haren** that he was the sinter plant control room operator on 17 October. He was able to remotely operate the gantry conveyor system from the control room in order to dump product in the desired bay. He said that the control room had a set of computers and screens from which he could operate the entire sinter plant. There was a mass of conveyor belts; 40 or so. He also, among other functions, controlled the mixing plant where the feed from the co-treatment shed was conveyed. In short, the control room controlled the various operations that occurred within the sinter plant. He could communicate with other operators in the plant by radio. They were not all on the same channel and neither could he communicate with all employees. He was able to communicate with Mr Evans, Mr Thomson and with Mr Sleep on another channel. Sometimes he could not pick up Mr Sleep or the front end loader driver inside the shed. Most times he could pick up the driver. He used channel 2 for the loader operator. Mr Sleep, was on a different channel; channel 4. If he could not contact the operator he would do so through another channel, probably channel two, through somebody else but Mr Evans would not usually be on that channel. In any event he had two-way radio contact with the operator, Mr Thomson, on the night in question but it was unreliable. The loader operator had two radios. Three channels were used in all. The mixing plant operator used channel four to call for and restrict the flow of product. He said that the radios were in poor condition and did not work well. The equipment he used to contact Mr Sleep, Mr Evans and the driver was not reliable. Radio communication in from all three was not reliable either.

28 He said that two cameras had been installed inside the co-treatment shed so that he could receive an image within the control room of goings-on within the shed. They were located on the gantry to the north and south but were not working on 17 October. The image conveyed was hazy, like snow, so it was necessary to use other measures. He said it was due to the conditions but they had not worked in terms of producing a clear picture for a long period. The position of the gantry and conveyors was directed by sensors to the control room, but not always accurately, so he needed somebody to confirm that he was in the exact spot desired. He said that if a ship was unloading it was necessary every 30 or 40 minutes and at regular intervals for someone to go to the shed and check that the material did not overflow into the next bunker or out into the roadway. He would receive instructions such as “move it north” via radio. There was a need at such times to check the flow and piles every so often and

they worked at it as a team. He was able to move the equipment to roughly the correct position but still needed someone to check it visually.

29 Mr Haren said that although there was a supervisor of the entire site present during the daytime, Mr Loizeau, he did not report to him except when there was something seriously wrong. He was able to do so by mobile or landline phone.

30 In the daily log he kept (Exhibit C12 for 17 October), he recorded the presence on shift of each crew member. It was to ensure that people were at work and also to assist in emergency evacuations. It was a sort of rollcall but did not indicate that he had been individually in contact with each person. Some would check in by radio and others would be reported as present. On the log he kept he recorded “co-treatment shed entry” which was a record of persons who entered and left the shed. There was no similar record for vehicles.

31 At 1918 Mr Sleep radioed him and said that he wanted to enter the shed. Mr Haren said “okay” and wrote down the time. At 1927 Mr Sleep again radioed him and said that he was out of the shed.

32 At 2010 Mr Sleep again said that he wanted to enter the shed and to look at the heap and again Mr Haren okayed it. There was a further communication at 2014 in which Mr Sleep said that he was leaving the shed. All of these communications were recorded.

33 Once more, at 2126, Mr Sleep indicated on his radio that he wished to go inside the shed. At 2130 Mr Haren recalled a further radio contact in which he said “I’m leaving - I’m out of the shed, Pauly”.

34 Mr Haren said there was no particular responsibility residing in any individual for checking the shed. It was usually the mixing plant attendant but was the responsibility of the team to do so and if the mixing plant attendant was engaged elsewhere, any other team member might do it. Otherwise, also as a team, members would order the material that they wanted by radio and work together. There was no manager and nobody really in charge although the control room was used to arrange things.

35 If anybody wanted to enter the shed that person would radio the control room operator using his own radio or one available together with a vest near the south door. The control room operator would grant permission. The person would then radio the loader driver and if he was unable to contact him he would put on the vest, go inside the door and stand by the hand rail to wait until he had the loader driver’s attention. The loader driver would come along, pull up, and he would indicate to him which bay he was about to check. The person would then walk to the bay and keep a watch on the loader. He would inspect the bay, walk back, either

radio the loader or, at the rail, give him a wave. He would then leave the shed and radio the control room and return any equipment.

36 The southern door was not locked prior to 17 October 2004. Mr Haren said that he had no authority to prevent entry into the shed. Contact was made with the loader driver by radio or visual signal or eye contact.

37 Pedestrians in the shed were a common event and he was aware of the protocol for entry. He had never been told that pedestrians and vehicles were not permitted to be inside the shed at the same time.

38 He said that at night time it became very hard to see in the shed. The lighting was very poor because dust collected on the lights. Mr Haren said that he had been present in the shed when the loader was operating. He said that it was noisy and bellowed when it was working hard but was quieter at other times. The conveyor belt was not greatly noisy.

39 After the accident the plant shut down for a couple of days and subsequent to that a new protocol was introduced which was rewritten several times. The new procedures were conveyed to the control room operator to read and management required that they be read. A new lockout system was introduced in accordance with version five of the protocol. It became necessary to seek permission from the control room operator to enter the shed and he was able to grant or refuse permission to enter. That was not the case prior to 17 October. The pedestrian entrance is now locked even when persons are inside the shed. Prior to entry the vehicular entrance door is also disabled. After those persons emerge, the control room operator is notified of that fact and that the shed is locked and safe. At no time may a vehicle and a pedestrian be inside the shed at the same time. Further, if there is a vehicle inside the shed when pedestrians want access, that vehicle must leave the shed before they are allowed in or in the case of the loader, the driver must shut the machine down and hand the shed over to those wishing to enter. After that the next person will radio in to say that they have control of the shed. Either way the protocol now requires that there be no operating vehicle within the shed. Further, if a ship is unloading, both conveyors on the gantry are required to shut down if pedestrians are within the shed.

40 It was the evidence of Mr Haren that the deceased was a careful man and paid good attention to safety procedures. He was compliant with any directions that he, Mr Haren, might have given him.

41 Visits to the shed would normally be short because of the nature of the job being undertaken which was to go in, have a look and see what was happening with the pile and then leave. He said that conditions were not good in the shed and the least time spent in there the better. It was an

unpleasant environment in which to choose to remain without reason. People in the shed were his eyes and ears and occasionally he would receive a radio call requesting movement of the conveyor whilst a person was still inside the shed. Sometimes he would get similar indications from the loader driver and would move the conveyor accordingly but most of the time information and directions came from Mr Sleep or Mr Evans. Mr Haren was of the view that an earlier nine minute visit by Mr Sleep which he had logged, would have involved a movement of the shuttle to a point where Mr Sleep was satisfied with its new position before he left. Otherwise, bay 12D was only 25 feet from the hand rail and access would have been easy and time inside would have been short. He accepted that there might have been other explanations for taking longer than a few minutes such as material not flowing freely through the boot. He could recall no need, earlier in the shift, to attend to plant in this way.

42 With respect to radio transmissions he said that all personnel appreciated that there might be instances of interference with transmissions. There were times when messages had to be repeated and times when he would not receive a transmission. There were ways of working around this. Sometimes batteries went flat halfway through conversations but that was not the case on 17 October. On the night, communications had been fine. He said that the team on shift was self-directed and it was not necessary to direct the team on the jobs they were required to do during a shift. The superintendent Mr Loizeau was not present but was contactable. He was himself in as good a position as anyone else in the plant to work out what needed to happen within the sinter plant although if something significant was happening such as shutting down the plant he would need to be advised. On some days it might be necessary to make many regular checks within the shed but on others, such as when an empty bay was to be filled, it would not be necessary to look at it for up to three hours.

43 Mr Haren was definite that Mr Sleep did not radio him after his exit at 9.30pm to say that he was going back into the shed. Had he done so Mr Haren would have written it down. The control room was never left unmanned. He said that if after an entry he had not been told, after say fifteen minutes, that an employee had left the shed he would initiate radio contact or send somebody in to check. Occasionally this would be the result of forgetfulness on the part of the employee. He said that in 2004 he would become concerned after 30 minutes and sometimes sooner than that. He would never wait for hours.

44 He was aware of an incident which occurred in the middle of 2004 when one of the loader drivers reported that he had seen two people on foot in the shed who had not had a radio clearance from the sinter control room. As a result there was an incident report and an investigation. He could

not remember whether or when specific changes to shed entry procedures were made at that time but was aware of a procedure whereby an admittee would first radio him but not that, if contact could not be made he was to stand at the rail inside the gate. He was aware of procedure changes but not of when they occurred.

45 There was always somebody in control of the control room. The team members rotated into each position.

46 He was aware that there was and always had been a significant safety issue with people on foot and a 20 tonne vehicle "running around" inside the shed. He was not aware of anyone disobeying a direction not to enter.

47 He gave permission to Mr Sleep or knew of his entry at 9.26 pm. In such a short visit it was unlikely but possible that he directed movement of the shuttle. He could not recall it.

48 **Mr Evans** gave evidence that he had been with the defendant organisation for 30 years and had 15 years' experience as a sinter plant operator. He was working night shift on 17 October 2004. There was no on site supervisor and no one was in charge of the team. On the night, he was the mixing plant operator. He was in charge of the training of Mr Sleep in something of a mentor role. Part of his role on the night in question was to communicate with the loader driver to tell him what he required. He would receive information about the product and amount required and communicate that to the operator and check that he had done it. All of the various products were dropped into boot seven.

49 He was engaged in the mixing plant at about 9.26 pm when he had his last verbal communication with Mr Sleep. It related to the checking of an item of machinery. He remained in the mixing plant "putting up fluxes" until 10.00 pm and then proceeded to the co-treatment shed with the intention of assuring himself that all was in order before he left for crib. This occurred at about 10.20 pm. Prior to that time he had not looked for Mr Sleep and did not do so then as having not seen him for the better part of two hours was not unusual. At about 10.22 pm he entered by the pedestrian door on the southern side of the building, called the control room that he was going in and stood behind the barrier until he contacted the loader driver. Mr Thomson continued to operate the loader whilst he was in the shed and he stepped to the east to look into 12D but did not enter it. The conveyor belt was operating and the loader was stirring up dust near the boot but conditions were not dusty in 12D. Lighting was not good in 12D because the conveyor was shading the lights. He looked upwards at the pile to see whether material was going to breach the retaining wall some 7 m up. He was not looking at ground level. He said that the loader was "pretty noisy" but the conveyors were not really so. He said that he stayed only five or ten minutes and then he went out. He

then cleaned up and went to crib at about 11.00 pm. He then did some hosing down, which was Mr Sleep's function, and wondered where everybody was, including, Mr Sleep. He knew Mr Sleep was not in the area but not where he was. At about 1218 he left Mr Sleep's area and started mixing the next flux run. He was agitated because he did not know where Mr Sleep was. His job was not being done. He became concerned and said that the "signs were not good". He could not find him and then started to look for him in various areas until the only remaining area was within the shed. He then proceeded to the shed. Again he entered by the southern pedestrian door and notified Mr Haren in the control room. The door was not locked. He waved to the loader operator and signalled that he was going to 12D. He looked into that bay and initially saw nothing but upon entering it, found Mr Sleep's body. He was obviously dead. The body was on the centre line of the bay about one third of the way in. He reported it to Mr Haren and arranged for police and ambulance attendances.

50 He said that visibility inside 12D was poor although the dust was not bad because the material in it was damp. It was worse in the annex. The concentrate itself was very dark grey to almost black and the lighting was in the shadow of the conveyor. It was necessary to use lights on the loader to provide sufficient light.

51 His understanding of the protocol that existed prior to the incident was that those wishing to enter the shed were to proceed to the southern door, put the vest on, call the control room and ask permission to enter the shed. On leaving the procedure was reversed.

52 He said that the cameras beneath the conveyor were very poor in October 2004 but were improved after the incident. He also said that there was a lot of trouble with the radios prior to October 2004 but since then radio access had improved. However, since the fatality, the loader driver was not used to report on the state of the heaps. Because of the radio difficulties the operator was occasionally used for spotting the heaps. It was possible to perform some inspection of the heaps from the gantry level.

53 Mr Evans said that the procedure he used for entering and leaving the shed was not the proper procedure because it did not entail using the radio to contact the driver when he entered and when he left. Instead he signalled the operator at both times. He said that he had not been told of a change in procedure whereby if the radio was not used he was to stand at the bollard and make eye contact with the driver. It was just something they did. When entering the shed he would not normally even try to use the radio to contact the loader driver. He would stand at the bollard until visual contact had been made.

54 On the evening in question he was unaware of Mr Sleep's entry at 9.26 pm for four minutes.

55 In terms of training he said that he was asked to train Mr Sleep. He had trained other people. Other persons would have trained him in other roles. His initial training was more intensive and included all the job safety procedures and safe work instructions. He described Mr Sleep as a person who did what he was told, was keen to work and who followed instructions. He said that the entry requirement was to contact the loader and the sinter plant control room and that he had made sure that Mr Sleep was aware of and knew how to comply with the entry procedure for the shed. He had been inside the shed with Mr Sleep and said that conditions inside the shed when the loader was working could be very unpleasant, so that one would want to spend as little time as was needed inside the shed. It was not a place to linger without a purpose. It was very humid and uncomfortable and it was very dusty. He was not aware at any time of Mr Sleep not following the required entry procedures or any other safety procedures. He was insistent about obtaining radio contact where it was required. Mr Sleep had been described by Mr Evans as being capable of doing his job by himself for about a fortnight or three weeks prior to the incident.

56 He followed the procedure whereby if he was unable to contact the loader driver by radio he would wait by the barrier just inside the southern entrance door until the loader driver had acknowledged his presence. He could not recall how he was informed of the process or whether he had formed the procedure himself because he was having so much trouble with the radios.

57 He had taught the procedure to Mr Sleep but had deleted the requirement of wearing the safety vest. He said and they never wore the vest and he never went in with anybody that did. There was no check on the wearing of vests.

58 He said that his concern for Mr Sleep grew as the evening progressed and he saw evidence of jobs not being done that he would have expected to be completed. By 2.00 am he had made up his mind that something was out of order. At that time he had not looked in the co-treatment shed for a while.

59 Two forensic pathologists gave evidence in this matter.

60 The first was **Dr Alan Cala** who performed an autopsy on the body of Mr Sleep and prepared a report on 20 October 2004.

61 It was the opinion of Dr Cala that the head and chest injuries sustained were sufficient in themselves to have caused a fatality. Further, Mr Sleep's abdominal injuries might also have been fatal by themselves,

particularly that to his spleen which was ruptured and could have been fatal in its own right.

62 Dr Cala said that all injuries were consistent with being run over by a loader but he was unable to say if the body had been run over more than once.

63 He said the death from the head or chest injuries would have been more or less immediate; perhaps taking up to one minute.

64 He said that there was only a small amount of brain material recovered and accepted that it was preferable that brain material from outside the skull be recovered and passed on for examination. All he could do with spilt brain material was to indicate that it was in fact brain material and that there was massive injury and extrusion. There was no further testing. He was not looking for neurological issues. The brain material remaining in the skull was identified as such and there was no further testing of it. He was unable to exclude the possibility of a neurological issue which caused or contributed to the death prior to the vehicle contact. He said that if there was nothing in his medical background of a neurological nature that it was safe to say that Mr Sleep did not die suddenly and catastrophically from such factors associated with sudden death including hypertension, tumours or epilepsy.

65 He assumed that Mr Sleep's medical history was normal. He agreed that a stroke or aneurysm could cause death in many instances without a previous indication.

66 It was Dr Cala's view that Mr Sleep was alive and died at a result of his injuries. He said that if Mr Sleep had already been dead the injury pattern would be much the same but there would have been much less bleeding which would have looked different upon examination.

67 The bulk of the injuries sustained were associated with bruising even those to the head. Some injuries could have occurred after death and the body could have been run over more than once. However some injuries were definitely caused before the death. He did not agree that the sheer weight and pressure of the vehicle itself upon the body was likely to cause blood effusion into muscle tissue. It was his view that the deceased had a blood pressure and a heart rate at the time that the injuries were inflicted. Dr Cala said that there was "classic bruising" around the head injury and the body and disputed the hypothesis that the same pattern of injuries could have occurred if Mr Sleep had already been deceased and on the ground. He had considered this hypothesis but rejected it. There was no other reasonable cause of death. Bruising had occurred before the death or exactly around the time of it and he excluded the proposition that the injuries in their totality were caused after death. He said that

bruising damage to a body after death had a different appearance from a bruise which occurred during lifetime. He said that the volume of blood was less, rarely caused the same swelling and was usually centred around the torn or ruptured blood vessels and did not seep into the tissue like a bruise during lifetime. Bruising after death might occur but was different and easily differentiated whilst accepting that it was difficult to distinguish a bruise which had been inflicted just before death and the moment immediately after death. However half an hour later most people would be able to differentiate such bruising from that which occurred during lifetime.

68 He said of the possibility of a brain aneurism that these were rare and might occur in 1% of the population. Severe symptoms such as severe headaches which gradually became worse were mostly involved, although sometimes there could be instant death from a sudden rupture. Mostly it would take minutes or hours and varied considerably. Unconsciousness would usually occur before death.

69 He said that the odds were extremely low that Mr Sleep would have suffered the first epileptic fit in his life.

70 Dr Cala's experience included cases where fatal injuries had been suffered by persons who were drunk, asleep or had passed out on the roadway.

71 He said that Mr Sleep's heart had a 50% narrowing of the proximal left anterior descending coronary artery due to arteriosclerosis. This was an isolated narrowing and added nothing. The heart looked normal and that area of narrowing was very common and had no relevance to the cause of death. He found no inflammation or any other abnormality. He said that there was no underlying heart abnormality that caused the death of Mr Sleep. The chances of finding anything else of significance in the heart were very low. There was nothing to suggest a viral or other disorder of the heart. The myocardium appeared to be normal.

72 He said that it was not a reasonable possibility that Mr Sleep died as a result of a cardiac related event and not a violent trauma. His heart was essentially normal but for one isolated and not significant narrowing of a coronary artery.

73 The defendant called evidence from another forensic pathologist, a consultant, **Dr Richard Collins**. He was also highly experienced and had performed many post-mortems. He had been given access to a number of documents and photographs. He had also examined the relevant video, specimens and records in a view to obtaining as full a picture as possible. He had access to all of the pathologist material, notes and working diagrams including material that was not included in the autopsy report.

It was his view that a second expert pathologist should be in those circumstances in the same position as the initial pathologist.

74 Of the brain material he said that every potential cause of death or contribution to the death should be examined. All should be excluded. Every death scene should be regarded as a potential homicide. In this case only a small amount of brain material was retained from the base of the skull but all of it should have been examined in order to exclude possibilities such as an aneurysm or a tumour.

75 He said that in his view the examination of the brain was incomplete. There was a possibility of some brain pathology which could not be excluded and which might have contributed to the demise of Mr Sleep. Nothing might have been found but without examination nobody would know. The possibilities included the blocking or rupturing of blood vessels, disease, tumours or epilepsy. There might have been an aneurysm which could be a sudden or unexpected cause of death or which could result in unconsciousness and complete incapacity. Most commonly symptoms were evident of an aneurysm but a lesser number were symptomless and could cause sudden death. He might also have suffered a stroke which again could be fatal or cause unconsciousness. As I understand his evidence it was not possible to be categoric about any of these possibilities without a full examination of the brain which in this case was not fully conducted.

76 In relation to the heart, Dr Collins was again of the view that the examination of Dr Cala was inadequate and that he was unable to exclude the possibility of death or unconsciousness due to disease or some other cardiac event. He said that the heart should have been examined properly and that it was reasonable to expect a number of sections to have been taken but in this case there was only one. A single section might not adequately represent the pathological status of the entirety of the heart muscle. The section taken might look entirely normal but another taken from an area only a centimetre away could be entirely different particularly with respect to myocarditis or inflammation. He saw no evidence of myocarditis in the one slide that was taken. Multiple sections were needed in order to properly exclude small foci of areas of information. There would not necessarily be symptoms of myocarditis. He said that it was not possible to say that the entire heart was normal from a single section which appeared to be normal and one slide was not sufficient information to exclude any reasonable possibility of any disease affecting the heart muscle. It was his view that Mr Sleep could have experienced myocarditis without there being any indication to the naked eye although this was not the classic position wherein the heart muscle would appear stripey and mottled. Four or five sections would have given a reasonable interpretation. There were known examples of heart muscle which appeared normal on

examination or which did not determine the cause of death but were able to do so through microscopic and histological examination.

77 Further, a deficiency could occur in the conductive system of the heart which could lead to sudden death in the manner of other coronary artery diseases.

78 With respect to the narrowing of the proximal left anterior descending coronary artery he said that this was an abnormal vessel carrying an increased potential of heart attack compared to a normal artery. Some pathologist would say that 70% narrowing was an acceptable cause of death. He said that the 50% was in turn only an approximation or an estimate but had the potential to be fatal. The heart was diseased and it was not possible to say what the other vessels looked like in the muscle itself. The narrowing might have been sufficient to cause irritability of the heart muscle sufficient to generate an arrhythmia which had the potential to be fatal. It was not necessary for a coronary artery to be totally occluded in order to produce a fatal cardiac event. He could not exclude the further possibility of a myocardial infarction although there was no hard evidence of it, because the tissue samples were not selective or specific enough.

79 He said that his concern was that the autopsy was incomplete at both macro and microscopic level. Mr Sleep had significant heart disease which could have caused him to collapse or die. It was his view that Dr Cala was entitled to say what he had said but in his view it was not necessarily the entire picture.

80 It was his view that other circumstances such as the fact that he was reputed to be otherwise healthy, reliable, safety conscious, as well as that he had apparently been missing from his work from about 10.00 pm and not performing jobs that he would otherwise have diligently performed for three to four hours would all be relevant factors. He said that one would look for an explanation to see if there was anything that could have caused him to die or collapse prior to being run over.

81 He did not know whether Mr Sleep had been upright and knocked over or already on the ground and later run over although it was clear that he had been run over at some stage. He could not exclude the hypothesis that Mr Sleep was dead or dying on the ground when he was run over. It was his view from looking at the photographs that the injuries and bruising were peri-mortem and could have occurred before or in the short period after his death of up to half an hour.

82 With respect to the bruising on the body he said that it was difficult to be certain about whether bruising had occurred when Mr Sleep was still alive with a blood pressure or whether it was caused by seepage of blood

into grossly damaged and compressed tissue areas. He said that there was no doubt that bruises could occur several hours or several days after death which is not what occurred here, but it was not true to say that bruises had to result from trauma sustained during life. In his view the injuries and the bruising were consistent with Mr Sleep having suffered a fatal condition and died and then being subsequently run over by a heavy vehicle. It was possible that even days after death, bruising could appear to have occurred during life when it was in fact post mortem. There was nothing about the condition of his body, the autopsy and photographs that suggested to him that the injuries must have been caused during life. He would not place the same weight upon the observation of Dr Cala that the kidneys were pale in colour. He said that a single observation of the colour of an organ was unreliable in relation to estimating blood loss. Had all the organs been pale there would have been a more reliable indicator of anti-mortem bleeding.

83 The injuries that he observed could have been caused following a fatal episode in which he was brain dead and on the ground but his heart still functioning. In his view this was a reasonable interpretation.

84 The weight of the vehicle could have contributed to the extrusion of blood from the damaged vessels into surrounding tissue by the force of the pressure of such a vehicle driving over the body. Further there would be pulping of the tissues and damage to blood vessels and the extrusion of blood into those tissues. This could occur even by gravity after death and is a bruise of the nature Dr Cala described, about which it was his view that it was not possible to say that it had necessarily been caused during life.

85 In short it was reasonably possible that Mr Sleep suffered some neurological event, or cardiac related episode leading to his death or serious incapacitation prior to his being run over by the vehicle. It was impossible to discount these reasonable possibilities by objective assessment of the medical material because of the limitations previously referred to.

86 He said that Dr Cala was entirely within his rights to give the cause of death that he did but in his view because of the problems in relation to the brain and heart there was the potential for other interpretations. The pattern of the injuries of the deceased's body was equally consistent with injuries being caused before death or within half an hour after death. There was the possibility of having regard to all of Mr Sleep's injuries that they were sustained in the perimortem period when he was on the ground for whatever reason; either dead or in a compromised situation as a consequence of pathology either in his heart or his brain. He did not say that Dr Cala was necessarily wrong in expressing the view that some of the injuries occurred during life but rather that Mr Sleep might have

been either unconscious or semiconscious or dead when the injuries occurred. There was a reasonable possibility that there were pathological conditions in the heart or the brain which played a role in the death. He would not accept that the overwhelming likelihood was that of death due to the injuries sustained to the head and chest.

87 In all the circumstances I prefer the evidence of Dr Cala to that of Dr Collins. However, I do not discount the evidence of Dr Collins. It is my view that essentially he says that Dr Cala has not examined the brain or heart as well as he ought in order to make the findings that he has. He says that there are possibilities that cannot be disregarded which have not been fully investigated. There was the possibility of some brain pathology that might have been detected on a more complete examination of the brain but without examination nobody would know. The heart examination was inadequate because there was only one section taken when there should have been four or five. In his view the autopsy was therefore incomplete. In his terms there is a reasonable possibility that other factors might have intervened so that death did not occur as a result of Mr Sleep being run over but as a result of a brain or heart occurrence that either killed him or rendered him unconscious prior to being run over by the front end loader. Although both pathologists agree that the injuries sustained would have caused death, it seems to me that the overwhelming likelihood in all the circumstances was death due to the massive injuries sustained. Dr Collins could not disagree with Dr Cala's conclusions but said that there was a potential for other interpretations. However he conceded that the pattern of injuries was consistent with them being caused before death or within half an hour later whilst agreeing that there was nothing to suggest that the injuries must have been caused during life. They might have been but I note also that Dr Cala accepted that some of the injuries were post-mortem and might have been caused by repeated running over.

88 In terms of bruising I understand Dr Collins to be saying that it was very difficult to determine whether some bruising was pre or perimortem or whether it was post-mortem. I accept this to be so but have had regard to the definite evidence of Dr Cala to the effect that at least some of the bruising was pre or perimortem. In other words he accepted that there was a distinction and one which he was prepared to make.

89 Overall it seems to me that Dr Cala has pointed to the possibility that death was due to factors other than the crush injuries but not that he has raised a reasonable doubt in respect of them. I think that I must accept the possibilities but I think that they remain just that. There is no evidence in support of any other brain or heart pathology, just that they have not been excluded by examination.

90 Both pathologists disagreed over the significance of narrowing of the heart artery but whilst Dr Collins was of the view that it was significant and more likely to cause death than was Dr Cala, there is no more than an increased likelihood of that and no evidence of arrhythmia or other trauma. I accept that a more detailed examination might force a different conclusion that is not in any way indicated. The possibilities simply remain un-examined but not suggested by the pathology.

91 In so far as it is necessary for me to make a finding upon the cause of death (and I do not accept that it is, but do so in case I am wrong in this assertion) I find beyond reasonable doubt that Mr Sleep died as a result of being run over by the loader. In so saying I take into account the fact that an otherwise normal and healthy man entered the shed and shortly thereafter sustained injuries which would have been fatal. I take into account in particular the evidence relating to bruising from Dr Cala who was the pathologist who actually saw and examined the body and bruising in making his findings. By contrast Dr Collins' opinions were more removed and general and did not have the benefit of first-hand observations and examination.

92 The defendant argued that the prosecution's case was not proven. Mr Griffin who appeared for the defendant submitted that certain particulars have not been made out. Correctly, he made the point that the charge entirely relates to Mr Gregory Sleep. However, I cannot agree, despite my findings above that as part of the proof of the breach of section 19(1) it is necessary to prove that Mr Sleep was killed by being run over, whilst in bay 12D by the loader as alleged in particular 1.6. Whilst it is necessary for the prosecution to prove all of the elements of the offence that constitute a breach of section 19(1) the particulars in fact indicate three ways in which the offence has been committed and it is necessary only for the prosecution to prove one. The fact of the death is not an element of the offence. It is not necessary that death or any injury be proven by the prosecution. It is trite to now say that all the prosecution need do is to prove that an employee was exposed to a risk and establish one means that was reasonably practicable that the employer could have taken that would ensure the safety of the employee.

93 I accept that the charges have been laid with respect to the enclosed area of the co-treatment shed. It is no wider than that and does not extend to the outside work site itself or any other part of it. I further accept the submission that there are specialised functions performed within the sinter plant and that it is operated by small teams of five members who constitute a shift. I also accept, as Mr Griffin submitted, that the training for persons within the plant was specialised with respect to specific functions and that the night shift team operating on 17 October 2004 was fully aware and highly skilled, highly trained and experienced in relation

to its functions. In fact most, if not all, were able to perform any of the specific duties required in the sinter plant on rotation.

94 It is beyond argument that operators were required to attend and enter the co-treatment shed whilst the ship was unloading to check upon the state of the pile of product in the particular bay where it was to be unloaded. The loader operator drivers were aware of this. The relevant parties were thus fully informed about the nature of these duties. It was an organised task with respect to which the defendant submits that all necessary and suitable safeguards were in place to ensure that the loader and the employee checking the pile were kept away from each other.

95 It was submitted that the defendant's safety procedures did not need to take into account every theoretical or hypothetical risk but to address the substantial risks that could be anticipated and contemplated. The defendant submitted that what was in place on 17 October 2004 met that standard. I do not agree with this. In my view the legislation requires a much higher standard. Whilst every hypothetical or theoretical risk cannot be prevented, some of which would fall into an unreasonable or impracticable category, the Act requires more than addressing substantial risks that are anticipated and contemplated but generally addressing the issue of what other safety measures might be reasonably practicably applied to ensure safety.

96 I am told that those arrangements had evolved over the years and in fact since 1997 and there had been no safety issues over that period. Although an absolute lockout system separating man and machine since 18 October 2004 had been imposed, it was submitted that that was not the basis upon which one assesses the suitability of the system that was in place beforehand because relevant to an assessment of what is reasonably practicable is included an appreciation of the risk and its potential consequences and an appreciation of the training skill and experience of those persons who work in and around the particular system including their knowledge of hazards.

97 I do not accept this argument. The Act is clear in that it requires the implementation of any reasonably practicable safeguards. Although it is also required to train and develop the skills of its employees which is part of ensuring the safety of other employees and which can only go so far, its duties do not end there and it is not entitled solely to rely upon the established training, skill and experience of its employees if there are other reasonably practicable means that it might also adopt. In essence the defendant chose to implement safety measures that were dependent upon its employees following a prescribed procedure and not a system whereby physical means could be introduced which would markedly reduce the risk to which its employees were exposed.

98 The simple fact is that employees are human and that whatever the procedures and training inculcated into them, there is always the possibility of error due to factors such as inadvertence, tiredness, negligence and misunderstandings. It is my view that although the defendant's safety procedures for entry to the shed were capable of rendering the entry process safe, there were certain deficiencies in its application and nature.

99 It is true, and I accept, that the defendant had instituted a protocol which if strictly adhered to was unlikely to result in a collision between man and machine, but in my view more was required in view of the potentially disastrous circumstances of contact between them.

100 It was submitted that the system was well and clearly understood by both parties so that the loader operator would operate his vehicle at a lower speed and in a location or distance removed from the area in which the person on foot was expected to operate. I accept that this procedure was well understood but not that it was adequate or properly prescribed.

101 In my view procedures of the highest order were required. Whilst the defendant described the post accident lockout procedures as extreme or an overreaction, they do not appear to me to be of that order when the circumstances within the co-treatment shed are taken into account. In my view the fact that it was a confined, albeit large space, in which an item of very heavy machinery was operating in a shuttle process, and in which there was noise, low visibility due to dust and poor lighting combined to create a very dangerous environment.

102 The accident occurred at night time. During the day visibility was considerably better due to the translucent roofing material over the shed. I note that the operator of the loader was insulated by his cabin from other than radio contact, and that in circumstances of indifferent radio contact there was little option but to convey information by sign language from the bollard. Visibility was indeed very poor. The overhead gantry conveyor itself cast a shadow into the very bay that Mr Sleep was expected to observe. I note that an operator in the position of Mr Sleep, in observing the level of material in any bay would of necessity be facing into the bay or looking upwards towards the gantry before or whilst giving instructions for its movement. He was required to look away from the loader and its movements. I note that after the body of Mr Sleep was found the photos indicate that visibility was of a very low order, sufficient to necessitate the introduction of another loader in order to utilise its headlights to illuminate the scene. Further, the material in bay 12D was dark grey in colour and not reflective. Making matters worse was the poor visibility to the rear of the loader afforded to the operator whose view was obscured.

103 I also note that the loader, of necessity, passed quite close to Mr Sleep, reversed with compromised rearward visibility across bay 12D and reversed into bay 12C whilst he, Mr Sleep, was in bay 12D. This brings into operation what directions and understanding the loader driver had about keeping away from pedestrians. I will return to this topic.

104 All of these factors combine in my mind to require strict safety procedures and as I have indicated I do not regard the lockout procedure subsequently adopted as extreme or an overreaction or one that is other than reasonably practicable.

105 In my view these circumstances alone are sufficient to prove the charge. It is my view that particular 1.7.2 which related to the prevention of entry of a person at any time while the loader was operating has been made out on the facts before me.

106 In fact that is an end of the matter but a number of other factors have been raised and if I am wrong in the above findings it is appropriate to deal with them.

107 There are a limited number of different scenarios relating to the death of Mr Sleep which received much attention and were the subject of considerable evidence during the trial.

108 It is possible that Mr Sleep contacted the control room at 9.30 pm whilst he still remained in bay 12D and was run over by the reversing loader before he could leave. Support for this is provided by the fact that he did not indicate to Mr Thomson who saw him only once in the evening, he said, at the bollard at about 9.30 pm when it seems to me he would be most likely to be entering the shed, that he was leaving the shed. He might have been indicating that he was leaving but it is unlikely because then his observations would have been complete, he was near the exit door and safely behind the bollard with no reason to further subject himself to exposure or remain in the shed and probably he would have made his presence felt outside the shed. He was simply not seen again and his jobs remained undone. There was no radio contact with Mr Thomson at all with respect to the last recorded entry by Mr Sleep. Mr Thomson was never advised that Mr Sleep had left the shed. Support is also provided for this possibility by the fact that Mr Sleep was not seen again after the single time Mr Thomson saw him, until his body was discovered and that he did not perform his duties after 9.30 pm. I also note that Mr Haren said that the message he received from Mr Sleep was something like “I’m leaving. I’m out of the shed Pauly” which carries some ambiguity. It is possible that he was prevented by contact with the loader from radioing or signalling Mr Thomson as he was expected to do. I note that he was attending the shed approximately every hour. At about 9.30 pm Mr Thomson was engaged on his first flux run in respect

of which he said that the loader was moving "in all parts of the shed" and in particular that he was travelling from the boot to Bay 3 for concentrate which required him to drive past bay 12D on several occasions and to reverse, he said, into bay 12C between 8.40 pm and about 10.30 pm. I note that there is no wall or divider between bays 12C or 12D. It was only on the second flux run which commenced at about 12.30 am that he began to reverse into bay 12D. I note that in so doing he had had no further contact with Mr Sleep but used bay 12D for reversing which he was aware was being loaded and was that which Mr Sleep was regularly inspecting. In any particular shift Mr Thomson said that he would carry up to 100 bucketloads of up to 10 tonnes each. There was clearly much activity associated with the loader. I will return to this and to the fact that the loader driver was not party to a procedure which ensured that Mr Sleep had left the shed.

109 It is possible that Mr Sleep was run over in bay 12D at about 9.30 pm despite this evidence. Mr Thomson might have reversed, on one of these occasions into 12D. Mr Evans who entered the shed at about 10.22 pm to view the material in 12D was not at that stage looking for Mr Sleep but at 11.00 pm performed some hosing down which was Mr Sleep's function and began to wonder where he was. If indeed Mr Sleep was killed at about 9.30 pm, the defendant's procedures were deficient in that the loader was permitted to enter 12D when he was still within it. A separation of man and machine would have prevented this and so would have proper supervision and instilling of the entry procedures.

110 A second possibility is that Mr Sleep at about 9.30 pm and after radioing the control room, but before contacting the operator, sustained some neurological or cardiac event which either incapacitated or killed him and he collapsed in bay 12D and was subsequently run over. It is this scenario and the next that the defendant has proposed. I have indicated that it is my view that Mr Sleep was alive when he was run over but if he was not or was unconscious then the defendant's procedures were again deficient in that Mr Thomson was not informed that he, Mr Sleep, remained within the shed. I am mindful that the defendant's protocol required that Mr Sleep contact the operator by radio on both entry and exit and, if not possible, to signal, but there was no such contact and only one prior visual contact. In my view this was a situation that should never have been permitted to occur and would not have occurred with a separation of man and machine or lockout or even with proper supervision of the entry procedures.

111 The third possibility is that of Mr Sleep making an unauthorised entry. He might have done so. I note that he had attended previously on about the hour twice before 9.30 pm and on each occasion had radioed Mr Haren with whom he had no apparent radio communication difficulties. There was no procedure alerting Mr Thomson or for

ascertaining Mr Sleep's whereabouts after a prescribed period. It was not known for instance whether he had been engulfed by falling product which was a predicted hazard in the defendant's entry protocol. It would seem that he was safety conscious and willing to adopt the entry procedures. He had no radio contact that evening at all with the operator but the loader was not operating on the first two occasions. It would seem out of character for him to make an unauthorised entry in the context of his previous entries. He was required to enter approximately every hour and there was no change to the loading process into 12D of which I am aware. He might have entered at about 10.30 pm which would have been consistent with previous behaviour but there is no evidence to indicate as much and Mr Thomson has indicated that he did not reverse into 12D until the second flux run commenced at about 12.30 am. Mr Sleep might have been run over after that time whether or not he was already dead or unconscious or alive having recently entered the shed. It is my view that an unauthorised entry should never have been possible in view of the dangers within the shed. Such an unauthorised entry would have been prevented by the lockout procedure or by a separation of man and machine or by proper supervision of even the existing entry procedures.

112 For these reasons I am of the view that whatever the time and cause of death the elements of the offence are also made out in respect of particulars 1.9.1 and 1.9.2. I consider that although the evidence indicates that Mr Sleep received certain training and instruction, it was evident that he was at least not properly supervised.

113 I have had regard to the defendant's formal protocols or procedures which it has produced in written form (Exhibit C5) since apparently April 2002. There had been at the time of the hearing eleven revisions of the procedure for shed entry of which the last seven were made after the events of 17 October 2004.

114 The protocol in operation on that date was issued on 3 February 2004. It is described as version number four and like its three predecessors refers under the heading of "Hazard" to danger posed by the loader moving around inside the shed and the danger of being run over. They also all referred to hazards arising from dust in the air and to danger posed by falling material and the possibility that personnel could be hit or buried alive by falling material. It cannot therefore be said that the defendant was unaware of the risks posed to pedestrians within the co-treatment shed, not that the defendant ever took a contrary view. I have previously listed the factors which particularise the difficulties with lighting and which relate to dangers from vehicle movement within the shed. There is no reason to think that the defendant was unaware of any of them. I have also made the point that night-time operations were even more difficult and dangerous.

115 Version four prescribes that access to the shed is restricted for safety reasons and that permission for entry is to be obtained from the sinter plant control room attendant because of the danger of personnel being struck by the loader or engulfed by falling material. It prescribes that all doors, apart from the southern door which is that adjacent to the bollard and bay 12D, are to remain locked. A pedestrian is to enter via the southern door. He is to contact the loader driver and the sinter plant control room via two-way radio situated outside the door to inform both of his name, time of entry, and expected duration of visit. He is required to wear the reflective vest available at the door as well as his normal safety gear. On completion of duties the pedestrian is to notify the driver and the sinter plant control room that his tasks are completed and that he is leaving the shed. He is to provide both with his name and time of exit and then close the door and return the reflective vest.

116 In July 2004 as the evidence above indicates, there was an unauthorised entry into the shed by two unknown persons. Their presence was noted by the loader operator. As a result an e-mail was apparently sent to all employees and contractors which briefly detailed the event and drew the attention of and reinforced the need for compliance of all persons with version four. In particular it referred to:

(1) contacting the sinter room control operator for permission to enter the shed;

(2) wearing one of the reflective vests provided at the south door and;

(3) advising the loader driver that a person was entering the shed.

117 All of these were consistent with version four but in addition the e-mail said:

> "In the event that the loader driver cannot be contacted by radio, wait behind the safety barrier just inside the south entrance door until the loader driver has acknowledged your presence."

118 There was no formal amendment to version four but it would appear and I accept, that the e-mail was disseminated to all relevant persons and it was to be treated as an amendment or addition to version four. The two documents together comprised the defendant's operating protocol for shed entry.

119 I have previously indicated that if properly applied this protocol would go a long way to ensuring safety of employees within the shed. I have also indicated that that was subject to human error. There were several factors involved that could pose risks. Amongst them are the factors of radio unreliability which was referred to by several witnesses and the

subsequent reliance upon the signalled perception of the loader operator as to the movements and duration of presence of a pedestrian within the plant. I note that there were no directions given to the loader operator as to how he was to conduct the loader whilst a pedestrian was present. There was no direction as to speed or distance from the pedestrian that he was to observe and in that context I note that Mr Thomson was reversing into the bay alongside that in which Mr Sleep was to be present and repeatedly passing across the entrance to that bay, at times in reverse in a vehicle which was compromised in terms of visibility. The introduction of the direction to wait behind the barrier when radio contact could not be made with the operator seems to me to be an acknowledgement that radio difficulties could and had occurred and it appears to me that an acknowledgement of presence does not provide the information to the operator that could be conveyed by radio contact, for example, as to duration and purpose of the entry and thus no information to alert the operator of a presence beyond that which was expected. I accept that these factors are not particularised but nevertheless the prosecution maintains that the entry procedures were deficient. I think that is so.

120 The prosecution particularises (1.7) that the defendant did not provide a safe working environment in that it failed to ensure that the employee could not enter the shed without the assistance of his supervisor or at any time while the loader was operating. It further particularises the defendant's failure to provide a safe system of work (1.8) in that it did not ensure that the employee could not enter the shed without the knowledge and approval of the employees shift supervisor, the control room operator, and the operator of the front-end loader. It further allegedly failed to provide a safe system of work in that it failed to ensure that the front-end loader was not present at any time whilst an employee was inside the shed or that the shift supervisor prevented entry until directly satisfied that the loader was not within the shed and further that all access and egress was possible only with the specific authorisation and supervision of the shift supervisor.

121 The fact is that the supervisor Mr Loizeau was not present during the night shift although he was available if required. It is also clear that there was no other form of supervision during night shift of either work procedures or of the safety procedures and in particular version four.

122 I think that the particulars in 1.8.2 and 1.8.3 are made out on the evidence in as much as it was clearly possible for an employee to enter the shed without knowledge and approval of the control room operator and the front end loader operator contrary to version four. In relation to particular 1.8.1 which is not a requirement of version four, it is effectively saying that the protocol is deficient in that it does not require knowledge and approval of the shift supervisor when it should. The evidence is clear that a person could walk into the co-treatment shed

without approval from anybody even if it was contrary to the specific entry procedures. I will not repeat what I have said above except to say that the procedures leave matters to the observance of individuals when physical methods of complete prevention might have been utilised.

123 Particulars 1.8.5 and 1.8.6 effectively point out a simple improvement in procedures by introducing oversight and authorisation by a supervisor. The evidence supports these particulars which are also made out.

124 I am also of the view the particular 1.9 is made out on the evidence. Whilst there is evidence of information, instruction, training and supervision I am satisfied that especially the last supervision was inadequate. I accept that version four was made available to all employees and for present purposes so was the e-mail. That was also a demonstrable level of training in these safety procedures although I am satisfied that all could have been improved. Of particular concern to me is the failure to supervise the application of even the existing procedures even though I accept that generally as Mr Griffin submitted there was substantial compliance with version four. However in my view at least two of the prosecution witnesses were inadequately supervised in this respect and although it does not form part of the charge or particulars I note the attitude of Mr Evans to the wearing of the reflective vest. He 'deleted' the vest wearing requirement. He was Mr Sleep's mentor. Mr Sleep did not wear a vest on 17 October 2004. I also note that both Mr Haren and Mr Evans referred to radio difficulties. I note that Mr Evans was not told of the procedure change after July 2004 but he still used the signalling procedure. Mr Haren was unaware of that system.

125 I will deal with some of the remaining submissions made on behalf of the defendant.

126 I accept the submission of Mr Griffin that the employees had received specialised training but it is my view that that training whilst apparently thoroughly equipping employees for the sinter plant functions did not extend fully to safety issues.

127 It was submitted that the system had been operating safely and that the processes within it were well developed so that all parties understood their various roles. It was submitted that an absolute lock down was unrealistic compared to other workplaces throughout the State where vehicles and persons operate in close proximity. There was no common rule about such co-existence.

128 I consider that the answer to this submission lies in the danger posed to employees in the particular circumstances of the co-treatment shed. I have dealt with and given reasons as to why I consider it to be an area of

considerable risk. It also happens to be one that is confined and where man and machine are expected to work together in close proximity. Whilst accepting that this is always a risky business, in this case there is a defined area and limited machinery and personnel which permits a reasonably practicable course of prevention by isolation of these components. It cannot be compared with other traffic situations or circumstances. Reasonable practicality will change with circumstances. Although traffic control regulations require reasonable steps to be taken to protect the safety of people endangered by the movement of vehicles that is in fact a general iteration of the more specific requirements of these circumstances.

129 The question was posed about prevention of a person from walking into another part of the plant in which they had no interest and were not required to work. My view is that if that part of the plant was the co-treatment shed then it was reasonably practicable to exclude them from its dangers by a lockout.

130 It was submitted that the reliance by the prosecution upon the lack of supervision misunderstood the very special nature of the particular work in the sinter plant and that the men involved were perfectly positioned to conduct their work in a safe and proper way. It was further submitted that there was no evidence demonstrating that a supervisor would have made any difference at all. I do not accept this because it is my view that supervision of the safety procedures might easily have made a difference with respect to safety, if not to the manner in which the work was conducted for reasons previously supplied, even if only to the point of ensuring compliance with the established procedures.

131 Whilst I accept that a supervisor cannot be present in all circumstances and look over the shoulder of an employee every minute and whilst I accept that employees, particularly those who work off-site cannot practically be supervised in all procedures and sometimes must be trusted to adhere to them, in my view in the circumstances of the sinter plant, a supervisor had a distinct role to play in periodic assessment of compliance and control of procedures. I do not consider that that was present in the circumstances of this case. Whilst, based upon the evidence of Mr Loizeau, I can see the benefits of a self-regulating workforce there is always the danger of employees left to themselves, entrenching methods of work and safety which do not comply with training or the requirements of an employer. There is still a requirement for supervision and I do not think that it is enough for a supervisor or other senior employees to be available to provide assistance on-call. Apart from anything else such assistance can only come at the behest of the employee.

132 Although it is not pleaded that the defendant has failed to provide a person in the traditional role of shift supervisor and there has been no person designated as such, in my view it is implicit in the allegations that there has been no or inadequate supervision that one ought to have been provided. The allegations are those of a failure to provide supervision and, as indicated, have I think been made out.

133 I have dealt with and agree with most of the submissions made by the prosecution. However I do not accept that the mere existence of the remedial action taken by the defendant is an acknowledgement that its previous procedures which were extant on 17 October 2004 were inadequate. They have never been expressed as having that significance and I treat them as a reaction to the events of 17 October. In my view they are to be treated as acknowledgements of a measure or measures which might have been taken. The important approach is to test whether such measures were reasonably practicable to ensure the safety of the employee. In this case I consider that they were.

134 I agree that the interaction between pedestrian and loader must be taken into account in assessing what is reasonably practicable for the defendant to discharge its obligations. In this case the potential was one of severe proportions.

135 There is no doubt that the coincidence of pedestrian and operating mobile plant was a regular occurrence and one which had been acknowledged by the defendant. I refer to the acknowledgements within the entry procedures in Exhibit C5.

136 I think it is correct to observe that the e-mail of Mr Arnold of 15 July 2004 was an inadequate response in that it acknowledged the coexistence of man and machine but did nothing to remedy the continuation of that state of affairs. It did not prevent or otherwise deal with unauthorised entry. Further there was no formal check as to whether workers actually received the information contained in Mr Arnold's e-mail. Neither Mr Haren nor Mr Evans were aware of it. It concerns me that the signalling protocol was intended to be used only when radio contact could not be made and not in substitution for it. Mr Sleep was able to make radio contact with Mr Haren but it is not known whether he was able to do so with Mr Thomson. The fact is that he did not make such contact although he obviously had a working radio with him in the shed.

137 I think it telling that the system of work assumed that the loader was not required to stop for even a short time whilst the employee was in the shed inspecting a heap. I agree that at 9.26 pm the deceased entered the shed whilst Mr Thomson was operating the loader inside the shed, on his first flux run. I accept that therefore particular 1.5 has been made out.

138 I agree that the role of an on-site supervisor could have extended to the refusal of entry to the shed whilst the loader was operating and I do not accept that the presence of a supervisor during night shift was so onerous as to make it less than reasonably practicable. I have previously mentioned that supervision would have tended to ensure compliance with the use of safety vests and radio contact. Any radio contact problem might at least have been known to the supervisor for remedial action.

139 I have mentioned and accept that the night shift workers should not have been left to rely on their own resources with respect to safe entry to the shed. I think that they were left to their own devices and that that was a significant failure on the part of the defendant. Had version five of the shed entry protocol been in place on 17 October 2004 Mr Sleep would not have died. It is my view in accordance with the prosecution submissions that the warning to management afforded by the occurrence of the July 2004 incident was not sufficiently heeded.

140 Whatever the nature of the supervision that might have been afforded by Mr Loizeau, be it for production purposes or issues such as the wearing of vests, he was not present on site for supervisory purposes.

141 Mr Nicholas said that however, with or without an on site supervisor the defendant failed to provide a safe working environment, because at least entry into the shed was not regulated and it was accepted practice and assumed that coexistence of pedestrian traffic and the front-end loader was commonplace. I accept this.

142 I also accept that there should have been an on-site supervisor with the relevant authority over other workers including the deceased. That supervisor should have been authorised to regulate entry with safety in mind and his role could have extended to refusing entry to the co-treatment shed as alleged in particular 1.7.2. There was no-one on site to police safety requirements. There is nothing to suggest that the presence of an on-site supervisor would have been so onerous as to make these steps beyond what was reasonably practicable. I agree that such supervision could have extended to safety vests and the proper use of radio contact and attention to radio difficulties.

143 I also agree that the team was left to rely on their own resources to deal with safe entry.

144 I accept Mr Nicholas's submission that the existing protocols including the e-mail modification were manifestly inadequate.I also accept that it was necessary to prevent entry into the shed because of the factors that I have previously mentioned. I further note and accept as Mr Nicolas pointed out that there was no delineated walkway for pedestrians or delineated roadway for the front-end loader.

145 It was submitted that a concomitant of the self-directed workteam concept was that no one member of the group of five was in charge of the group. I accept, as submitted, that this was inadequate. I repeat what was said about Mr Evans and vests and agree that this was an indication of the lack of proper supervision. There was simply nobody on site to police the defendant policies and procedures as deficient as they were.

146 I repeat that it is more likely that an on site supervisor would have earlier initiated a search for a missing man if indeed it was the case that he had become incapacitated (or trapped by falling material).

147 It is easy to envisage circumstances where even a conscientious worker might decide to duck into the shed without following proper protocol. The failsafe system was called for that did not rely upon compliance by the workers.

148 In general I accept the prosecution submissions and do not propose to repeat them further. It is my view that for reasons advanced above and by Mr Nicolas that all of the particulars are made out.

149 Particular 1.9 is also satisfied. Although the deceased received some training and instruction it was not complete and he had not been signed off for all training into the entry of the co-treatment shed. It is clear on the evidence that the team including Mr Sleep did not see each other much during the shifts. It was quite a remote workplace. The control room operator was unable to see persons in the shed and even the loader driver was limited in contact with others. It was evident that the deceased would go about his duties without seeing co-workers for a considerable amount of time. I accept that the employees were largely autonomous and Mr Sleep was permitted to be that way without being signed off for training.

150 In addition to the comments previously made about supervision I would observe that if safety protocols were in themselves inadequate particular 1.9 is made out simply because information instruction and training could not be of a sufficient standard. Supervision might be a different issue that I think has been well covered above. It does not help the defendant that other senior employees failed to follow proper protocol themselves.

151 In summary I am satisfied on the evidence that the defendant exposed the deceased to a risk of injury by permitting him to enter the shed whilst the loader was operating within it.

152 I find that it did not provide a safe working environment in that it did not install a suitable system or procedure to prevent contact of man and machine.

153 Further it did not provide and maintain a safe system of work in that it did not prevent the presence of the loader at any time while the employee was inside the shed. I am of the view that its entry protocols were deficient.

154 Even further, I am of the view that the entry protocols, even as they were, were not adequately supervised by the defendant.

155 I find the charge proven in respect of all particulars and adjourn the matter for further submissions as to conviction and penalty.