



OFFICE OF THE STATE CORONER

FINDINGS OF INQUEST

CITATION: Inquest into the death of Jason George Elliott BLEE

TITLE OF COURT: Coroner's Court

JURISDICTION: Rockhampton

FILE NO(s): ROCK-COR- 42 / 2007

DELIVERED ON: 10 September 2009

DELIVERED AT: Mackay

HEARING DATE(s): 24/6/08-2/7/08, 8-12/9/08, 13 -17/10/08.

FINDINGS OF: Ms Annette Hennessy, Coroner

CATCHWORDS: Underground Coal Mining – Crushing of worker between shuttle car and rib (wall) of heading in bord and pillar panel; Notification to Next-of-Kin; No Go Zones; Shuttle Car Operation and Design; Autopsies in Industrial Accidents.

REPRESENTATION:

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|-------------------------|--|
| Counsel Assisting: | Mr J Tate, Crown Law |
| Family: | Mrs R Blee (Wife of Deceased) |
| Other Appearances: | |
| Walter Mining P/L: | Mr M Byrne SC, Mr Bremhorst (i/b Sparke Helmore) |
| Anglo Coal: | Mr J Murdoch SC (i/b Blake Dawson) |
| CFMEU: | Mr G O'Driscoll (i/b Hall Payne) |
| Joy Mining Manuf. P/L: | Mr Shume (i/b Middletons) |
| Pickstone, DeVoodg etc: | Mr A Johnson |
| APESMA: | Ms Doust (Sol) |

These findings seek to explain, as far as possible, how the incident occurred on 9 April 2007 at Moranbah North Mine, as a result of which Jason Blee died. Consequent on the court hearing the evidence in this matter where learnings indicate that changes can be made to improve safety, changes to departmental, company and/or industry practice may be recommended with a view to reducing the likelihood of a similar incident occurring in future.

THE CORONER'S JURISDICTION

1. The coronial jurisdiction was enlivened in this case due to the death falling within the category of “*a violent or otherwise unnatural death*” under the terms of s8(3)(b) of the Act. The matter was reported to a Coroner in Emerald pursuant to s7(3) of the Act. The matter was later transferred to the Rockhampton Coroner for investigation and Inquest. A Coroner has jurisdiction to investigate the death under Section 11(2), to inquire into the cause and the circumstances of a reportable death and an Inquest can be held pursuant to s28.
2. A Coroner is required under s45(2) of the Act when investigating a death, to find, if possible:-
 - the identity of the deceased,
 - how, when and where the death occurred, and
 - what caused the death.
3. An Inquest is an inquiry into the death of a person and findings in relation to each of the matters referred to in section 45 are delivered by the Coroner. The focus of an Inquest is on discovering what happened, informing the family and the public as to how the death occurred, but not on attributing blame or liability to any particular person or entity.
4. The Coroner also has a responsibility to examine the evidence with a view to reducing the likelihood of similar deaths. Section 46(1) of the Act, authorises a Coroner to “*comment on anything connected with a death investigated at an Inquest that relates to – (c) ways to prevent deaths from happening in similar circumstances in the future.*” Further, the Act prohibits findings or comments including any statement that a person is guilty of an offence or civilly liable for something.
5. Due to the proceedings in a Coroner’s court being by way of inquiry rather than trial, and being focused on fact finding rather than attributing guilt, the Act provides that the Court may inform itself in any appropriate way (section 37) and is not bound by the rules of evidence. The rules of natural justice and procedural fairness apply in an Inquest. The civil standard of proof, the balance of probabilities, is applied. The State Coroner outlined the correct approach in his decision on the Lockhart River Inquest at page 5:

“A Coroner should apply the civil standard of proof, namely the balance of probabilities, but the approach referred to in the Briginshaw sliding scale is applicable. This means that the more significant the issue to be determined, the more serious an allegation or the more inherently

unlikely an occurrence, the clearer and more persuasive the evidence needed for the trial of fact to be sufficiently satisfied that it has been proven to the civil standard.”

6. All interested parties can be given leave to appear, examine witnesses and be heard in relation to the issues in order to ensure compliance with the rules of natural justice. In this matter, the Employer, Mine owner, Department of Mines and Energy, the CFMEU, the manufacturer of the shuttle car, industry stakeholders such as the Association of Professional Engineers, Scientists and Managers Australia (APESMA), various employees of the Mine and the widow and children of the deceased were represented at the Inquest.
7. I will summarise the evidence in this matter. All of the evidence presented during the course of the Inquest, exhibits tendered and submissions made have been thoroughly considered even though all facts may not be specifically commented upon. I am confident that the parties attempted to provide as much assistance as possible to the Court during the Inquest and have collaborated on and submitted draft recommendations for consideration. I thank all parties and their representatives for their assistance. Mr Sykes, MNC Mine Manager, organised a mine inspection for the coronial party which was extremely beneficial. It was a very thorough and practical exercise and was conducted in a safe manner and was of great assistance to the Coroner.

THE EVIDENCE

Jason Blee

8. Jason Blee was aged 33 years and was married to Rachel and has four young children. Mrs Blee said of her husband: “Jason was a very dedicated family man, he lived and breathed through his kids and he tried to provide them with the best of everything. He would work overtime; he had a second job as a trainer assessor (outside of his workplace). He was sitting for his deputies (qualification), which he thought was the bee’s knees.” Jason’s passion was V8 Supercars and he loved skiing. Mrs Blee stated that Jason will be remembered as the family man and dedicated hard worker that he was. Mrs Blee has asked that I refer to her husband as Jason and I will do so in these findings.
9. Jason was employed at the time of his death by Walter Mining Pty Ltd. He was an experienced miner and a workplace trainer and assessor. All staff and management personnel who expressed an opinion about Jason agreed that he was very safety conscious. Mr Lucas commented that he knew Jason to be very safety oriented and that he was constantly thinking about safety for himself and others in the crew.
10. Mr Sykes, the Mine Manager at the time of the incident, stated that Mr Blee was known in the industry as extremely confident and committed to safety. Mr Sykes stated that Jason was a very good employee. He was a very good operator, and was well regarded. He was undertaking his

deputy's modules and Mr Sykes was of the opinion that he wouldn't have any problem achieving that qualification. He recalled having a conversation with Jason earlier regarding a piece of equipment that Jason felt wasn't suitable. The equipment was withdrawn from service until the design of it was changed to ensure safety. Mr Sykes held and continues to hold Jason in the highest possible regard.

The Mine

11. Walter Mining was contract mining at Moranbah North Mine, operated by Moranbah North Coal (a division of Anglo Coal). Mr Warren Cremor is the Queensland Operations Manager for Walter Mining and oversees all Walter Mining operations in Queensland. At the time of this incident Walter Mining had operations at North Goonyella and Moranbah North (for 3 years at the time of the incident). Moranbah North is an underground coal mine situated 240 kilometres south west of Mackay and approximately 16 kilometres north of the town of Moranbah in Central Queensland.
12. The Mine commenced operations in 1997 as an underground longwall mine. Anglo Coal acquired the mine in 2000. At the time of the Inquest, the mine produced 4.5 million tonnes of coking coal annually. Around 600 people were employed at the Mine consisting of Moranbah North Coal (MNC) employees and contractors.
13. Coal was produced from a Longwall Panel as well as Development Panels. One of the development areas was the Bord and Pillar Place Change Panel. The Bord and Pillar panels were developed as that area of the mine was unsuitable for longwall operations. At the time of the incident Walter Mining was conducting the place change mining in North 2 Bord and Pillar Panel. It was in this area of the mine that the incident occurred.
14. Mr Allan, an experienced miner who gave evidence, considered the particular configuration of this board and pillar mine is standard and very typical for Australia. The mains development and bord and pillar operations involved different methods of mining, different machinery and different procedures. The two operations were run separately. Some staff moved from one area to another at different times and the qualifications gained in one area transferred to the other. Familiarisation training was conducted with workers before moving to the Panels.

Circumstances and Events Leading up to the Incident

Pre-shift Meeting (Tour Handover)

15. Mr DeVoogd was, at the time, the Production Manager for Walter Mining. He had 22 years underground experience and had a number of mining qualifications. Mr DeVoogd's role was to co-ordinate the activities in the bord and pillar panels and to assist MNC with management of that undertaking. He organised the shift plans, ordered supplies and equipment. On the 9th April, he put together a handover for that crew as

they were coming off days off. He went through the shift plan with Wayne Pickstone and told him of the changes which had occurred during his absence from site and provided him with the Authority to Mine.

16. The dayshift crew came in at 6.45am and he spoke with the 2 potential miner drivers, Jason Blee and Joe Tupaea. He advised them that the night shift had a hard time getting the roof level and it was on a sloping angle in the heading being mined. He also talked to them about the narrowing of the heading and confirmed that it would need to kept the right width to take into account the geological conditions and so as not to restrict wheeling of the shuttle cars.
17. Mr DeVoodg then conducted a 45 minute tour briefing meeting with the crew. The meeting covered any safety aspects since the last tour, any issues likely to arise during this shift and the production and operational details for the shift. Attention was drawn to cable damage issues and an instruction was given to the shuttle car drivers to check the cable reeler for debris every time they went to the face. G heading was narrower than previous headings (5.8 metres wide) due to a strata anomaly and this circumstance was brought to the attention of the crew. The meeting was interactive, promoting discussion regarding various aspects of the briefing.
18. Mr Itzstein gave evidence that Jason addressed the crew regarding the sloping road and asked them to make an assessment of it and be cautious with it. No other witness refers to this conversation.
19. On the day of the incident, the Walter Mining production crew were transported to the North 2 Bord and Pillar Panel crib room after the pre-shift meeting. The ERZ Controller (Explosion Risk Zone Controller previously known as the Deputy), Wayne Pickstone, allocated tasks for the day to the crew: Jason Blee - Continuous Miner Driver, Graham Lucas and Darryl Bull – shuttle car drivers and Peter Smith – Cable Hand. Other workers were allocated to positions elsewhere in the panel, not impacting on this incident. Shortly before the incident, Jason moved from B crew to D crew as D crew had lost a number of experienced people to another mine and only had one continuous miner operator and no trainer/assessor. Jason was both, so he was moved to that crew to bring skills up. Peter Smith moved crews with Jason on the same day.
20. The Shuttle Cars in use at the time in this area of the mine were the Joy model 10SC32 which were capable of carrying a load of 8-9 tonnes of coal. One right hand drive and one left hand drive shuttle car was in use in the panel. The right hand drive vehicle had the driver's compartment situated on the right hand side of the car and the left hand drive vehicle had the compartment on the left. The driver's compartment has 2 seats facing each other longitudinally in the vehicle. The driver sits in the seat facing in the direction of travel. Foot pedals for brake and tram (acceleration) are situated under the opposite seat to that being occupied

at the time. The brake is operated by the right foot and tram by the left, the opposite of road cars. A steering wheel is located to the side of and between the seats and is turned clockwise or anticlockwise depending on the direction of travel.

21. The shuttle cars are powered by electricity which is supplied to the car via a trailing cable which is automatically fed in and out of the car from the boot end. Consequently, each shuttle car takes its own route from the discharge or boot end (where coal is unloaded –referred to as outbye) to the loading end (the face, where the coal is mined – referred to as inbye) on each trip so as not to run over the other car’s cable. Each car will take the same route on each trip to the face (referred to as a wheeling road). The steering on the shuttle cars is hydraulic and the car has four wheel drive and four wheel steering.
22. The Place Change miner being used at the time of the incident in this area of the mine was the Jeffrey 1038 continuous miner. The continuous miner is situated at the face and operated through a remote control by the driver who will stand to the rear of the miner (in order to be under supported roof) and on the left side (in order to be away from the ventilation discharge or scrubber on the right hand side of the miner). The remote control hangs around the driver’s neck with the control panel sitting at about waist height in front of the driver.
23. The shuttle car is driven into the heading and moves in behind the boom of the continuous miner, usually in the centre of the heading. The continuous miner cuts coal and loads via the boom into the shuttle car continuously, stopping only when the shuttle car has a full load or positional adjustments need to be made. The shuttle car will follow the movement of the miner while cutting to ensure capture of the coal on the car. A shuttle car can make between 20 - 60 trips per shift between the miner and the feeder or boot end depending on the length of the wheeling route and other conditions. Loading a full load of coal from the miner can take as little as a minute up to about 6 minutes. The continuous miner cuts a right hand plunge of the face followed one on the left and is moved from one side to the other as mining continues. Roof bolting is conducted by another machine (and personnel) periodically to ensure that the miner and driver are under supported roof at all times.
24. During mining operations, the continuous miner operator is the senior person in the heading and gives direction to those working around him including the shuttle car drivers. If a shuttle car approaches the continuous miner in an unsuitable position, the general practice is for the miner operator (or another at his direction, usually the cable hand) to direct the shuttle car driver to move out and approach in the required position.
25. The continuous miner had been used on a previous shift and it was located in the heading to be mined (G Heading), ready for a left side face

plunge. The left rib (side wall) of the heading was secured by wire mesh and bolts. The electrical supply cable and water cable for the continuous miner were run along the left rib and supported by hangers on the rib and roof. Pogo sticks delineated the space where the cables were. Pogo sticks are spring loaded plastic sticks which are fitted between the roof and floor of the heading or cut through. They delineate the area in which cables are located. They are also relied upon as indicating a safe area for pedestrians and workers to stand when machinery is moving in the area. The sticks are easily dislodged if hit by large objects and are replaced in position to maintain a marker for drivers of machinery.

26. Brattice (plastic sheeting from roof to floor) was hung on the right side of the heading about 80cm from the right rib to facilitate ventilation in the heading.

The Incident

Darryl Bull

27. Mr Bull was a shuttle car driver on the crew that morning. He had been working at Moranbah North for 1-2 years at the time and had worked with machinery all of his working life. He had been driving shuttle cars for about 12 months before this incident. Mr Bull took the first shuttle car into the heading on this shift. He was driving the right-hand drive shuttle car which meant that he was sitting on the right hand side of the vehicle approaching the face.
28. Mr Bull felt that the road surface was all right. The roadway down from the boot end was sloppy with some ballast on the road, which was getting caught in the cable reeler. The floor conditions in the cut through on the haul road were much worse and took his attention due to slipperiness and uneven floor conditions. Mr Bull stopped enroute to G heading and went back to boot and asked the loader driver, Joe Tupea, to clean up the road. The roadway into the heading itself was relatively good. The floor condition in the heading looked flat and level to Mr Bull during the pre-start inspection.
29. He had heard in the safety meeting that the heading was narrow and to take care but he drove in and out of the heading normally and it all seemed fine. The wheeling road for his car meant that he was driving straight into the heading and did not have to negotiate a corner to enter the heading. He noticed some protrusions on the left hand rib in the heading and he stayed as close as he could to the brattice on the right. His car was filled with coal and then he was told by Jason to head out. He turned around to the opposite seat and drove out of the heading. Both Jason and Peter Smith were on the left hand side of the heading near the cables. On the way out of the heading, Mr Bull concentrated on staying close to the brattice and moved out slowly.

Graham Lucas

30. Mr Graham Lucas had been working in coal mines for about three years at the time of the incident, six months at Middlemount Mine and the balance at Moranbah North. He had worked for contractors during that period. He started off in the mains area of Moranbah North in the Outbye Services section, doing roadworks and running gear in and out of the mine. He obtained a number of tickets to operate machinery including the 10SC shuttle car and was able to operate all machinery other than the continuous miner. He was therefore trained and assessed as competent to operate the shuttle car. He had been operating shuttle cars in both the mains and bord and pillar panels for about 6 months prior to the incident. He had already obtained experience on the 15SC before being ticketed for the 10SC shuttle car. Mr Lucas had participated in familiarisation training on place change mining before his move.
31. On the 9th April 2007, Graham left his home in Sarina shortly after 4am and travelled to Grosvenor Camp near Moranbah. Prior to that date, Graham had been on 5 days off. He arrived at 6.15am, set up his room and had breakfast. He drove to the mine arriving at about 7am and went to the Walters area to get dressed, then to the muster area and had a coffee and chatted to his workmates.
32. Commencement of the shift was 7.15am. The SARS form (Safety Action Response Sheet) was completed following the pre-shift meeting. After the briefing, Graham tagged on in the MNC muster room and went to the drift runner to be transported into the mine, to the crib room in the North 2 panel. The Deputy, Mr Pickstone, led a further discussion in the crib room as was his usual practice and organised the allocations for the shift. The crew was told that there was to be a 30 minute delay in work starting due to stone dusting work being done.
33. The crew completed their SLAM cards (Stop, Look, Assess, Manage) in relation to their allocated task for the shift. Risk factors of high, medium or low were allocated to each risk. When completing his SLAM card, Graham changed his assessment of risk from low to medium for "position of people – line of fire caught between". The action he recommended was to "watch out for the cable hand and miner driver". The reason given was "smaller part profile only 6 metres wide".
34. The crew waited until the dust from the stone dusting had settled and went for a walk around the area at the suggestion of Jason. He had suggested in the crib room that as it was their first shift back after days off that they should inspect the panel, check ventilation and the environment generally. This was Jason's usual approach though others did not do so. Both shuttle car drivers also inspected their cars and walked their wheeling roads. Other workers inspected the areas relevant to them.

35. During the crew's inspection of the heading, Graham noticed that the heading was narrower than he had previously operated in at the bord and pillar operations. There had been no additional or new procedures advised to him regarding the narrower heading although there was discussion of the change in width at the pre-shift meeting. He stated that there was a general need to take care with the cables as there had been concern over the number of cable incidents and he said the workers were "getting a bit of a hard time over it".
36. Even though the heading was narrower than those Graham was accustomed to, he felt that it was still in his capabilities to drive the shuttle car in that environment. He commented that it meant that he had to concentrate due to the tight situation but that it wasn't really difficult. He considered that he was a competent shuttle car driver and was driving shuttle cars virtually every day at that stage.
37. When Graham went to inspect his shuttle car, a fitter was working on it and Graham assisted. There had been a problem with the cable feeder, in particular the Archimedes arm which feeds the cable onto the spool evenly. After that was attended to Graham did the pre-start check on the shuttle car and completed the card.
38. Graham then walked to the heading and had a look. Mr Bull had the other shuttle car in there for the first load. Graham had to stop a loader driver from entering the area due to the other shuttle car being there. He then went back to his shuttle car and left from E heading to travel to the miner.
39. As he approached the heading, Graham noticed that it was a "real tight turn to get in "(D5 p76). "I was hard on the left rib going in there. I don't know if I was touching it. I would have been really close if I wasn't and I was touching the brattice that end to get in, and then I just sort of straightened up a bit with the brattice, going along, probably in the wheel marks that were there, stopped and waited for Jason to call me in." He was stopped about 10 metres from the miner as the tail was down, indicating that the miner driver was not ready for the shuttle car to approach. He could see both Jason and Peter, beside and to the rear of the tracks on the continuous miner on the left hand rib. Peter was outbye of Jason and within 2 metres of him. In the initial interview with DME Inspectors, Graham stated that Peter Smith was located inbye of Jason. He corrected that at the Inquest and stated that at all times, Peter was outbye of Jason. As far as Graham was concerned, they were in a position of safety. They did not move from those positions as the shuttle car approached. He went along the brattice and slightly to the left, towards him, under the tail.
40. There was no indication from Jason that he was unhappy with the position of the shuttle car. Graham understood that either the miner driver or the cable hand could ask for the shuttle car driver to go out and come back in to a different position. Graham noticed that the floor was

sloping in the opposite direction to usual. The high side of the floor was on the right of the heading. It was hard to tell how much slope there was as he said it was covered in slush from the water discharged by the continuous miner during cutting which mixed with coal dust and fine particles of coal (fines) on the floor to form mud or slush.

41. Graham estimated that the wheel ruts from previous shuttle car entries were in the centre of the heading because there wasn't a lot of room and the miner was situated slightly to the right of the wheel marks that were there. He touched the brattice on the right hand rib, or was very close to it, as he entered the heading. As Graham approached the rear of the miner, the car was very close to it, if not touching. He left the shuttle car wheels on the angle that he had driven in on. Jason started cutting coal while maintaining his position, and the car started to fill.
42. While the miner was cutting, Graham heard a "loud clanging, steel-on-steel sound" (D5 p78). Jason shook his head and turned the miner off and spoke to Peter. He yelled out that the track was broken. Jason then walked towards the driver's cabin of the shuttle car. He and Peter were located around the wheel of the shuttle car closest to the miner, between the wheel area and the rib, while Jason spoke to Graham. They were pretty close together. Jason asked Graham to go out. Graham queried whether he wanted the shuttle car out of the heading or back to the feeder. Jason told him to go back, to go all the way out (to the feeder) as the track on the miner was "properly broken".
43. Graham swapped seats to the seat facing outbye, put his hand on the steering wheel and proceeded to drive outbye. He did not look back towards the face as he said he knew that Jason and Peter were not going to move from their positions. At that time Jason was standing about 1 metre from the shuttle car. Graham stated in evidence that when a miner driver tells you to go out you just go out.
44. Graham stated in evidence that he was leaving on the same track that he came in on. During his first interview with the DME Inspectors, he stated that he slightly varied his track in order to straighten up a bit. He qualified that at Inquest by stating that once he had proceeded a few metres, he would have had to correct the direction to start moving close to the brattice again to go out.
45. As Graham was driving he felt the back of the car "kick around towards that (left) rib" (D5 p80). He said it was not a significant movement. During the first DME interview, Graham stated that he did not feel that the movement was floor related as he did not feel the car go into a hole or anything. He said in evidence that he felt the back just swing out. He was surprised that the car moved like that as it had not before.
46. He stated that when you are driving at the front of the shuttle car that you don't know how much the back of the car is moving. Mr Lucas further stated that the back of the car can move either way on take off

and that not very often will they take off dead straight. The extent of the load in the car can affect its handling in this regard. Mr Lucas felt that the movement of the back of the car on this occasion was more related to the weight in the vehicle than the floor conditions. He thought that this situation was quite unusual and that he usually had partial loads last thing in the day and not early on. He said that the car had never reacted this way with a part load before and that while he does not drive differently in that situation, it is in his mind that he is not fully loaded. Further he said that the cars never stop square unless you are on perfect level ground which is never the case underground.

47. He heard a yell from Jason and he stopped the car by way of the foot brake. He stood up and looked around and saw Jason leaning against the rib at the tail end of the car facing Graham and he thought that the wheel must be on Jason's foot. Peter had run outbye during the movement of the car and was between Graham and Jason when the car stopped.
48. There was confusion with Mr Lucas in the first DME interview about whether Jason's head was visible above the hungry board located above the wheel arch of the car. At Inquest Mr Lucas settled on the position that Jason's head was probably lower than the hungry boards and was at the level between the tyre and the hungry board. Mr Lucas was sitting down and could see along the side of the car to Jason's position. At that time, Graham thought that Jason was not badly injured. Jason said to him to get the car off him, to bring the car back. Jason was in possession of his faculties and Graham described him as calm when delivering the order. Graham stated that as Peter Smith was also there and didn't demur, Graham thought that he should move the car.
49. During cross-examination, Graham agreed that another worker had informed the crew shortly before mining started that the left hand side rib of the heading needed to be trimmed. Mr Lucas stated that he and Jason looked at the rib and could notice the protrusion but as the area had already been bolted, Jason said it would have to stay as it was. The area where Mr Blee became trapped was close to the area of protrusion in Graham's view. Mr Addis, who was involved in the rescue estimated that there was half a metre less room where Jason was due to the protrusion.
50. Graham did not get out of the cab to investigate as he could see Jason and speak with him. He also relied on Peter Smith who was on the spot if needed.
51. Graham swapped seats and asked "which way is back" and Jason said "back here" and motioned towards himself. Graham sat down in the seat facing inbye and touched the accelerator and turned slightly to move the car inbye and up the slope towards the right. He tried to move the car towards the right rib to lift the car off Jason. It was put to Graham that he

actually moved the car outbye but he emphatically denied that proposition.

52. Graham said that he had the steering wheel close to full lock. He was shown a photograph of the position of the wheels after the incident and accepted that the wheels were not on full lock. He estimated that they were up to $\frac{3}{4}$ lock and commented that he felt like he was pulling them to full lock. He said that he was more careful driving the car to free Jason than he had ever been in his life and that it was the hardest thing he had ever had to do.
53. After the second movement of the car, he asked whether that was alright and Jason told him to move a bit more and so he did. By that time he estimated that he had the steering wheel on full lock. He stopped the third movement when Jason yelled out stop. The total movement would have been $\frac{1}{2}$ to 1 metre with each movement being of an equal distance. Graham felt that the car moved from the rib to a degree but it was not sufficient to release Jason. Jason was in a different position at the end of the second movement of the car. He was then leaning on the rib with his back, facing towards the body of the car.
54. Mr Lucas confirmed that Jason ordinarily wore the remote control for the miner around his neck and hanging at about waist level. He could not specifically remember the remote control after the incident but did recall that someone removed it during the rescue. He did not think that the remote control was wedged between Jason and the car but did not pay attention to that. He was confident that Jason's leg was trapped.
55. After the third movement of the car, he hit the E stop (emergency brake). He denied moving the car backwards and forwards a number of times. He jumped out of the car and spoke to Peter about what they could do to get Jason out. Graham ran around the car to get a better view of Jason and Peter took off to get help. Graham spoke to Jason and as it appeared that Jason's right leg was trapped close to the wheel, he started digging around that area. Other people arrived within minutes and they were all frantically digging trying to free Jason's leg. Graham went around the car to Jason and supported his head as he was in an awkward position and commenced fanning Jason's face. Graham continued to assist in the recovery of Jason.
56. Mr Lucas agreed that had it not been for the breakdown of the miner which put out the sequence of the place change operation, that Jason would not have left the safe area he was standing in and moved closer to the shuttle car. Mr Lucas understood that he had a duty as a driver to look out for pedestrians before moving the shuttle car.
57. It has been submitted that Mr Lucas has reconstructed some of his evidence in an attempt to explain what happened. This seems to be the case. Mr Lucas was obviously quite traumatised by the incident and,

with good intentions, has tried to a certain extent to piece together the events so that they made sense.

Peter Smith

58. Mr Peter Smith gave evidence that he commenced work in the coal industry in 2002 and had worked in a number of mines. He started at Moranbah North in 2004 with a contractor performing secondary support duties. Walter Mining employed him at the end of 2004 in the mains area of Moranbah North. His duties were mainly around driving various types of machinery and he obtained a number of operator tickets. He was not the holder of a ticket for a 10SC shuttle car but did hold a qualification for the 15SC. He obviously loves his job and described cutting coal as exciting.
59. On the day of the incident, he was picked up in Mackay by Jason around 4am and travelled to Moranbah. They went to camp, made crib and had breakfast. They then travelled to the mine site, arriving at 7am. After dressing in the Walters locker room, they went to the muster area where Jason DeVoodg gave a briefing for about 15 minutes. They tagged in and went underground to 2 North in the bord and pillar panels.
60. The Deputy, Wayne Pickstone gave them the plan for the day at the crib room. Jason was on the miner and Peter offered to be his cable hand for the day as he really liked working with Jason. His duties as cable hand included looking after the cable for the miner, making sure pogo sticks are in place to let the shuttle car drivers know where the cable is, and to manage the cable when the miner is moving so that it does not get damaged. The cable hand stays with the miner driver for the day, and follows instructions from the miner driver as to any additional tasks.
61. The crew walked around the panel for an inspection at the suggestion of Jason. The purpose of this was to see where all the implements were and familiarise themselves with the environment. He then waited in one of the headings until the stone dusting was finished. He filled out his SLAM card. He and Jason went to G heading which was where the miner was located to have a look at the set up. Peter inspected the cables and pogo sticks. He noticed that the heading looked a bit narrow but could not recall having been provided with any information regarding a narrow heading or any different processes taking a narrow heading into account. The brattice on the right hand side of the heading was sticking out a bit and so Jason and Peter moved it back towards the rib to give some more room.
62. The miner was on the right hand plunge. Jason started the miner up and the first car driven by Darryl Bull came in. It was loaded and there was nothing unusual in the process. The second car, driven by Graham Lucas then came in as normal. Jason had moved the miner to cut on the left hand side. Peter could not recall anything out of the ordinary or wrong with the positioning of the shuttle car but stated that it seemed to be a little bit close to the left hand side. At the time when the car

approached the miner, Jason and Peter were standing to the rear and left of the miner. Peter considered this to be a position of safety and stated that if Jason felt safe in a position, then Peter did too.

63. As he was cutting, there was a metal-on-metal sound, like a clunking noise and the track broke on the miner. The shuttle car was only about half full at this time. Peter stated that the shuttle cars tended to move around a bit when it did not have a full load on and the extra weight of a full load made the car more stable.
64. Peter and Jason discussed the fact that it appeared the track was broken. They were still positioned near the miner on the left hand side of the heading. Peter was standing close to Jason and was outby of him. Jason and Peter moved to an area around the wheel of the shuttle car. Again, Mr Smith considered this to be a position of safety as Jason was standing there and he trusted Jason's judgment. Jason then directed Graham to go back to the boot end so that a fitter could come in and look at the miner.
65. As the car was leaving, it started to swing across to the rib. Peter stated that you could just get the sense that the car was swinging across to the rib. Peter started to run and he called out to Jason who also ran. They were scrambling to try and get out of the way. The back of the car pinned Jason shoulder to shoulder with Jason facing outby. He also seemed to be caught at the waist. Peter was about 2 metres away from him at the time. Jason was obviously in a bit of pain and asked Graham to move the car to get it off him.
66. Graham moved the car about a metre towards the face and it rolled Jason to a position where his back was on the rib. After this movement Jason started to yell out. Mr Smith said that he only saw one movement of the shuttle car after it had pinned Jason. He then ran to the crib room and got help and then ran back to help free Jason.
67. Mr Smith gave 2 interviews to DME Inspectors, the second on 3/3/08. In that interview he stated on three occasions that the shuttle car moved outby rather than inby in the first movement after Jason was pinned. During evidence he stated that the interview was given a year after the incident and he made a mistake. He realised after he had read the statement later when preparing for the Inquest with his legal representatives.
68. Further, it was put to Mr Smith that he told Police officers on the day of the incident that the shuttle car moved forward about a foot and rolled Jason along the wall. Mr Smith agreed that this version was correct. He then continued with his evidence that the movement was inby.
69. Mr Smith had told DME Inspectors on a number of occasions that the second movement of the shuttle car was outby and not inby as stated by Mr Lucas. He also moved away from other elements of his initial

version, for instance, where Mr Lucas was positioned when Smith left the heading – in the cab of the shuttle car. This version was confirmed by Mr Tupaea, the first witness on the scene. The change in Mr Smith's evidence on these points was detrimental to his credit. The end result was that it was difficult to rely on his evidence and his initial version given on the day of the incident would carry the most weight of his various versions.

70. Viewed as a whole, the evidence of Mr Lucas and Mr Smith is inconsistent and confused. Unfortunately, as will be discussed shortly, there is little assistance available from other witnesses to clarify the position.

Wayne Pickstone – ERZ Controller

71. Wayne Pickstone was the ERZ (Explosion Risk Zone) Controller for the district in which this incident occurred in the mine on the day in question. His position is also referred to as the Deputy in the old terminology. Mr Pickstone had 30 years of experience between coal and metalliferous mining and civil tunnelling. He holds a Mine Surveyor's certificate and first and second class mine manager's certificates, and S1,2,3 and G2 competencies.
72. He had also worked as a production manager and was on a career path in civil tunnelling and mine construction. He was a mine manager at Moranbah North from 1995 (for the drift development) and was project manager at Mt Isa on the Enterprise Mine crusher. He was also a production engineer on an underground crusher at Ridgeway gold mine and then returned to coal production as an ERZ Controller at Moranbah North mine as an employee of Walter Mining. In 2006, Mr Pickstone participated in the updating of the safety management plan and drafted some of the standards used in the MNC bord and pillar operations.
73. On the day of this incident, Mr Pickstone was the supervisor for D Crew. He arrived at the mine 30 minutes before the start of shift and met with the Shift Supervisor, Jason DeVoodg. As Mr Pickstone was returning from one months leave, the meeting was detailed and informed him of the plan for the shift, changes to the SCARPs and the Authority to Mine and the background of work done during his absence.
74. Following that meeting, Mr DeVoodg held a shift meeting for the crew which lasted for about 45 minutes. Jason Blee proposed that the crew should conduct a walk around the panel to re-familiarise themselves with the area, the conditions and to check on location of machinery and wheeling roads. Mr Pickstone supported and applauded the initiative to walk the panel at the start of the shift. A walk around of the panel was not done as a matter of course. Mr DeVoodg stated that the sequence control sheets provided similar information to a walk around but agreed it was good practice.

75. After the tour handover meeting, Mr Pickstone conducted a SARS dealing with the safety performance on the previous shift and discussed in a toolbox talk fashion the tasks for the upcoming shift with a safety focus including any additional precautions needing to be taken during work. This discussion covered again the issues from the tour handover meeting. The tasks for the crew were mining in G heading and bolting in E heading.
76. The crew proceeded underground to the crib room. Mr Pickstone arranged the deployment of personnel to various tasks on the shift. He reviewed the SARS again with the crew, while waiting for the stone dusting to be completed. He then commenced his inspection of the panel while the crew went on the walk around. The statutory responsibilities of an ERZ Controller included regimes of two hourly and four hourly inspections of various parts of the panel including issues such as ventilation, gases and strata. The working areas of the panel were to be inspected two hourly. Mr Pickstone noted the noticeboard at the commencement of the panel and went to G heading via E heading, visiting the bolter. He inspected that machine and area and went to G heading.
77. In G heading Mr Pickstone and the crew had a discussion about the width of 5.8 metres of the heading. Jason Blee indicated that he could fix the width issue by increasing the taper when mining out to 6 metres (the width referred to in the Authority to Mine). While in G heading, the mechanical fitter arrived and advised Mr Pickstone that he needed to tension the chain conveyor on the continuous miner prior to production commencing and he attended to that.
78. After completing his inspection of G heading Mr Pickstone then continued to other areas of the panel. In A heading, the ventilation system required attention and Mr Pickstone started to check all the brattice stoppings on the intake side to check the seals. His work was interrupted by the emergency in G heading and his inspection regime was not continued on that shift.

The Rescue

79. Joe Tupaea, the loader driver, went down towards the heading being mined and was waiting for the shuttle car driven by Lucas to pass. He saw the cable hand run out of the heading in a very agitated state. He spoke to him and was told that Jason was pinned against the rib by the shuttle car. He went straight into the heading on foot to see what was going on. He pushed the emergency stop on the shuttle car (the power was off at the time), patted Graham Lucas who was still sitting in the car and checked on Jason and confirmed that he was pinned. Graham Lucas got out of the car and came to speak with him as well. Jason was pinned and his back was against the rib. He was standing but not to his full height and it appeared that his legs were caught. Mr Tupaea couldn't move him and so he left for the crib room to notify control and locate the Deputy. Mr Lucas stayed in the heading with Jason.

80. Immediately after being informed of the incident, Mr Pickstone went to G heading and made an assessment of the situation. He went to the crib room and phoned mine control and advised them to upscale the emergency response. He assisted in the efforts to save Jason and at one stage spoke with the paramedics travelling to the mine from Moranbah. They recommended that Jason not be moved until they arrived.
81. Mr Addis, a supervisor and very experienced mines rescue trained person, was contacted by the control room and spoke with them prior to attending the incident. They informed him that the ambulance had been called and gave the details of the incident. He went straight there and assessed the situation. When Kim Addis arrived at the scene he took control of the rescue effort and Mr Pickstone assisted him. The underground ambulance had arrived at the scene before him and assistance was being provided to Jason by other workers at that time. Mr Addis took control of the scene due to his experience in mine rescue. It was Mr Addis' first real rescue situation.
82. He ensured that the power to the machinery was off. People were digging around the car in an effort to free Jason who was receiving oxygen. He spoke with Jason and looked to see what room he had to extricate Jason. He knew of the availability of airbags and also the potential for the use of the jacks on the shuttle car. On having a good look around Jason he realised that he was not trapped and he could be removed by digging. By time Mr Pate reached the incident scene he discovered that Mr Blee was actually not pinned. The decision was made that he was able to be pulled out and so Mr Pate did not turn his mind to the need to use air bags or jacks to remove the scuttle car from Mr Blee.
83. Mr Addis put a neck brace on Jason and was informed of the directive not to move Jason. Shortly after that Jason went quiet and a pulse could not be located so Mr Addis took the view that Jason needed to be moved to be resuscitated. He was pulled out and CPR commenced. The QAS arrived soon after and took over the CPR.
84. Mrs Blee expressed her thanks at the Inquest to everyone who helped Jason on that day. She stated that it meant so much to her that he didn't die by himself and to know that all his work mates pulled 110% to try and save him.
85. QAS were treating Jason and consulting with the doctor on the rescue helicopter which had been deployed to the mine and was enroute. Jason was taken to the surface for further medical assessment.
86. Doctor Vipulanthiagarasah was a retrieval registrar for the emergency medical services which was working for C.Q. Rescue Mackay. He was flown to the mine by C.Q. Rescue helicopter and examined Jason Blee

when he was brought to the surface of the mine in the medical unit. The doctor had received a call at about 10.30 that morning from C.Q. Rescue base and he was deployed to meet the patient at the mine. He arrived at the mine and saw the patient at 11.40 am.

87. At the time when he examined Mr Blee he formed the view that he had undergone a cardiac arrest, he was unconscious, was not breathing and did not have a pulse. Following examination the doctor attempted to maximise Mr Blee's chances of survival through the administration of adrenalin and other substances. He conducted various tests to determine whether or not Mr Blee could be resuscitated and formed the view that he could not due to the fact that he had been in arrest for 30 to 35 minutes. The doctor was of the opinion that the patient was clinically dead at that time.
88. Associate Professor Du Flou, a forensic pathologist who gave evidence, commented that following an examination of the medical records, he was of the opinion that essentially by 11.00 am Mr Blee was dead and everything that was done subsequent to that time, although quite correct, had no meaningful effect.
89. There were no obvious external injuries apart from potential bruising to the pelvis. The doctor found this quite difficult to determine given that Mr Blee's body was markedly covered in coal dust at the time of the examination. The doctor received information that the patient had been crushed or trapped. He advised as a general rule of thumb, if possible, the patient should not be moved before medical experts arrive at the scene as crush injuries can lead to damages to the spine, to the pelvis and to the lumbar region of the back.
90. When the doctor was consulted in transit in relation to Mr Blee's condition he indicated that there was a difficulty in finding out exact times of the trapping or crushing and he formed the view that crush syndrome was a possibility. He explained that for instance if the pelvis was crushed sometimes there can be a lot of blood loss within the pelvic cavity and the trapping of the body can actually in itself prevent any further blood loss. Moving the patient can cause further bleeding or other problems from broken bones in that area being released from pressure. This issue will be referred to in expert evidence later in the decision.
91. Associate Professor Du Flou described this case as an inevitable death as a result of the injuries given the extent of the injuries and the number of organs involved. He stated that the lethal injury would have been very very difficult to diagnose and once diagnosed would be very difficult to treat. He stated that irrespective of where the injury had taken place the chances were very strong that it was a lethal injury and unsurvivable no matter what location it occurred in or how far away from vascular surgeons or expert trauma surgeons Mr Blee was.

Events Following the Incident

92. Following the incident Mr Pickstone took his crew back to the crib room and then later to the surface in accordance with directions to him by the Undermanager, Mr Bradbury. Once at the surface, the crew were isolated in the mine rescue building before being asked to write statements for management.
93. Mr Pickstone advised that he was devastated by what had happened and felt overwhelmed by the events of the day. It seems that all of those involved were affected in this way.
94. After Jason was removed from the scene, Mr Lucas and the others went to the crib room and waited to be brought to the surface. Mr Lucas went to the Moranbah North Rescue Station, sat in the room and was asked by management to write a statement of what had occurred. After the statement was written, Mr Lucas was informed that Jason had died. He felt very sad and in shock over the incident. Shortly after that he was interviewed by the Police. He said that did as he was told. He spoke to a union official who offered support and assistance. He then went home with his mate and in the following days participated in interviews with the DME Inspectors.

Management of the Incident by Moranbah North Coal

95. The Superintendent at the Mine, Brett Capper, was responsible for managing the incident. Rather than being specifically allocated such a role, Mr Capper happened to be on duty that day and was responsible by virtue of his position. His major role was to stabilise and monitor the situation, facilitate rescue efforts, control the situation's overall impact on the mine that day, keep the workforce informed, co-ordinate events and general organisational processes.
96. A detailed procedure was set out on the duty cards which dictated activities for a number of people including Mr Capper. The duty cards are designed to be a prompt for various actions and are underpinned by the training on procedures relevant to the role of the staff member which had previously been undertaken. The incident controller duty card was the one governing Mr Capper's role on the day.
97. Mr Capper was not aware for certain until late in the incident that the person involved was Mr Blee. He gave evidence that communication coming up from underground can tend to get confused due to communicating with a number of different people and the heightened situation underground. Further complicating clarity in Mr Capper's view was the need for him to be managing so many tasks. He felt that he could not be comfortable enough with the information as to Mr Blee's identity until he was brought to the surface.

Notification to Next of Kin of Incident (Employers)

98. During the course of undertaking his duties, Mr Capper requested that the Police attend to notification of the next of kin of Mr Blee. He considered that course of action to be in accordance with the protocol. Mr Capper was aware that Mrs Blee lived in Mackay and her distance from the mine was also a consideration for him. He was also cognizant of the need for carefulness in not relaying any false information and waiting to confirm details before any notification to Mrs Blee.
99. Mr Capper explained that Duty Card 4 was the card relevant to the Senior Site Executive. That card details that the SSE should ensure that contact has been made with the family in the event of a fatality. However, the mode of notification was not expressed.
100. Mr Itzstein of Walter Mining confirmed that the SHMS required the company to arrange for the Police to notify the next of kin in the event of a fatality.
101. Mrs Rebecca Capper, the Human Resources Co-ordinator at the time, stated that she considered the Police the appropriate persons to notify the next-of-kin as they had the appropriate training to deliver such grave news to family members. In fact, the evidence of the Police officers involved was that they do not receive specific training on delivering death messages. She also personally felt that such news should be delivered in person and the Police had resources on the ground in Mackay. In fact the evidence from Walter Mining managers was that they also had personnel available to attend Mrs Blee's house in Mackay. Mrs Capper saw the role of the SSE as being available to speak to the family about the incident and how it occurred if the family wished to speak with him.
102. In the case of serious incidents (not fatalities) it is the responsibility of a senior member of staff at the mine to inform family members of the incident. This is usually done by that person attending the house of the family and supporting the family by accompanying them and the worker to medical treatment etc.
103. Mrs Capper also stated that there was need for care in relation to the certainty of information before contacting family including the details of the incident, its effect on the worker, what is the next step for the worker, if they are attending medical treatment - when and where. Mrs Capper thought that it would have been appropriate for Mrs Blee to have been informed early (by phone if necessary) that her husband had been involved in a serious incident at the mine.

Police Involvement

104. Sergeant Muller, Officer in Charge Moranbah Police, was called by MNC staff shortly after 10.46am with notification of the accident – that a male person had been trapped underground by machinery. He relayed the information to Criminal Investigation Branch (CIB) officers. A decision was taken to attend the mine immediately despite the fact that no death

requiring Police attendance had occurred at that time. Sgt Muller and Acting Sgt Detective Dan Dennis and Senior Constable Rebecca O'Donnell arrived at the mine just after noon. At the time of Det. Dennis' arrival at 11.36am, the rescue helicopter, paramedics and doctor were present. The injured person had been brought to the surface and was being attended to by paramedics and the doctor.

105. They attended at the first aid room where Jason's body had been placed when brought to the surface. Police were advised that the person involved in the incident was Jason and that he had passed away. Next of kin details were provided to Police by Mr Brett Capper of MNC. Dr Vipulanthiagarasah, who had treated Jason, advised Police that the suspected cause of death was a fractured pelvis caused by crushing and a consequent severed femoral artery.
106. Sgt Muller called Scenes of Crime officers to attend and notified the undertaker and Mackay Police Communications at 12.14pm. Briefings were provided to Police by mine management. Police were advised that the site was secure and that all personnel had been evacuated from the mine when the incident was known about.
107. At around 1.30pm, Sgt Muller, S/C O'Donnell and Det. Dennis had a brief viewing of the scene of the incident underground to familiarise themselves with the surroundings. None of the Police attending the mine had investigated a matter relating to underground mining previously. During the inspection, Kim Addis from MNC explained various aspects of the environment and process involved in the work which was being done at the time of the incident. At the time of the inspection, no lighting plant was located at the scene. Det Dennis felt this gave a better perspective of the environment, with the only light coming from cap lamps. For investigative purposes, however, he felt that it may have assisted to have more lighting. Det. Dennis noted that the ground in the heading was wet and sludgy.
108. On return to the surface, officers Dennis and O'Donnell conducted interviews with Graham and Peter in the safety room in the administration area of Walter Mining offices. The interviews commenced at around 4pm. The witnesses Lucas and Smith had taken part in a briefing with other coal mine workers and had been together for at least part of the time elapsed since the incident. The interviews were conducted separately but contamination of their versions could not be ruled out given the intervening period that they were together and with others.
109. All three Police officers were present during the interviews. The interviews were not tape recorded or notes taken verbatim, rather, all notes were summaries of what was said. A representative of the CFMEU (the Union) was present at each of the interviews as a support person for the witnesses. This person was never identified and

clarification of the record of the proceedings could not be clarified from this quarter.

110. Peter Smith was spoken to first. He was quite distressed and upset about the incident and was pale. Det Dennis and S/C O'Donnell each made contemporaneous notes of the conversation. The notes taken by both officers in their notebooks were tendered at the Inquest. Det. Dennis' notes were in point form and varied between the actual words used by Peter and a summary of what he said. Peter also told Police that the movement of the shuttle car after Jason was pinned was forward by about a foot. S/C O'Donnell's note was that he said the car moved forwards and then back. During the conversation, Mr Smith told police that as the shuttle car began to drive out of the heading it "skewed" and "the car came (at them) sideways". He also said that two previous shuttle cars had skewed a little but not as badly. Det. Dennis concluded from this statement and his own observations of the scene that the shuttle car may have slipped on the floor.
111. The interview with Mr Lucas commenced at about 4.30pm. Graham was also clearly distressed during the interview. The persons present were the same with the exception of Sgt Muller. During the interview, Graham stated (according to the O'Donnell notes) that someone said to him after the pinning "go back, go back". He then described two movements backwards (towards the continuous miner) and one movement forwards (out of the heading), moving about a foot in total, in the attempt to unpin Jason. The other shuttle car driver, Mr Bull, was not spoken to by Police.
112. At the conclusion of the interviews Det. Dennis formed the view that both Peter and Graham were trying to unpin and save Jason and that what happened was an accident. This conclusion was made in the absence of any surrounding information or knowledge of the history of other incidents. The evidence however is quite clear that there was no ill intent on the part of either Mr Lucas or Mr Smith.
113. While the interviews were taking place, Sgt Muller spoke to Mackay Police Communications and requested that Police notify Mrs Blee of her husband's death. Mine staff informed the Sgt that they had personnel in the vicinity of Mrs Blee's residence. Sgt Muller instructed police that once the notification had been made they should offer Mrs Blee the opportunity to speak to those persons if she wished.
114. Scenes of Crime officers attended and took photos and video footage of the scene. The undertaker arrived and attended to Jason's body. The police officers established that there were no suspicious circumstances and no criminal charges would be laid as a result of the incident. Under the Police Operational Procedure Manual (OPM) 8.5.5, the responsibility for full investigation of the mining incident laid with the Department of Mines Inspectorate as the organisation with experience in that area.

115. A Form 1 *Notification to the Coroner* was prepared by Police pursuant to the OPMs and Coroners Act and was forwarded to the Emerald Coroner. This is effectively the first response report to advise the Coroner what is known of the circumstances to enable the Coroner to deal with the matter. A brief summary of the known facts is included in the Form 1. Sgt Muller, Det. Dennis and S/C O'Donnell contributed to the drafting of the Form 1, with different people entering the précis of the statements of Graham (by Dennis) and Peter (by Muller). It was apparent that information not contained in the Police Officers' notes was in those précis but where that additional information came from was not able to be established. Further, S/C O'Donnell stated in evidence that her notes were an overview of the conversations but the précis were "more succinct".
116. The Form 1 was completed during overtime and was the first form of its kind these officers had entered on the then new QPrime computer system, causing some confusion and error. The significant error was the misstatement of Peter's version about the movement of the shuttle car following Jason being pinned.

Police Notification to Family

117. Sgt Muller stated that as the incident was being investigated by Police, it was their responsibility to notify the next of kin in accordance with the usual procedure in such circumstances. Det. Dennis gave evidence that care is taken to ensure the identity of the deceased person before notifying the family due to the very sensitive nature of the information and the necessity to make sure it is correct. He said that it was also important for the Police delivering the notification to have some information for the relatives about what happened.
118. The incident involving Jason occurred at 10.10am. He died at 11.53am. Police Communications were advised of the death and requested to notify Mrs Blee at 12.14pm. The job was tasked to Northern Beaches station (the closest to Mrs Blee's home) as job number 372221. Job number 372223 involved a disqualified driver and was the matter being attended to by the Northern Beaches Police at the time of receipt of the notification task according to the evidence. There has been no explanation for the notification job preceding the disqualified driver task. Mrs Blee was not notified until 1.58pm.
119. The Police OPM 8.4.7 relates to the task of advising relatives of a death. It contains no mention of the priority to be given to this task. That prioritising occurs in the Communications Room to which the job has been tasked. The officer in charge, usually a senior sergeant, weighs the task up against others and assigns the priority ranking to all tasks. This decision is a judgment call based on experience and crews available at the time. In general, Det. Dennis stated, a death notification is not deemed an urgent matter as there is no risk to person or property.

120. Det. Dennis thought it likely that there was only one crew working at Northern Beaches station that day and given the lack of priority, it was unlikely that tasking to a Mackay crew was considered despite being only a matter of kilometres away. In any event such a course would be unusual given the operational need to keep Mackay resources available for serious incidents in Mackay.
121. In the normal course of an accident, Sgt Muller explained that the family would be notified of the incident after the body of the deceased had been removed from the scene. Sgt Muller, after making the request to Police Communications, was continually checking to make sure that they had delivered the message to Mrs Blee. He was not advised that there were any adverse reasons as to why the notification had not been carried out during these enquiries.
122. There does not seem to be any OPM for notification to relatives of an injury or incident in this context or any other.

Drug and Alcohol testing of Driver

123. In the normal course of an incident involving a vehicle, Sgt Muller confirmed that the driver of the vehicle would be tested for drug and alcohol use. On this occasion, the Police did not conduct such testing. It seems that the assumption by Sgt Muller and S/C O'Donnell was that the Mine's usual regime of testing would include testing of Mr Lucas on this occasion. In hindsight, Sgt Muller admitted that the testing was overlooked by Police in the difficult circumstances of the day. Both alcohol and drug testing via blood were possible utilising the facilities at the Moranbah Hospital.

Police Mine Familiarisation

124. In addition to being generally unfamiliar with underground mining, the environment and the process, the Police were not familiar with the terminology used by coal mine workers regarding their work tasks. This caused significant confusion during the investigation and Inquest in relation to what the witnesses were actually describing to Police, especially regarding the movement of vehicles inbye and outbye. The Police notes recorded vehicle movements forwards and backwards (rather than outbye and inbye). This caused some confusion given the terms were being used in relation to a multi-directional vehicle. Det. Dennis explained that the witnesses were using those terms and that he had not heard the inbye/outbye terminology until the Inquest.
125. Tape recording of the witness interview may have assisted in clearing up some of the anomalies in the versions given, taking into account that the Police notes were brief and not verbatim. The importance of the Police understanding of what is being said to them is paramount when they are responsible for determining that no criminal act occurred in the incident. More particularity in the Police questioning might also have assisted, given the serious nature of the incident and the need to establish the

exact sequence of events. In effect, incidents such as this should have a similar rigour applied to them as are in motor vehicle road accidents.

Department of Mines Investigation

126. Inspector Darryl Casey from Mackay DME was the first response officer to the Mine on the day of this incident. As first response officer, Inspector Casey's role was to ensure that the site had been secured either by mines inspectorate staff or the police. He then ascertained the time that the person had been injured the details associated with that person and establishing who was in direct control of the situation from the point of view from management. Inspector Casey also later attended the Police interview with Mr Lucas, it is said in the role of support person. This placed the Inspector in a position of conflict given his investigative role. Once Inspector Clough arrived, he took over the investigation although Inspector Casey was involved in further investigative processes. His statement and the notes he took of the Police interview were not produced to the Inquest until the very end, causing some practical difficulties. Presumably this was an oversight. Further, the Inspector had made some retrospective alterations to the notes, casting some doubt on their usefulness to clarify an already confusing situation.

126. The Department of Mines and Energy (DME as it then was) District Inspector Kevin Clough was notified at 11.10am on 9/4/07 by Police Sergeant Muller of a serious accident at Moranbah North Mine. Immediate contact was made by the Inspector with the Mine staff. The Development Superintendent, Brett Capper, advised the Inspector that a person had been pinned between the coal rib and a shuttle car and that rescue operations were in progress. At 12.05pm, Inspector Clough was informed by Mr Capper by phone that the person involved in the incident had passed away at 11.53am. Inspector Clough made immediate preparations to attend the Mine.

127. The scene was released by Police to Inspector Clough at approximately 5pm on 9/4/07 and an underground inspection of the site of the incident was arranged following a risk assessment and conducted later in the day. The Inspector was accompanied by various workers from MNC and Walter Mining whilst he inspected the scene.

129. The Inspector later arranged for the reconstruction testing to take place on the following day and conducted his investigation in the usual course in the weeks that followed. His report was provided to the Coroner in due course. Further comment follows in relation to some of the obstacles that the Inspector faced during the investigation. I note with appreciation that Inspector Clough made himself available when possible and was very co-operative with the Inquest.

Seizure / Production of Documents

130. Inspector Darryl Casey was involved with the collection of documents from the crib room. On the day of the incident when Inspector Casey went underground he noticed that quite a few of documents from the crib

room were in the back of a transport and had already been removed from the crib room by another person. Those documents were taken to the technical services area in the offices above ground and were left there. The following day Inspector Casey commenced to list all the documents that were held in that office and subsequently the department required production of those documents through a notice to produce. No documents were taken away from the mine by Inspector Casey at all. Mr Pate made list of documents taken from crib room on the day of the incident, confirming that SWP009 was present in the documents.

131. The Inspectorate made a document request dated the 10th of April 2007 directed to the SSE requesting a number of documents and classes of documents from Moranbah North Coal. The documents requested from the SSE came into the Department's possession on the 27th of April. The Inspector requested that if the mine could not supply originals of documents that a certified copy be provided and this was complied with. When the documents were delivered there was a large volume of them to the extent of 9000 odd pages.
132. It is not normal procedure for the inspector to issue a receipt after receiving documents as a result of a formal document request, however, a receipt is generally issued in the circumstance of a seizure of documents. No receipt was issued on this occasion.

Mechanical inspection and Reconstruction

133. Inspector McKinnon of DME Mackay inspected the machinery involved in the incident. The continuous miner was inspected in situ. The primary focus of the inspection was on the shuttle car which was examined, both static and dynamic testing, at length over a period of time. The appropriate scope of works and risk assessments were formulated for the testing and Mick Bromley was used as the shuttle car operator. Mr Bromley was an experienced shuttle car driver. Other MNC staff assisted where required.
134. A reconstruction was conducted on site and further driving tests were undertaken above ground. Mr Cremor stated that Walter Mining was not officially involved in the re-enactment conducted by the inspectorate on the day following the incident. He stated that a couple of their trades people were involved and were required to be present during the re-enactment as a result of their trade expertise in order to carry out engineer check and ensure that the machinery was operating properly. No one from Walter's management or safety team had been requested to be part of the team conducting the re-enactment.
135. The shuttle car, with the load that was on it at the time of the incident, was driven a short distance in the same wheel track that it was estimated had indicated the last movement of the car. The movement of the car when testing was done following the same track in an outbye direction, to the previous known position of the vehicle (a distance of 680-700mm),

causing the car to come towards the rib a little. The reverse of that movement (inbye) moved the car away from the rib.

136. The underground testing of the shuttle car revealed no unplanned movements of the car in the heading or along the wheeling route. Mr Bromley, the driver, stated that the steering was quite responsive and very direct.
137. Floor conditions in the heading were assessed, measurements taken and the tracks recorded. Mr Bromley stated that there was an evident cross-grade in the floor of the heading.
138. The continuous miner was powered up and used the remote control to try and tram the left track. The Inspector could see that the track was bunching up on the drive sprocket and it appeared to be broken – either a broken track or track pin. A loud audible clap was heard coming from the track during this process.
139. On a later date (13th April) further tests were conducted on the shuttle car above ground. The shuttle car behaved normally during these tests and there was no noticeable wheel shimmy or other abnormality observed. Checks were conducted on the brakes and tyre condition. One of the four tyres was severely chipped but was still in a serviceable condition. The other three tyres were satisfactory. The steering mechanisms were found to be serviceable but were showing some signs of wear. The wear could have been picked up by a rigorous service regime but the Inspector was of the opinion that the steering of the shuttle car was not a contributing factor in the incident.
140. Given that no problems were apparent after the above ground testing, the decision was taken to send the vehicle to Joy, the manufacturers, to conduct further testing on the mechanics and electrical systems of the shuttle car. A battery of tests was conducted. One defect found in the shuttle car was that the stab jacks were inoperable. The damage affecting the jacks was old damage. The stab jacks lift the machine off the ground (and off its wheels) for maintenance to be carried out.
141. Tests conducted on the shuttle car indicated that it was operating normally and showed no unusual handling or operational traits.
142. Inspector Herbert, an Electrical Inspector, examined the electrical systems on the shuttle car. The pre-start alarm was found to be operating. The shuttle car was configured such that the ramp speed (acceleration) was set such that there would be a soft start in the movement of the machine for operator safety and cable and component wear. The testing revealed no issues of concern in the electrical systems.

Post Mortem Examination

143. Dr Michael Martin is an Anatomical Pathologist in Mackay who conducted the post mortem examination of Mr Blee and prepared a formal autopsy report. Dr Martin is quite experienced in conducting autopsies.
144. Dr Martin was aware of the surrounding circumstances surrounding the death from the statement which was contained in the police Form 1 Report to Coroner which was forwarded to him in the normal course. A partial autopsy had been ordered by the Emerald Coroner. Dr Martin stated that despite the fact that the Coroner had ordered a partial internal examination if there had been any sign of injuries to other areas of the body such as the head or chest then he would have examined that area.
145. The cause of death was found to be fatal pelvic injury. The samples which were taken for toxicology from Mr Blee returned with no indication of alcohol or drugs being taken prior to death.
146. Dr Martin described the main injuries that were present on the body were on the lateral (outer) aspect of the left hip and the front area of the left hip and there were superficial abrasions over the lower legs on both sides. There was also an abrasion over the right elbow and one or two other minor abrasions. The main injuries on external examination were over the left hip joint. There was an external examination of the feet only which did not indicate any injuries.
147. He stated that the front bones of the pelvis were crushed in a number of places and the fragments were displaced backwards posteriorly by about 15 to 20 millimetres on the midline (centre). The force of the injury was sufficient to move the remaining bones of the pelvis outwards and there was a further fracture of the joint where the pelvis meets the spine at the back, indicating a 'pretty robust' impact involving a large amount of force to inflict such damage. There was considerable displacement of the pelvis posteriorly.
148. It was put to Dr Martin that the remote control being situated on the front of Mr Blee's body may have played some role in his injuries. Dr Martin stated that the fracture fragments at the front of the pelvis were displaced towards the back but over a very small area less than the width of the remote control so he didn't think that the remote control on its own would be responsible for those injuries.
149. Associate Professor Du Flou is the Chief Forensic Pathologist at the Department of Forensic Medicine in Glebe New South Wales. Associate Professor Du Flou discussed the conclusions he had reached after examining the material with Dr Martin who had no reason to differ with those opinions.
150. Associate Professor Du Flou commented that the autopsy was not a comprehensive autopsy but a partial one involving the external

examination of the body and any internal examination of the abdominal and pelvic contents as a result of the original order made by the Coroner at Emerald. Associate Professor Du Flou stated that Doctor Martin did not take any photographs at the time of the autopsy and neither had the police as they were not requested. No diagrams were drawn or annotated and no x-rays were taken. Dr Martin confirmed that no photographs were taken during the examination as he didn't feel the need for any to be taken as he was able to clearly diagnose the cause of death from the partial internal examination.

151. Associate Professor Du Flou indicated that the pathologist is very reliant on the history which is provided by the police officer in the forms that come to him at the time of the autopsy. Diagnosis is probably in excessive of 75% based on the history, with the medical examination seen in light of that history.
152. Associate Professor Du Flou agreed that the major injury which was observed in relation to Mr Blee was to the abdomen and pelvis. The cause of death he agreed was a crush injury to the pelvis and lower abdomen. Associate Professor Du Flou was of the opinion that the description in the autopsy report of the front of the trunk, particularly the lower trunk, could have been more detailed but he did not know whether Doctor Martin was aware of the possibility of the continuous miner controller being in place in front of that area of Mr Blee's body at the time of the incident.
153. Associate Professor Du Flou indicated that the perfect autopsy report for another pathologist would be the equivalent of standing in front of the body itself so that from the report you were able to visualise the body in every detail. Further, good autopsy photographs which would show the marks on the body, distinctive injuries and perhaps give a strong indication of the specific surface which had caused the injuries would have been very helpful. He stated that it was standard practice in his facility to take photographs of all bodies during autopsies. Associate Professor Du Flou had spoken to Doctor Martin about the details of his report but was advised that Doctor Martin was unable to specifically recall the case in any greater detail than his report indicated. Associate Professor Du Flou indicated that best practice would be to have x-rays taken or possibly a CT scan of the body during the autopsy. He stated that certainly would have made it easier to view the injuries as opposed to the brief notes that Doctor Martin made during his examination. Further information may well have indicated more extensive injury to other parts of the pelvis as well and what the mechanism was which caused the injuries.
154. Associate Professor Du Flou commented that there was very severe fracturing of the pelvis in this case to both the front and back of the pelvis. He stated this was consistent with a compressive force from front to back or from back to front but not a sideways compression of the pelvis. He noted extensive soft tissue injury indicated to him a

compression that has been well in excess of that required to cause a fracture as it has also caused a rupturing of organs internally. He concluded that it was a very significant force applied to the pelvis to cause those injuries.

155. Associate Professor Du Flou was of the view that the most important injury or most clinically significant injury in this case was the crushing of the pelvis and the associated injury to the pelvic contents. He commented further that a secondary injury was that to the psoas muscle which would have been quite problematic as well. The psoas muscle injury would not be expected to occur from a forwards to backwards compression of that area of the body but is more likely to have occurred from a hyper-extension and outwards rotation of the left leg, indicating that at some stage it was probable that there had been a rotational movement of Mr Blee as well as a compressive movement. The bruising and grazes to that area of his body, particularly the left hip joint, was also consistent with a rotation of the body at some stage during the incident. The psoas muscle injury is an indication of the amount of force and violence applied to the body above all else.
156. Associate Professor Du Flou commented that the injuries to the pelvis were severe and obviously lethal and were relatively uncommonly seen.

Crush Syndrome

157. Associate Professor Du Flou indicated that it would be advisable not to move a person who was potentially subject to crush syndrome although he stated when Mr Blee appeared to have a cardiac arrest or become unresponsive then it made sense to move him into a position where maximum effort could be made in relation to his resuscitation. He further stated it would become a matter of saving Mr Blee's life above all else and not trying to minimise his injuries at that stage. Associate Professor Du Flou explained the usual meaning of the phrase 'crush syndrome' as being seen in people who have been trapped for a considerable period of time or haven't been able to move for a considerable period of time. As a result there is a build-up of toxins in the muscles which on release of the compressive force are released into the blood stream and can cause a range of very significant abnormalities including kidney failure and the sudden onset of heart rhythm abnormalities. These consequences can take many hours to days if not weeks to occur.
158. Associate Professor Du Flou further commented that the situation which Mr Blee found himself did not come within the common medical usage of the term 'crush syndrome' as there was a crushing injury to the pelvis as opposed to an extended period of compression. In this case, however, given the injury to the pelvis Associate Professor Du Flou thought it would be best not to move Mr Blee due to the risk of causing separation of bone fragments and releasing compression of blood vessels associated with those fractures which could cause a sudden significant quantity of internal bleeding and sudden onset of shock and blood loss

upon movement. If required to be moved it would have been best to move Mr Blee with the securing of the pelvis, keeping it compressed.

ISHR Investigation

159. Mr Smyth, an officer of the CFMEU, is an appointed Industry Safety and Health Representative under the *Coal Mining Safety and Health Act 1999* (the Act). Section 109 of the Act provides for the appointment by the Union to appoint up to 3 members (elected by ballot) to perform the role for a term of 4 years. The required qualification to perform the role is to hold a first or second class certificate of competency or a Deputy's certificate of competency. The functions of an ISHR are restricted in section 117 of the Act to functions and powers relating to safety and health only and include participation in investigations into serious accidents (including deaths) and high potential incidents and other matters related to safety or health at coal mines (s.118).
160. Mr Smyth gathered a team to investigate this incident and prepared a report on the team's investigations which was presented to the Inquest and admitted on a qualified basis. I note that this seems to be one of the first times that the ISHR report has been tendered to an Inquest. As such it is subject to legal scrutiny in its process and contents. Upon evidence being given of the process adopted during the investigation, certain issues became evident.
161. During the investigation, Mr Smyth made requests for the production of various documents from the parties involved in this matter. Some documents were produced but others not. In the intervening period from the request, a great volume of documents had been produced to the DME as required under their investigation. Mr Smyth did not have access to those documents for practical reasons which he outlined.
162. Mr Smyth proceeded on the basis that if the documents were not provided to him then they did not exist. This approach causes obvious problems for any analysis of the information on the basis that the information is incomplete and the assumptions which are drawn from the absence of the documents has a high potential to be incorrect, as occurred in this case. In the case of all but one, the documents did exist, they were just not easily accessible by Mr Smyth.
163. Further, some of the documents, particularly JSEAs, which were provided to Mr Smyth were deemed in his view to be deficient in a number of factors and therefore effectively void. As the evidence evolved during the Inquest, those 'deficiencies' were explained. Probably one of the most objectionable elements from Mr Smyth's point of view was that the JSEAs were not signed by the persons participating in the risk assessments and development of those documents. A discussion of this issue occurs later in the decision. The end result of the methodology adopted was that the conclusions reached in the report were founded on incomplete information. The analysis of that information therefore suffers from the possibility of skewing of the results

and a reduction in the value of the report as a useful analytical device for the purpose of the Inquest.

164. It should be borne in mind that the report was not prepared as a document for tender in a legal proceeding but for a different purpose altogether. I cannot comment on the effectiveness of the report for the purpose for which it was intended. However, for the purposes of an Inquest, the report would be of more assistance to the Court if a more objective and rigorous method was applied to the investigation and the report's preparation. I thank the ISHR for his attempt to assist the Court through the provision of the report to the Inquest. I strongly encourage the CFMEU and the ISHRs to continue to develop the methods utilised in investigations which subsequently might be relied upon in legal proceedings as I consider such investigations to be of significant interest and assistance to Coroners investigating mining deaths.
165. Mr Smyth is a very experienced miner. He has held a Deputy's Certificate – Third Class Certificate of Competency for 7 years and has worked in the capacity of an ISHR for a period of 7 years at the time of the Inquest. During his mining career, he undertook various training courses and obtained a large number of competencies and has gained significant experience in coal mining. Mr Smyth gave general evidence in relation to mining matters and the report preparation (which I have already dealt with). The bulk of his evidence came early in the Inquest and his experience and knowledge of the "on the ground" conditions faced by workers and the work they undertake was valuable to inform the Court of these general issues, to set the scene. Mr Smyth was not directly involved in this incident and his primary function was to conduct the ISHR investigation.

The Physical Scene

Width of Heading

166. The width of a heading or cut through from rib to rib at Moranbah North in the Bord and Pillar panels is usually 5.2 to 5.4 metres wide. The SCARP in place at the time for No. 2 panel required a roadway width of 6 metres maximum. Measurements were to be taken by the ERZ controller at three places in the heading, which are then averaged, to check on the width required. Mr Pickstone gave evidence that G heading was indeed 6 metres wide but also agreed that the SCARP required 5.8 metres (page 8-91 line 42).
167. The width of the heading in question was 4.8m from brattice to left rib. This was due to an anomaly in the geology of the area being mined, requiring narrower headings for safety reasons.
168. Associate Professor Burgess-Limerick holds a doctorate in human movements and works at the University of Queensland. He has published extensively on mining equipment, engineering mechanisms, analysis and prevention and has researched injuries caused by coal

mine equipment particularly underground coal equipment including shuttle cars. The Associate Professor had performed research into the width of underground coal roadways by a survey of all mines conducting underground long wall mining (24 mines). The range of widths of roadways were reported to vary between 4.8 and 5.4 metres, with the average being 5.1 metres. Approximately 21% of the mines surveyed at the time indicated a roadway width of 4.8 metres. Associate Professor Burgess-Limerick was of the opinion that 4.8 metre roadway width was at the low end of normal but not atypical as it represented a fair proportion of mines at that time. He indicated that such a width would not cause particular comment due to its width. I note this survey was in relation to long walls.

169. Mr Sykes, the Mine Manager, stated that the normal roadway width is 5.4 metres. For this production panel the roadways were opened up to provide for the maximum taking of coal from the area. The roadways were expanded to 5.8 metres. In the particular heading which had a width of 4.8 metres from left hand rib to the brattice the transportation system guide applicable in the mine at the time required an allowance of 600 millimetres clearance on either side of the shuttle car in the heading, which was met in this instance.
170. The Chief Inspector indicated that in a place change setting he would consider a normal heading or roadway to be up to 5.5 metres, and he would not have classified this particular heading as narrow. Further he did not consider that the width of the heading had much to do with the incident.
171. Mr Neilsen of Joy Mining Machinery (who manufactured the shuttle car in this instance) stated that 5.5 metres is the average width of the heading that Joy would normally see and that this width would be a little on the higher end. He stated most of the machines are provided for entry development these days which would have headings of about five to 5.2 metres. Joy does not recommend using the wider car in anything less than a 5.2 metre to 5.5 metre heading prior to the brattice being hung.
172. It is clear from the evidence that whilst this heading was narrower due to the geological conditions being experienced in that area at the time, the heading was not narrow in an objective sense.
173. Mr Allan, an experienced miner who gave evidence in the matter, did not consider that the heading at 4.8 metres after the brattice was hung was narrow by any means and that the roadway was actually 6.5 metres wide. He states that generally most road ways are driven probably closer to five metres. He was of the opinion that the area was not tight for the operation of the shuttle car. He stated that if the shuttle car had sat more squarely in the heading then there would have been a reasonable amount of room on whether side of the car between the rib and the brattice.

174. The width of the heading in proportion to the 3.4 metre width of the shuttle car was considered by some witnesses including Associate Professor Burgess-Limmerick to have contributed to the hazard in issue in this matter. Increasing the width of the heading was a possibility put to Associate Professor Burgess-Limerick in relation to the reduction of the hazard. Associate Professor Burgess-Limerick agreed that in terms of the hazard being a risk of collision between shuttle cars and pedestrians then increasing the space available for both to manoeuvre in was a primary consideration.

Road Condition in Heading

175. Given the evidence of Graham Lucas as to the movement of the shuttle car at the time of the incident, specific attention was paid to the condition of the roadway by witnesses in an effort to understand whether the road contributed to the movement of the shuttle car.

176. Mr Pickstone, who had inspected the heading at the commencement of the shift, considered that the road was in a fair condition though wet. The previous night shift had been producing in that heading without incident. He was not concerned by the conditions during his inspection.

177. Mr Pate attended the scene of the incident on the day after, with the DME Inspectors. He noted that there was little bit of mud on the floor and that the floor was tacky. He stated that on the left hand side of the road that the mud was probably about three inches deep but up towards the brattice there was hardly any mud. He described the floor as compacted fines and stated that it was hard. He stated that the area between the wheels at the rear of the car the mud was substantially thicker and was about a foot thick. The rear off tyre was on high and dry ground. There were no big boulders or anything on the floor and that the floor did slope from right to left with no obvious canches in the floor. It dipped with a slight dip under the belly of the car and then tended to level out to the area where the miner was.

178. Mr Pate said that on his inspection of the roadway on the day after the incident, there was no evidence of the shuttle car sliding but did comment that the area around the back of the car had been disturbed during the rescue effort. He stated that the wheel marks that were on the ground indicated the straight run and there was no distortion of the wheel track that you would expect to see if the car had slipped substantially.

179. Mr Arthur Chaseling holds a master of engineering and performed an expert evaluation on behalf of Walter Mining in relation to this incident. He attended the scene on the 13th of April, 4 days after the incident. He noted that the ground conditions in the heading were good, there was very little moisture in the way and all of the wheel tracks were clear cut without indicating any side movement which would have been expected if the machine had been skidding. The cross-grade of the road was quite mild and the one in fourteen cross-grade could be described as moderate. He stated from the information he saw the shuttle car clearly

had no difficulty negotiating the corner into the heading and that shuttle cars have a turning circle on the inside of the tyres of a minimum of 2.9 metres. He considered that the car was able to negotiate that corner comfortably.

180. It seems clear from the evidence that the condition of the roadway was not so significant as to be a major contributor to the movement of the shuttle car in this incident. Most significant in this regard would have been the cross-grade of the road as opposed to the wetness of it.

Size of the ERZ district

181. It was put to Mr Pickstone that the ERZ district he had responsibility for on the day was a large area and he had multiple tasks required to be done within a restrictive time frame. Mr Pickstone stated that he did experience work overload but it was due to the nature of the bord and pillar operation and the large area he had to continuously control. He had not reached the point of being overwhelmed but he did not have a great deal of time left to deal with other issues and he had raised these concerns with his supervisors.
182. Each of the 9 headings in the development area had to be inspected every four hours plus the working areas (both bolting and mining) every two hours. Mr Pickstone considered that it was a large work load compared with a 2 panel gate road development for instance. He stated that Walter Mining had instigated a second deputy to look after the outbye inspections at the time of the incident. The addition of the outbye deputy was to reduce the impact of the workload on ERZ Controller (inbye) by assisting with outbye inspections in the panels and with running the outbye sections which included bringing supplies in, inspecting roadways, organising the ball gang (3 people), and belt conveyor inspections.
183. Mr Allan was of the opinion that having two deputies in place, one covering the ERZ or the face area and the other covering the outbye area was more than a liberal approach in this situation.
184. I do not consider that the size of the ERZ district impacted on this incident although Mr Pickstone's concerns should be noted for future management.

Position of the Shuttle Car

185. Much was said during the Inquest regarding the position of the shuttle car both immediately before and after the incident.
186. Mr Tupaea, the loader driver who also had experience on shuttle cars, was surprised at how close the shuttle car was to the left side of the heading. Mr Tupaea said that one of the difficulties posed at the face was the slippery road conditions. When the shuttle car comes in behind the miner, depending on conditions, it can swerve to the side until it gets a hold of dry areas of the road. He stated that on this day the floor was

in good condition and he did not notice any wheel ruts or tracks. There was a bit of loose coal but it was not too wet.

187. Mr Tupaea considered that Peter Smith was a relatively inexperienced cablehand, having recently come from working in another area. He thought that an experienced cablehand would have instructed the shuttle car driver to go out and come back in at a better alignment before coal loading started. Consequently, Mr Tupaea thought that there was no need for the shuttle car to have remained in the poor position it was in prior to the incident. Whilst this was a task he would expect of his cablehand (who was not working at that time), he accepted that it was a matter for the miner operator to give instructions to the cablehand on what he should or shouldn't do.
188. On viewing Exhibit 47 (a plan of the incident scene), Mr Pickstone agreed that the position of the shuttle car was odd. He thought that it must have been subject to shunting to arrive in its position at the time of the incident.
189. Mr DeVoodg also commented that he could not believe where the shuttle car was located at the time of the incident. He could not understand how it would come to be in that position. He stated that the standard practice driving a shuttle car into the heading was to keep to the brattice (on the right side). He said that the brattice line was not a concern regarding driving in but that greater concern should be paid to the cables and personnel on the left where the risks had more severe consequences.
190. Mr Pearce, the fitter on shift that day commented that the shuttle car seemed further over on the left hand side than normal and it was pretty rare to have shuttle car that close to the rib.
191. Mr Sykes considered the shuttle car to be a long way across to the left in the heading. He was unable to say how the vehicle came to be in that position as it didn't appear to be there from a single movement. Mr Sykes believed that it would have been appropriate to the send the shuttle car back out requiring it to come back in an appropriate position. He stated that it was everybody's responsibility to actually identify problems and counsel each other and generally the miner driver would be the key contributor to any decision that was made. He may communicate that decision through his cable hand or directly with the other workers.
192. Mr Chaseling, an engineer who gave expert evidence in the Inquest, was of the opinion that the shuttle car was way out of line where it was situated in the heading following the incident and it should never have been there. He stated that it was in a position where the wheel would be hazardous to the electric trail cable from the continuous miner.
193. It is clear that the positioning of the shuttle car was critical in contributing to the incident and that with the benefit of hindsight, repositioning it prior

to loading coal might have alleviated some of the risk to Jason. It was, however, a judgment call made on the day in the circumstances that only those men were in.

SHUTTLE CARS

Shuttle Car Operation and Design

194. Shuttle cars are highly manoeuvrable vehicles with four wheel drive and four wheel steer, and are designed to go around 90 degree bends. Associate Professor Burgess-Limmerick described the design of shuttle cars as affording extreme manoeuvrability.
195. The equipment manufacturer has a duty of care to provide equipment which is fit for purpose and that includes safety. Shuttle cars were originally designed in the 1950s or sixties. In terms of the structure and layout of the shuttle car from their original design, there haven't been any significant or fundamental changes to it. In the last five years, Joy have introduced a new series shuttle car called the 10SC. That vehicle is a new generation shuttle car that has a lot of different and improved features to the 15SC. They have a completely different drive system, are very smooth to operate, have far more power and improved manoeuvrability and suspension systems. The 10SC has increased capacity and has improved conditions in the cab and in relation to vision and a lot of the components are more reliable and robust. The vehicle is further fitted with the opti-drive system which is a smooth variable frequency drive. Joy found that developing that vehicle was a very intensive developmental exercise.
196. Mr Bromley was the shuttle car driver who assisted DME Inspector McKinnon in the mechanical testing of the shuttle car involved in this incident. He commenced underground coal mining in 1993 and at the time of the Inquest held the qualification of Deputy. He had been driving shuttle cars for 12 years and was familiar with the SC501. Mr Bromley stated that in the 14-15 years he has been driving shuttle cars, the design of the cabin has not changed much but the capacity of the car to carry coal has been increased.
197. Mr Bromley, and others, gave evidence that there are a number of difficulties in operation of the shuttle car.

Visibility

198. One difficulty is visibility for the driver, especially considering the overall size of the vehicle. Vision from the driver's cabin can be more restricted for a shorter person. Standing up and leaning out of the cabin might be necessary to obtain a proper view at times. Visibility is restricted to along the side of the car that the driver's compartment is on. On the other side, visibility is virtually zero and worse when coal is in the throat. Situating the cabin higher on the car would improve vision in Mr Bromley's view. Visibility would be assisted by allowing the driver to sit a

bit higher and to have more head space in the cabin to provide more room for comfortable standing if needed for better sighting.

199. In relation to the issue of visibility in the shuttle cars Associate Professor Burgess-Limmerick was of the view that visibility in this case was unlikely to be directly implicated as a potential cause, as a shuttle car cab, and therefore the driver, was on the same side as the continuous miner operator, and shuttle car operator was either facing those persons on the ground and could see them or was facing away and would not have been able to see them regardless of the vehicle design.
200. He stated however that improvements to visibility are possible through increasing the height of the operator but one side effect of that action would be to restrict the areas of the mine that the vehicle could operate in depending on the seam height. He stated that it is possible to have a height adjustable cab on shuttle cars and also to potentially use a video camera on the off-side corner of the car to improve visibility of the area around the shuttle car for the driver. He further stated that hungry boards exacerbate the visibility issues so they could be removed from the car but that would compromise the coal carrying capacity of the car and so more trips would need to be undertaken to move the same amount of coal. This option is not favoured by Joy.

Visibility for pedestrians and drivers - Lighting

201. In relation to the issue of lighting on shuttle cars, there are two headlights in the front of the shuttle car depending on its direction of travel and the following end puts up red lights to indicate it is the rear of the car at that particular time. Consequently the lighting on the vehicle indicates the direction of travel. Area lights are also situated generally on the side of the vehicle to give better lighting to the driver.
202. Mr Pearce considered that red and green lights on machinery delineating which side was safe to stand would be a good idea for pedestrians although that would not override the need for positive contact with the shuttle car driver.

Counterintuitiveness

203. Operational systems such as the accelerator/brake pedals and the steering arrangements on shuttle cars take getting used to as they are different to other vehicles and may lead to operational mistakes. The four wheel steering required to manoeuvre such a large vehicle in small spaces can cause the vehicle to turn quite quickly and the response of the vehicle to steering is quite different to a standard vehicle. Not a lot of movement in the steering wheel is required to turn the vehicle quite a bit when it is in motion.
204. The use of the steering system was explained by Inspector Clough as follows: when driving inbye, to turn left, the steering wheel is rotated clockwise (towards the driver) and to turn right the steering wheel is rotated anti-clockwise (away from the driver). Driving outbye, to turn

right the steering wheel is rotated clockwise (away from the driver) and to turn left, the steering wheel is rotated anti-clockwise (towards the driver). The driver will sit facing the direction of travel and facing the miner during cutting and loading. Pedals under the opposite seat are accessed for movement of the vehicle. However, it is possible to engage the accelerator under the occupied seat by lifting it, thereby moving the vehicle without changing seats and while facing away from the direction of travel. This is not a recommended practice for safety reasons.

205. In relation to the steering of the shuttle car Associate Professor Burgess-Limerick describes a concept known as compatible steering. That concept refers to the relationship between the direction of the movement of the steering wheel and the response of the vehicle. He states the compatible relationship is one which corresponds with a person's natural expectations of movement. Shuttle cars in Eastern Australia generally have a situation where driving outbye, the steering is compatible, whereas driving inbye, the steering relationship is incompatible. Consequently driving the vehicle can be a difficult task which requires considerable practice to be able to perform well. Most people find that with learning the incompatibility issue is overcome. Associate Professor Burgess-Limerick indicated that he was not aware of any other situation where the steering relationship alternated between compatible and incompatible with every change of direction. He considered that this increased the probability of directional errors occurring and an increase in reaction time to make correct responses especially in the situation of a sudden incident requiring immediate attention of the operator.
206. Mr Chaseling stated that the steering on a shuttle car is known as circle steering where the front and rear axles move in opposite directions and this maximises the ability to negotiate sharp corners as does the fact that the wheel base is very short relative to the overall length of the vehicle. The steering system is hydraulic with an electric motor which drives a hydraulic pump and supplies fluid to the steering belt which is attached to the steering wheel and this supplies pressurised oil to a pair of hydraulic cylinders which then push the wheels backwards and forwards.
207. Mr Chaseling stated that shuttle cars are probably 95 and 99 percent efficient for their duties at the moment. He did feel however that the current steering arrangement could be subject to improvement.
208. The counterintuitive nature of the pedals has not been raised by operators with Mr Neilsen (Joy).

Responsiveness of Steering

209. All witnesses agreed that the shuttle car has to be in motion in order to move the wheels in any direction, although there was some variation on the amount of movement required to achieve the change in direction. Mr Bromley thought that the wheels could be moved a little while the car was stationary. This aspect was tested in the aboveground tests and it was found that the wheels could only move a very short distance without

movement of the car. It should be noted that this result was achieved on level firm ground.

210. The responsiveness of the steering can vary between shuttle cars given their age and usage.

Cabin

211. From an ergonomic point of view, the cabin of the shuttle car does not have much room to move, especially once all of the required safety gear is being worn by the operator. All operators gave evidence that the seats in the cars are not that comfortable and the adjustment mechanism has a very short life span underground due to the operating conditions. Limited height adjustment is generally available in the seat position.
212. Mr Lucas also commented that the shuttle cars are not as comfortable as ram cars used in the mains. He said that the seats never adjust and often he is required to perch on the front of the seat in order to reach the pedals. On occasions, during loading or driving under load, coal comes into the cabin, interfering with controls. Vision is restricted, especially under load, and the pedal and steering arrangement was difficult to get used to as the design was totally different to every other vehicle.
213. The seats in the cab of the shuttle car have always been an issue that Joy has been working on, given the equipment that operators are required to wear and the general difficulties encountered with suspension mechanisms. Doors were introduced to the cabs to ensure that the driver couldn't get out of the cab when the car was moving or energised and it is acknowledged that there was some diminution in vision as a result of the introduction of the doors to the cab.

Handling

214. Mr Bromley stated that the shuttle cars can be fairly heavy to drive and that road conditions and ineffective operating cables can cause operation difficulties. Uneven or wet and slippery roads can cause the cars to slip and wander to the lowest point of the road. If the road is rough for instance, Mr Bromley stated that the driver needs to slow down as the driver tends to be bounced around in the cabin. Wheel ruts in the heading are a particular obstacle to be taken into account.
215. It should be noted that there is an emphasis on maintaining reasonable road conditions and drivers walk their wheel roads before driving on them to familiarise themselves with the conditions of the road. There is also opportunity to request work be done to rectify any poor road conditions before hauling commences.
216. Mr Bromley further stated that the driving characteristics of the shuttle car can vary from fully loaded to not, depending mostly on the road conditions. He stated that an unloaded shuttle car will slip more easily on the roadway. An uneven load will also cause handling difficulties. Like any vehicle, he says, the shuttle car will wander to the lower side of

any slope and is especially vulnerable to tracks or deformities in the road surface. The car will follow the road down to the dip side, if road is wet then that is more pronounced. Even if road is dry and flat, the driver really has to steer the car the whole way.

217. Mr Bull stated that the faster you travel, the easier a shuttle car is to manoeuvre. At a complete halt the wheels can only be turned marginally but you must go either forwards or backwards for a metre or more to turn the wheels. He also stated that it was not easy to pick up changes in the shuttle car's position on the roadway until it had already happened. Uneven loading will affect handling characteristics. If men are working close by then you need to take it a little slower and use more caution.
218. Other witnesses agreed with these assessments.
219. Mr Chaseling stated that when the shuttle car goes around a corner the back and front swing wider than the rest of the vehicles. The design of the shuttle car has been found by experience to give the best possible manoeuvrability between headings. In general, he stated that provided the shuttle car was not driven near the edge of its performance limit, the vehicle will follow where the wheels go regardless of the weight that it has over a particular axle. In general terms it's just like a road vehicle which manoeuvres much the same whether there's just the driver or whether it's fully laden. As long as the wheels have not broken traction, movement of the vehicle will be along the path defined by the wheels. If the wheels lose traction then there can be sliding as with any other vehicle. Mr Chaseling did not consider that the extent of loading in this case had any relevance to the movement of the shuttle car.
220. Mr Nielsen stated that when a vehicle is stationary, even when empty, it is not possible to turn the wheels. You need to move the vehicle before you can start to turn the wheels in a range of 125 to 130 millimetres. Mr Nielsen stated that whilst the shuttle car is quite manoeuvrable at speed, it's a large vehicle with a lot of inertia and large tyres and the vehicle is required to move a distance of about 100 to 150 millimetres before you can even start to turn the wheels or get any sort of control over direction of steering. The movement of the vehicle therefore is not precise in an inching mode and is not the subject of fine control.
221. It was put to some witnesses that the fact that the corners of the heading were not rounded off but square caused some difficulty for the shuttle car driver who was entering from a wheel road requiring a turn into the heading (eg Mr Lucas). There had been no reported difficulties to Associate Professor Burgess-Limmerick's knowledge in relation to driving vehicles around sharp edge corners or corners with rounded edges.

Training of Shuttle Car Drivers

222. Mr Sykes detailed that the way in which the training system worked at Moranbah North. A worker needed to be nominated by their supervisor

to undergo particular training and then the worker would have a discussion with the trainer assessor. They would go in to learner training mode where the trainer assessor determined, given the training which was being undertaken, what needed to happen and what the training needed to cover. After that learner session the worker would then go on to actually use the equipment under the supervision of the training assessor and the balance of their training would be conducted on the job, operating the equipment under supervision. Once they were assessed by the trainer assessor as being suitably able to complete the training then the training documents were presented to the mine manager for sign off.

223. Training packages had been developed at the mine for shuttle car drivers. Drivers are instructed by a person qualified to train on that equipment. Familiarisation of the operational features of the vehicle is conducted. Driving under supervision of the trainer occurs in the panel during the production cycle. Fairly constant monitoring and feedback usually occurs. Numerous written assessments are conducted over this period of supervision. Close supervision occurs early in the training process, usually for about three months. The period of time that this training occurs varied depending on the driver's abilities. Assessment is competency based.
224. Mr Lucas had obtained the appropriate ticket to operate the shuttle car on 31/3/07 and had undertaken Place Change Safety Familiarisation assessments (in relation to the mining method) from March 2006. Part of the shuttle car competencies included issues such as 'no go zone's and pinch points. The assessments indicate that the training included issues around awareness by the shuttle car driver of pedestrians in the area. However, it seems that there was no specific focus on treatment of pedestrians in the heading other than to follow the instructions of the miner driver.
225. Mr Bull had been in training for a period of 8-12 months before gaining his ticket on the shuttle cars.
226. Associate Professor Burgess-Limmerick indicated that training in relation to the operation of shuttle cars would not differ depending on the roadway width that the shuttle car was being asked to operate in as the same hazards exist regardless of the roadway width. Further, Associate Professor Burgess-Limerick indicated that it was an inevitable situation in mines and it was quite common that shuttle cars pass in close proximity to the area where the continuous miner operator and cable hand are situated during the mining process. He stated that fact places a responsibility on the shuttle car operator to know where the other people in the area are positioned in the same way that there is an over-riding responsibility on every vehicle operator to operate the vehicle in a safe manner. That responsibility would be fulfilled through visual checking, verbal communication with persons in the area and maintaining visual contact of those persons at all times. Further, as a result of training,

shuttle car operators would expect the continuous miner operator and cable hand to be standing on the left of the heading within an approximate area on each occasion.

227. On the issue of competency to perform a particular task Associate Professor Burgess-Limerick indicated that there were obviously individual differences between people and that it was necessary for there to be time performing a task in order to reach a competence. To become an expert in a particular task takes a very long time and usually a time frame of around 10 years of deliberate practise is required to become truly expert at a motor task. The declaration of competence of an operator to drive a particular machine was seen to be akin to holding a driver's licence. Associate Professor Burgess-Limerick indicated that drivers are able to operate the vehicles and they do so every day, but they consider it in the whole to be a tricky thing to do.
228. In relation to the assessment and training of shuttle car drivers the Associate Professor indicated that the current method of assessing competence was a subjective one and relying on the judgement of an expert trainer. There was inevitably a degree of subjectivity involved in the assessment.
229. The Associate Professor stated that people make decisions under stress which are often sub-optimal. It requires significant training to ensure the behaviours are always consistent and appropriate and he considered training in a general sense to be a very ineffective control measure.

Risks to Pedestrians of Shuttle Cars

230. Fatalities associated with the use of shuttle cars are very infrequent particularly in Australia according to the Associate Professor. He was not aware of any fatalities associated with shuttle cars in Australia in the last five years. However there have been fatalities associated with the use of shuttle cars in the United States to the extent of 8 over a 10 year period but the particular details of those incidents were unable to be obtained. Injuries in relation to the use of shuttle cars are reasonably frequent and fortunately mostly minor. In a three year period in New South Wales, there were 140 injuries that were reported to the Coal Services Authority which were associated with the use of shuttle cars in some way. Those injuries occurred in circumstances including driving over a rough road, where a person hit some part of their body on the inside of the cab and seven injuries were associated with the shuttle car running into something but none of those were known to have included running into a person.
231. Mr Allan was aware of a number of fatalities in South Africa which related to people in the wheeling roads of shuttle cars having been struck by a shuttle car.
232. Comment was made that it has long been the situation in the underground coal mining industry that people have been standing

around and working along side continuous miners and shuttle cars. There are tens of thousands of movement of shuttle cars and other machinery underground every day. As the practise still continues today, various controls have been put in place throughout the industry addressing the risk of pedestrians coming into contact with large mobile machinery. Some of those controls are discussed in this decision.

Application of Standards to use of Shuttle Cars

233. Associate Professor Burgess-Limerick made reference to a document titled MDG 9 Design Guideline (exhibit 99) which had been issued by the New South Wales Department of Primary Industries. The document was said to be a de facto standard which was influential in the coal mining industry in New South Wales. To the Associate Professor's knowledge there was no comparable document in Queensland.

234. Mr Chaseling made reference to Australian Standard AS4024.1101-2006 titled *Safety of Machinery Part 1101; Terminology, Terms and Definitions*. Paragraph 4.9 of that part of the standard was headed *Danger Zone* and reads:

“Any zone within and/or around machinery in which a person is exposed to risk of injury or damage to health. Note; the hazard generating a risk envisaged in this definition; (a) is permanently present during the intended use of the machine, as in motion” – “motion of hazardous moving elements, electric arcing during welding phase etc; or (b) may appear unexpectedly, unintended, unexpected start-up, etc.”

235. Mr Chaseling was of the opinion that that Standard applied to shuttle cars in a broad sense. In relation to Australian Standard 4024 the Chief Inspector was of the opinion that that Standard dealt with rotating or movable parts on a mobile machine and not a shuttle car as such.

236. In relation to the danger zone described in the Standard, Mr Chaseling stated that there were also other standards and recommendations in relation to no-go zones which were detailed ways of implementing that particular clause in specific situations.

237. It was put to Mr Chaseling that the Standard referred to was developed for moving parts of machinery not for moving machinery. Mr Chaseling stated that he regarded the statement in the standard as an overall philosophy in relation to this type of machinery and that it wasn't an implementation standard at all. He further stated that it could be described more as a dictionary than anything else. That part of the standard he agreed is headed terms of definitions for safety of machinery. Mr Chaseling stated that there were no other standards that dealt with shuttle cars and that the general view in Australia was to follow MDG9.

Mine Transportation System

238. Moranbah North Coal had a Mine Transport System (Exhibit 64) in place governing the use of all mobile machinery and vehicles at the mine. The system was formulated to ensure the safe operation of all vehicles in and around the surface and underground mine site. The risk analysis method contained therein highlights a number of risks including unplanned movement of a vehicle.
239. A series of rules governing movement of vehicles are set out. Substantive requirements include all vehicles being operated with due care and attention and drivers being responsible for ensuring that it is safe to proceed in moving a vehicle. This includes ensuring that paths are free from personnel and other obstructions before moving a vehicle and slowing when approaching an area where pedestrians are. Pedestrians are to be afforded right of way. Those rules are applied to all vehicles including those operating underground. Mr Pickstone stated that there were a number of generic road rules in the system that had application throughout the mine including at the face but the system did not necessarily have total application at the face when mining.

Joy Mining Machinery

240. Mr Brad Neilsen is the director of sales and marketing of Joy Mining Machinery. He has an engineering background and holds an Associate Diploma in Mechanical Engineering, certificates in welding technology, structural design, computerised design, hydraulic design systems, and pneumatic system design and has a trade background in fitting and machining. He has been employed with Joy Mining Machinery for the last 10 years. He has been involved in the coal mining industry for about 25 years.
241. Joy Manufacturing Limited in Australia is a business of about 650 people with three major sites. They manufacture continuous miners, long haul systems and import shuttle cars predominantly from South Africa. They provide support to the market directly with service engineering and application engineering. In terms of product development, Joy has the approach of technical excellence. Their global centre undertakes design work and application engineers a particular product solution to suit the customer. If a customer in Australia wanted to buy a shuttle car, Joy would work closely with the customer to define a specification and provide that product.
242. Joy invented the shuttle car some decades ago in the US and the shuttle car is the predominant haulage device that is used in underground coal mines around the world.
243. There are approximately 200 Joy shuttle cars operating in Australia and Joy holds more than 90% of the market share. They supply approximately 20 units per year in Australia. Mr Neilsen advised that across the industry in Australia per year shuttle cars would drive between two and two and a half million kilometres, in excess of a half a million

man hours. Over the last ten years that would equate to 20 million kilometres and 5 million man hours without any fatalities.

244. The shuttle cars in use in South Africa are quite different as they are much larger cars and are typically 20 tonne cars with east/west cab configuration. The South African market is slightly larger than the Australian market and they use board and pillar mining as a predominant method to win coal whereas in Australia, longwalls are more prominent. The board and pillar method requires far more shuttle cars to be in use. There are more shuttle cars operating in New South Wales than in Queensland and Queensland represents about 40 percent of the Australian Market.

Safety Culture

Moranbah North

245. Mr Timothy Hobson was, at the time of the incident, the Site Senior Executive (SSE) which is an important role in terms of both production of coal at the mine and safety of mine workers. Mr Hobson stated that he always gives priority to safety issues and would rank maintenance as a second priority with production as his third priority.
246. In 2003 Mr Hobson introduced into the underground coal mining sector a different form of training which is based on cognitive behavioural safety. The acronym is ZIP and the program was produced by Santos or their facilitators. The program requires very high supervision in order to stamp out unacceptable practices. The cognitive behavioural part of the training provides an individual with cognitive tools to help them deal with the situation. At Anglo one of those tools is called the 'Big Five' which identifies what are the five reasons that workers come to work and therefore the five reasons that they want to go home safely at the end of work. Mr Hobson was confident that there would be some good results from this program.
247. Mr Hobson commented that from what he had seen at no time was Jason in a no go zone but something has happened to get him into the position where he was caught. Mr Hobson did not consider that was as a result of anything Jason had done and did not believe that Jason had done anything wrong in this particular case. He also commented that there did not appear to be any mechanical or environmental factor contributing to the incident. He was unable to understand how the shuttle car came to be in the position that it was in.
248. Mr Sykes was the Mine Manager at Moranbah North at the time of the incident he was responsible for safety and production management of the mine on a day to day basis. In the event of a choice between the pursuit of safety and the pursuit of production Mr Sykes on each occasion takes the safety line first. He was of the opinion working though safety issues thoroughly led to production falling into line eventually.

From time to time he has brought such operations to a halt so that safety issues can be put into order.

249. Mr Pate was at the time of the incident the Shift Compliance Co-ordinator. Prior to that he had been an Undermanager at the mine. While he was an Undermanager his job was to go around the mine and ensure that safety was being affected throughout the mine and to ensure that work plans were being carried out and that the mine was working to the weekly or daily plan. With the introduction of the compliance department his role was taken away from the production area. He was then focussed solely on ensuring that safety and the effective operation of the safety and health management system was being complied with.
250. The Check Compliance Co-ordinators now perform primarily auditing and overseeing roles. They still have the power to stop any job that is going on in the mine if they believe there is a potential breach of safety or a safety concern. When the Compliance Department first came into being, the role of Compliance Officer had limited auditing exposure, and was more focused on inspection. The role has now evolved into an auditing type role where the Compliance Officers take a procedure, pull it apart and check workers' understanding of the procedure and audit its effectiveness. They look for corrective actions or areas for improvement in relation to those procedures. They interrogate individual workers and supervisors as to what they are doing and how they are going about it. This process extends to contractors' employees as well as employees of Moranbah North Coal.
251. Subsequently, Mr Pate has moved into the role of compliance superintendent. In that role the four Compliance Co-ordinators on shift report to him. His role is more concerned with planning the Compliance Co-ordinator's work and maintaining an auditing schedule. He monitors safety alerts coming in and actions that need to be taken from those safety alerts and ensures that they are followed through with. He facilitates a lot of risk assessments and assists in developing procedures and documents. He is also responsible for putting together an outstanding actions log which also applies to risk assessments.
252. Mr Lucas gave evidence that, in his experience, miners like to keep to the rules, have a lot of responsibilities on their shoulders and daily put their lives in the hands of their workmates. He stated that the culture at Moranbah North was very much one of looking after each other in a safety sense whilst doing the best job they could production-wise.
253. Mr Smith stated that since the incident and subsequent training, all of the workers are more aware of 'no go zone's and it is very much frowned upon if someone goes into a 'no go zone'. Other workers pull such people up and a repeated problem could see the Deputy being consulted.

Walter Mining

254. Mr Cremor stated that it was important on a day to day basis is that the team of workers as a whole understood the operation of the panel and what was to happen during that shift. The team as a whole needed to accept their obligations and responsibility to manage the work process and to conduct it safely. This approach was an interactive process in that all members of the team were required to have input into issue such as risk management during the work process.
255. Mr Cremor stated that because the mining industry is such a dynamic industry and is continually changing, Walter Mining were focused on giving people the tools, the confidence, the skills, and the support to always have a safety and risk management focus.
256. Mr Douglas Gardner was a Safety and Training Co-ordinator for Walter Mining at the time of this incident. He attended at Mr Blee's residence on the day of the incident with Warren Cremor to provide support to Mrs Blee. His role included attendance at underground operations to do walk around checks, speak with the crews and the deputies and make his own visual observations of the work that was being undertaken. There was no statutory requirement for his checks but it was part of the Walter Mining Project Safety Management Plan.
257. The DME conducted an audit of the Moranbah North mine in early 2007, the results of which were said to be complimentary of the Walters systems at time.
258. Mr Lappin, a Manager at Walters stated that Walters was a safety conscious company, instilled safety into workers, and had a regime of auditing safe behaviours.
259. Both MNC and Walters engaged in the issue of safety through their procedures under the Safety Health Management System which includes procedures such as SARS reports, SLAMs, toolbox meetings, JSEAs, tour briefings, SOPs and SWPs, sequence documents and many more.

The Safety and Health Management System (SHMS)

260. Chief Inspector Taylor stated that when the Act was first introduced it was with the intention that there would be one safety health management system at any mine site that would be controlled by the SSE and it was never envisaged that every operator or contractor at the mine would have their own system.
261. Mr Sykes was of the opinion that the safety and health management system at Moranbah North was an operational system and was effective. He stated that there was effectively one system on-site. There were a number of contractor groups which were generally required to have a safety and health management plan which sat under the Moranbah North system with mapping of the contractor system against the Moranbah North systems. The general requirement actually lists the elements of the

safety and health management system that contractors need to match, to ensure that the application of the system on the ground meant that there was a lot of similarity between the document and the processes that were used in Moranbah North's operations. He stated that taking into account the presence of contractors on site there were on occasions more than one standard operating procedure covering the same task depending on the application of the task at that time.

262. Mr Sykes stated that the safety health management system had been audited not long before this incident occurred. He did agree that it seems that the system had reached the stage of being too big and too cumbersome which potentially caused some difficulties in accessing relevant parts of the system. To the extent that Walter's SWP009 was not in the SHMS of MNC, the requirement for the provision of contractor procedures to MNC and the mapping process for those procedures into the MNC SHMS had room for improvement. I note recommendation 13 of the Ombudsman's Report in relation to the need for greater emphasis by DME on auditing the integration of contractor SHMS with those of mine operators and I endorse that recommendation.
263. Mr Sykes stated that the defences that were set up under the safety and health management system in relation to attempting to prevent this type of injury occurring included procedures that covered the positioning of the personnel before a number of parts of the mining cycle were in place, there was provision of low level hazard assessment, the provision of the workplace risk assessment to analyse events that happened on the day, supervision by the ERZ controller provided in the area and overarching supervision in the form of the shifts supervisor.
264. The contractor management manual of Moranbah North Coal gives reference to how a contractor would be introduced to the mine and how the safety and health management system is run in parallel with each other and cross referenced with other. There is a document within this system which gives reference to how the contractor's safety and health management system is assessed against the Moranbah North Coal system.
265. Not too long before the incident in question Moranbah North Coal set up a Compliance Department. Part of the role of the Compliance Co-ordinators were to look at the systems which were in existence to make sure that those safety and health management systems of the contractors met the standards in their application of the Moranbah North Coal system. Where shortfalls were identified the Co-ordinators would ensure that those issues were progressed and changed.
266. Just prior to this incident Moranbah North had started working with Walters and other contractors to bring their policies and procedures into the Moranbah North safety and health management system. Contractors who are presently on site have their procedures actually introduced into the safety and health management system of Moranbah North. If they

are specialist contractors Moranbah North may still use their document but those are on the central system for access by all coal mine workers. Leave is identified by workers on the same system ensuring that they are able to use the computer system to access documents. Another change of process included to muster all workers in the same muster area instead of separate muster areas that occurred a couple of months prior to this incident. Workers are delivered ongoing training in relation to how to access documents from the safety and health management system via the computer. The system is such that when a search word is entered the searcher will receive all of the relevant documents not just the one they were looking for including safety alerts. The system in this way provides a good single source of reference material on a particular topic.

Access to SHMS

267. Mr Hendry is the Human Resources Manager for Moranbah North Coal. He stated that the Compliance Department were responsible for the maintenance of the document control system at Moranbah North. When processes or procedures were developed a staff member in the Compliance Department was responsible in a regulated fashion for booking the document in to the safety and health management system, placing those documents on to the record and ensuring that any amendments were carried through within the system.

268. The safety and health management system is a combination of a paper and electronic systems. Documents are available to workers through the computer system through an intranet access and a file based access. All documents are generally available subject to their edit date, so that all current documents were accessible to workforce. Mr Hendry confirmed that the volume of safety documentation at Moranbah North mine is copious and there are huge volumes of information which can cause difficulties in the tracking processes.

269. The Moranbah North safety and health management system which was available to workers through the intranet did not normally include documentation from contractor companies on site in relation to their specific processes. The Moranbah North safety and health management system has a direct applicability to contractors on site and Mr Hendry stated it's only where the contractors are of major standing that they work from their own safety and health management system which is none the less required to be integrated with the Moranbah North Coal System.

270. The safety and health management system is available to all personnel at the mine irrespective of their employment relationship with Moranbah North Coal. The intranet system is also a means for workers to be able to ensure that their tickets and training competencies are current. Access to the intranet system whilst it may be a simple task for some workers may be reasonably difficult for others. The intranet café is located in the muster room of Moranbah North adjacent to the control and ambulance rooms. It is in the lamp room area which all workers

access prior to proceeding under ground. Any employees wishing to use the intranet who are unable to navigate it are able to request assistance from either other workers or supervisors in the area.

271. Mr Lucas stated that the computer system at the MNC go-line area contained information and alerts regarding each worker's tickets and the dates they needed renewing. All workers were able to access the computer to check on this without a pin. Those who were not computer-oriented could seek assistance in this regard. Once tickets were due for renewal, training needed to be organised to enable renewal before continuing in a position requiring the ticket.

272. Mr Lappin stated that Walters did have some of their own procedures to reflect the different work that they undertook as contractors to the other operations of MNC. One of those documents was the Safe Work Procedure (SWP009) dealing with no go zones for and around the continuous miner. That document was ordinarily in the crib room folder and contained in the documents held in the Walter Mining offices. There was significant confusion as to whether this document was also posted on the MNC SHMS computer access. After enquiries were undertaken during the Inquest, Mr Hendry confirmed that SWP009 was not part of the MNC intranet.

273. Further, there is a requirement for any contractors' procedures to be mapped against the [] SHMS and approved by the SSE for inclusion in the system.

274. Mr [] was unable to locate any authorisation of the mapping of the document within the [] system. Mr [] stated that the procedure is that once the document is complete, it is provided to the contract holder for Anglo Coal, Leon Dupree for those processes to take place. There was, however, no return loop for Walters to ensure that the mapping had taken place.

275. Copies of Walters' policies were kept in the Walter Mining safety library, crib room, and on computer in the Walter Mining muster area (which was restricted to shift supervisors, production managers).

276. There was no documented system for the supervision of currency of documents held in crib rooms but supervisors would check on this from time to time and any documents that were missing were requested and provided.

277. Mr Cremor stated that he was very confident that everyone on site knew where to go to access a copy of that document for that particular work process. He stated that the documents were all available at the Walter site offices which was part of the Moranbah North site. In theory he expected the Walter Mining SWPs to have been available through the Moranbah North Coal computer system. Mr Cremor confirmed that all Walter Mining work processes and other documents were available

through their project computer which was located in the surface muster area and hard copies were distributed or taken of those documents as required by workers. He confirmed that the muster area spoken of was the Walter Mining area which is in a separate building to the Moranbah North Coal go line.

Document control

278. The ISHR investigation and Mr Smyth, in particular, was critical of the document control of Walter Mining in that original signed copies of documents were not available in the system but rather that all policies and procedures were held electronically.

279. Mr Cremor confirmed that when documents were developed, the original versions of the hand written document would have been kept in the office but once they were committed to the electronic system, the original hard copy was not usually referred to. The computer system was relied upon to produce the most up-to-date copy of the document. The Walter Mining server is password protected so that amendments to documents are restricted to those authorised to do so. There is no formal signing off process for the documents by those contributing to it, given that the original will be electronically held. This is the same as the MNC system in that regard. Non-consensus matters of contributors would need to be noted on computer but there was no feedback loop closure in that regard. The facilitator and supervisor were required to sign off on original but once entered into system, computer copy becomes the original. The MNC system was similarly electronic.

280. In this regard, Mr Allan stated that in today's electronic world, not all documents get physically signed of by people he stated that providing theirs an appropriate electronic document control system in place such that is controlled by date and protected from un authorised amendment then there would be an appropriate document control system in place. I accept this.

JSEAs (Job Safety Environment Analysis)

281. JSEAs are safety procedural documents which are developed by representatives of a cross section of the workforce for particular tasks being undertaken. The purpose of JSEAs is to examine the risks and hazards in the workplace and provide a safe way of working. They contain a step by step process for the conduct of the task, define the hazards and list the controls for those hazards. Mr Pickstone explained that a JSEA would be used for one-off tasks or for changes to existing tasks. They are reviewed prior to the start of works and at other times as required by the circumstances. Mr Pickstone gave evidence that JSEAs were not required to be reviewed at the start of each shift but at the beginning of each tour. His practice was to offer to the workers the opportunity to review the procedures as a routine activity.

282. The JSEA for Working with Coal or Cutting Coal with the Continuous Miner (Exhibit 66) included as a potential hazard "shuttle car changes

position, lack of vision, striking, crushing and falls". A management method for those hazards was that authorised competent operators enforce and communicate no go zones. In this scenario that would have been the continuous miner operator.

283. JSEA Q4001-4 (Exhibit 67) Past Activity Operating Shuttle Car was a Walter Mining document which identified a potential hazard of pedestrians being struck by machinery. It stressed the need for communication on start-up and visual and audible recognition of the presence of pedestrians. No go zones and operators being authorised competent persons also featured in the document.
284. Mr Pickstone discussed the reduction in width of the heading as an additional hazard to be taken into account on 2 separate occasions in the toolbox meeting during the SARS and in the deployment. Mr Allan, however, was under the impression the risk of injury between man and machine and the rib wall was not taken into account and it was obvious that the team in that area had missed that point. He stated that the risk remains the same but the traffic area had become narrower than it had previously been and the JSEA should have been reviewed given the circumstances which had changed to create a tighter working environment.

No Go Zones

285. A "no go zone" is an area in which entry is prohibited (eg under unsupported roof) or restricted (eg within certain areas of machinery operation). Restriction zones on the floor of mine are generally subject to the overriding discretion of miner operator. No go zones are an administrative or soft control in the hierarchy of controls. Mr Addis commented that with no go zones there is no line in the sand, no white lines on the road. You have to assume where they are and most of the time people do that really well. However, being an administrative control, human error looms large. Mr Pearce stated that there is a lot of complacency underground as there is in any workplace, and that people go into areas where they know they shouldn't be despite the controls in place. He considered that there were a lot of inexperienced people in the industry who started working at the face too early in their experience in his view.
286. About a year prior to this incident, an accident occurred in the mains section of the mine where a worker, Mr Francisco, was caught between a ram car (similar function to a shuttle car) and a miner. That incident occurred when some workers decided to undertake a task in addition to the mining which was going on, and a lack of communication led to the trapping and injury of Mr Francisco.
287. After the incident, a safety alert (MDA Safety Alert 148/06) was issued by DME requiring verbal communication between operators rather than a pure reliance on cap lamp signals when operating machinery in the vicinity of pedestrians. The safety alert was circulated at Moranbah

North by MNC and Walter Mining through toolbox talks. Further, the procedures in relation to 'no go zone's were changed in the mains area of the mine which provided for a warning to those on the ground that the ram car was approaching so that they could get onto the in place miner before the ram car proceeded in to be loaded.

288. Following the Francisco incident, Mr Sykes stated that everyone spent a lot of time trying to look at what happened and how the injuries occurred and to conduct new risk assessments and come up with a system of work that would make sure that a similar event did not happen again. He stated that the main focal point of the Francisco incident was that change should occur.
289. There were no particular changes to the no go zones because the zone was sent around the operating procedures for that panel at the time but the fact that two jobs were being carried out concurrently with distractions for each were the main findings from that incident. That information was communicated to all operators not just the ones in the panels. Some procedures changed including the standard of dropping the tail of the miner to indicate that the shuttle car or ram car drivers were not to enter the panel.
290. Due to the different configuration of the miners in Bord and Pillar (as opposed to in the mains), the 'no go zone's that were in place in the mains operations did not translate to the place change mining. There were consequently no changes to the no go zones for the place change mining as a result of that incident. However, all operating procedures for the bord and pillar operations were reviewed following this incident in February 2007 according to Mr Pickstone. A sequence control manual was subsequently introduced for the bord and pillar panels.
291. There was a fair amount of training for all staff across the whole mine followed up by a panel review on the findings from the incident and reiteration of the practical controls which were introduced. Most of the workers who gave evidence recalled the training following the Francisco incident although not in any detail. Mr DeVoodg stated in his evidence that the no go zones were reiterated with workers often including during inspections and safety behaviour observations during mining operations.
292. The diagrammatic No Go Zone for Place Change mining (SWP009 Exhibit 8 Appendix 11), in place at the time of this incident, required effective communication between crew members, both oral and visual communication. This requirement was said to be enforced at various meetings and training sessions according to Mr Pickstone. The SWP including the No Go Zone should have also been kept in the crib room.
293. Mr Smith was not aware of any 'no go zone's. He did recall the Francisco incident and confirmed that there was a training package relating to the mains that came out following that incident which was the subject of training in February 2007. When Mr Smith moved to the bord

and pillar panels where the mining process is different, he could not recall similar training. He agreed in cross-examination, however, that the training in February 2007 included a process of review of standard operating procedures and work processes for the mains and bord and pillar operations.

294. Darryl Bull gave evidence that if there was anybody standing in the heading and they weren't up against a rib then a shuttle car driver should not go into the heading and wait for the miner driver's instructions.
295. Mr Lucas had commenced working in the mains and was familiar with the procedures there. Once in the Bord and Pillar panels, Mr Lucas was shown diagrams of 'no go zone's relating to the continuous miner performing a right hand cut but was not aware of 'no go zone's relating to left hand cuts (as occurred on the day of this incident). There were no 'no go zones' that he was aware of relating to narrow headings. Graham stated that Jason would never have broken the rules in relation to 'no go zones'.
296. Mr Tupaea considered the no go zone around the shuttle car to be 1 metre around the whole car whilst the pump was on. He always stood in the same place Jason was standing as it was the only place that it was effective to operate the miner from.
297. Production had stopped at the time of the incident due to the broken track on the continuous miner. The area went from a production activity to maintenance activity and so there was a transition from no go zone and restricted zone to maintenance issue according to Mr Itstein. It seems to me however that that the movement of the shuttle car out was still production related. Mr Itzstein stated that once miner stopped and Jason had verbal communication with car driver then production was no longer occurring and no go zones didn't apply.
298. In relation to no go zones Mr Allan stated that under the existing SWP009 Mr Blee was technically standing in a restricted zone at the time of the incident. However as the continuous minor was not operating at this point in time the SWP009 did not apply when the continuous minor is not operating yet another set of circumstances that sit around the car and what happens to the car this circumstances involve the use of oral communication with the shuttle car driver which Mr Blee engaged in and both a visual and audible communication was in line with the JSEA. Such a communication was an acceptable practice for Mr Blee to engage in at the time when vehicle was stationary. Mr Allan confirmed that there is notice on the shuttle car driver to look for people in and around the area before he moves off. He stated that in BHP there was a policy that if there were any people in the wheeling or travelling road where the shuttle car was operating for unusual reasons then the shuttle car stopped until the person had passed or stepped into a safe area. He further stated the Mr Blee should have been in a safe area as there were pogo sticks in place and the shuttle car driver had some guidance on

what room was there and should have had adequate room for the continuous minor operator and the cable hand to be situated in that area. He further stated that it would have been advisable to have been clear of the car before the car moved off or that the car didn't move until those people had been clear of the area.

299. Mr Sykes considered that there was nothing that Mr Blee was doing other than following what appeared to be standard operational procedures by making visual and verbal communication with the shuttle car driver. Despite the ICAM examination undertaken by the inspector, stating "the miner driver did not move to a safe location" Mr Sykes commented that it was clear to him that that is what Mr Blee was doing at the time of the incident. I accept this.
300. Mr Pearce had previously been working in the mains at the mine and moved to bord and pillar to learn that method of mining. He was able to access standard operating procedures in the crib room, was aware of the procedures from toolbox talks, and was aware of the no go zones, particularly around the continuous miner. He thought that Jason was in an area where he shouldn't have been standing at the time of the incident due to his proximity to the tail of the miner.
301. Mr Cremor confirmed that Jason and the cable hand were standing in the restricted area of the no go zone at the time that the continuous miner was being operated and after the shuttle car was in the heading.
302. Some of the workers who gave evidence were of the opinion that there was a one metre exclusion zone around the shuttle car at all times. Mr Cremor confirmed this notion but conceded that that zone is obviously constrained given the confined area that's available for people to be working in a heading such as the one involved in this matter. The width of the heading after the brattice was hung was 4.8 metres. The shuttle car measured approximately 3.4 metres in width which Mr Cremor accepted gave an area of 4.1 metres in total between the vehicle and the brattice on side of the heading and the vehicle and the rib on the other side of the heading. In such circumstances it was not possible for there to be a 1 metre exclusion zone around the shuttle car.
303. Associate Professor Burgess-Limerick did not consider no-go zones to be a particularly helpful control measure as they were a soft administrative control. Associate Professor Burgess Limerick stated that whether or not Mr Blee was in a no go zone wasn't relevant because for him to complete his work he needed to communicate with the shuttle car driver and so he approached the shuttle car driver and communicated with him verbally.
304. Mr Sykes stated that there was a lot of shuttle car activity in the mining industry. The concept of no go zones have been effective taking into account the number of vehicles movements around the mine in any one day are being controlled primarily by no go zones. The changes since

the incident include delineating the side where workers are to be and increasing visibility of that area for shuttle car drivers.

305. Chief Inspector Taylor explained that the legislation in Queensland is risk based and self enabling meaning that it was up to the individual operation to ensure that the lowest level of acceptable risk was achieved. Whilst 'no go zones' were not particularly referred to in the legislation, he considered they would form part of that achievement of the most acceptable level of risk as a means of managing safety. The Chief Inspector stated there was an onus on both the operator and the pedestrian that has been recognised for a period of time and many operations have had in place for a long while that pedestrians have the right of way apart from 10 meters behind the continuous miner where the shuttle car has right of way.
306. In relation to no-go zones the Chief Inspector was of the opinion that as a no-go zone is a soft administrative barrier, there needs to be a movement in the industry towards the hierarchy of controls to either eliminate or substitute the hazard. Unfortunately at this stage there is no system on the market that would provide either of those possibilities to be implemented. I note with interest that the Mines Safety Conference being held in Townsville in August 2009 intends to discuss relevant issues including the use of proximity detection underground.
307. Some discussion was had in the Inquest regarding protections which could be built into 'no go zones' such as the possibility of standardising the areas of restriction and prohibition. Standardising No Go Zones across industry would be a difficult task according to Mr Bromley due to the use of different machines across different mines and even the variations in set up of similar machines. He considered that a minimum standard with local variations would be more suitable.

Rescue Procedures

308. As previously referred to, Mr Kim Addis, a Shift Supervisor, attended the scene after the accident occurred. Mr Addis was an employee of Moranbah North Coal, having worked there for 12 years, and was a very experienced person in mines rescue. He had held first aid credentials for almost 25 years and had been a long time member of the Mines Rescue Brigade in Qld and WA. Mr Addis was also trained in occupational first aid which included evacuations and higher level resuscitation techniques.
309. Mr Addis stated that there were about 10 workers per shift qualified in first aid across the mine and a slightly lesser number qualified in occupational first aid but those persons were also spread across the shifts.
310. Mr Addis is quite proactive in informally training and familiarising workers with the underground ambulance situated at the go line. As workers are

waiting to go underground, he runs them through the equipment and does short drills on the ambulance operations.

311. Mr Bruce Allan has 45 to 46 years experience in the coal mining industry and has held senior positions with BPH and Rio Tinto. He is the independent chairman for Queensland Mines Rescue and has 25 years Mines Rescue practical experience as well as administrative. He stated that the Mines Rescue Service was noted of this incident and were placed on a standby basis. Mines Rescue Service normally operate in difficult and irrespirable atmospheres underground and in this particular case those circumstances did not exist and therefore the Mines Rescue trainees were not required to attend.
312. There are 150 odd trainees throughout the state who operate on a voluntary basis. The Mines Rescue Service expertise is in the ability to provide and train people to work in irrespirable atmospheres in coal mines. The Mines Rescue Service is focused on getting its response times down, to act fairly quickly and to have adequate access to coal mines. In Queensland a difficult situation exists because of the large distances between mining operations. Mines Rescue staff undertake MEMS (Mine Emergency Management System) training which concerns processes for the management of emergency situations by mine management. They work closely with the police, fire brigade and paramedics in the medical system. They provide mine familiarisation to a small degree for medical and police personnel through their headquarters and training facilities at Dysart. Such training however is not structured or formal but is more ad hoc.
313. Mr Pate has also been a Mines Rescue member and considers that the skills that he learnt whilst there helped him a lot with incident management and general day to day management of the workers under his supervision. He stated that Mines Rescue personnel are primarily trained to rescue workers from an irrespirable atmosphere. They recover people, search and explore the environment. Skills involve first aid, treatment of casualties, triage, fire fighting skills and casualty management.
314. Mr Pate stated that there were Mines Rescue personnel spread across the shifts at Moranbah North Coal at the time of the incident. He stated that by legislation the mine was required to have 27 mines rescue trained personnel but at the time of the Inquest there were 34 personnel trained in that way. He stated that there were Mines Rescue people on every shift and that a team of seven people were required to conduct most rescues. Mr Pate stated that he was endeavouring to have a full Mines Rescue team on each shift across the mine.
315. It is clear that in this instance, once the alarm was raised, the rescue efforts were fast and efficient and the Mines Rescue trained personnel responded appropriately and quickly. However, at the time of the incident occurring, there was little appreciation amongst those directly

involved of the appropriate way to proceed. Mr Bromley gave evidence that crushing/pinning accidents were not discussed at tool box meetings and he was unaware of any procedures in place in the event of such an incident. Mr Bull was also unaware of any procedures and had not undergone any training on that scenario.

Entrapment Procedure

316. The MNC Authority to Mine document made provision for entrapment procedures but those were not applicable to this incident, referring to entrapment of workers by roof fall or other such incident. The procedure was not relevant to the mining sequence on this day.

Extraction Procedure

317. The Moranbah North Mines Rescue Team is the 2008 world champion team and is made up of highly professional and trained workers across the mine. Emergencies such as this one should be managed by these highly trained workers who are best placed to assess the circumstances of each incident as it arises. All workers at the mine had been trained in the principles of DRABC which is part of any emergency response. The DRABC system comprises a number of commands to prompt appropriate reaction to the situation by checking as follows:

- D – danger to yourself, others and the casualty
- R - response of casualty
- A - airway
- B - breathing
- C - signs of circulation

318. Mr Lucas was of the opinion that an emergency response that enabled the shuttle car to be removed from Jason would have assisted in this situation. **It seems from the evidence that none of those present followed the DRABC process before acting to attempt to free Jason.**

319. Mr Bromley was not aware of a particular extraction procedure in place at Moranbah North mine which would have applied to this situation but thought that one might have been handy to have in these circumstances. Airbags implemented as a lifting device would have been able to be used in this situation from a practical viewpoint as compressed air was available to inflate them. Mr Bromley considered that airbags would have sufficient strength to move the shuttle car off the rib. He had used an airbag at Collinsville many years before to lift a miner. He was aware that an airbag was available on the surface at Moranbah North. Mr Bromley thought this approach safer than attempting to move the shuttle car given its handling qualities over short distances at low speed.

320. Mr Pickstone agreed that airbags would lift a shuttle car and such an action might have been an option in this case. He did sound a caution however, in relation to the potential for damage to Jason's legs in any lifting procedure given their position.

321. Mr DeVoodg was not aware whether there was a document or procedure in the event of extrication of a person. He was aware that there was an airbag in the emergency trailer at this and other mines but that procedures around the use of airbags was more relevant for mines with harder steaming coal seams than Moranbah North where it was easier to dig the more friable, softer coking coal.
322. Mr Addis did not believe that there was an extraction procedure at MNC. He considered as there would be hundreds of scenarios, it would be very difficult to set up one procedure to cover them all. Mines Rescue were well trained in the area to make the necessary assessments of the correct procedure to be used in the particular circumstances.
323. Mr Lamb stated that he has never known of anyone partially trapped not to have been able to be extricated. He thought that Jason could have been extricated without moving the car (removal of remote, rescuer, clothing etc). Mr Allan is experienced in the use of air bags particularly in relation to their applicability to jack something apart in relation to small movements. Mr Lamb had seen airbags used for lifting static equipment but not mobile machinery.
324. Mr Pate stated that it would probably be a better option to use an airbag to lift the shuttle car off Mr Blee then to attempt to do so through driving the car. He stated that in such an action a worker would have more control over what they were doing and the movement could be used incrementally. He stated that you would also need to consider what other hazard you were going to introduce by using that extraction method. He stated that when Mr Blee was pinned shoulder to shoulder initially against the rib, people could have stopped and accessed the situation and made contact with more experienced people to get greater assistance. He stated that most workers were taught that if something goes wrong, the quicker you can get information to people with the experience to deal with it the better the chances were. He stated that an immediate call to the control room would have been in order.
325. Mr Pate stated that the wide range of materials that were located at the incident scene when he arrived there indicated the resourcefulness of the crew who were there at the time, that they had the presence of mind to think about what equipment was close at hand that they might be able to conduct a rescue with. He stated that he considered that sign showed that the people there were doing everything they could and using all of their resourcefulness to try and assist Jason.
326. Mr Smith thought the use of the stab jacks on the shuttle car or another means of moving the car off Jason would have given the rescuers another option. The stab jack system works vertically and is usually used in order to change tyres or for general maintenance of the vehicle. If the vehicle had been lifted in the position it was in then it could have put more pressure on the rib rather than less and may have been less effective and more dangerous for Jason in the circumstances.

327. Mr Lamb was asked about the development of an extraction procedure. He was not sure that a procedure for extrication could cover all scenarios but there are some general principles which could apply for entrapment involving equipment. There were various issues to be taken into account including medical information relevant to the scenario. Reliance on experienced emergency response personnel was considered critical. He stated that “any machine operator (10-94 line 30) in any industry, but particularly the mining industry, would be conscious at the time that the corrective action you take, your first consideration would be that it doesn’t cause another risk or add to the consequence that may have already been suffered.”
328. The Mines Rescue Service does not have any body of instructions in relation to lifting devices or extracting devices but it does provide training and expertise and how to use various lifting tools and lifting devices and capability including airbags. Airbags or hydraulic jacks on shuttle cars may have been of assistance in theory in relation to this incident. However Mr Allan indicated that due to the usual degree of softness of the ribs that it may have been simpler and easier just to dig out behind Mr Blee to free him from the area in which he was trapped.
329. Mr Pate advised that the Mines Rescue guidelines do not include competencies for the use of air bags. He stated that he believed that such a competency should be included in the training to ensure that mines rescue workers are able to properly use that type of extraction procedure.

ANALYSIS OF THE INCIDENT

How the Injury Occurred

330. Chief Inspector Taylor confirmed that the re-enactment conducted by the Inspectorate did not consider analysis of injuries by way of forensic pathology analysis and the I-CAM investigation did not consider analysis injuries by way of forensic evidence be it pathological or engineering. Chief Inspector Taylor indicated that the Department of Mines and Energy had extensive forensic knowledge with regard to any potential accident underground through SIMTARS, but did not possess the type of forensic skill necessary to analyse the marks on the shuttle car which may have assisted in determining what had occurred during this incident.
331. Associate Professor Du Flou inspected similar shuttle cars and photographs of the particular shuttle car involved in this incident during his examination of the material. He stated that the white panel above the traction motor and below the hungry board had sustained obvious damage to the paintwork by way of the number of apparent scrape marks which appeared whiter than the surrounding material. He posited that the damage occurred during this incident, possibly from part of the belt worn by Mr Blee coming into contact with that area of the shuttle car

or more likely an object such as the control box for the continuous miner, the battery pack or self rescuer that Mr Blee was wearing around the area of his waist and hips at the time of the incident. He also noted that on the top of the hungry board there were some whitish marks which may well have been caused in association with this incident as well. The important element in determining the cause of the injuries was the extent of compression by an incompressible object against a compressible object that is from machinery as large as a shuttle car against the human body. He stated that speed of the shuttle car was not an issue in this case.

332. Associate Professor Du Flou indicated that there was evidence that Mr Blee was standing on the lowest reach of coal which was raised about 40 centimetres above the level of the tyre tracks of the shuttle car. He considered that it was the initial outbye movement of the shuttle car which resulted in the compression and pinning of Mr Blee's shoulders in a side to side position between the shuttle car and the rib. It is likely that Mr Blee's shoulders were pinned between the top edge of the hungry board and the rib as the hungry board is the correct height to pin Mr Blee by the shoulders and also protrudes sideways more than any other part of the vehicle. Further, the hungry board had marks on it indicating that some contact may have taken place in that area. The extent of injury to Mr Blee's shoulders and chest were negligible if present at all, indicating that no real damage was done to him physically at that time. There was a faint linear mark on the upper right arm, which is shown in the photograph of the deceased approximately six inches below the tip of the shoulder. If the force pinning him by the shoulders between the rib and the shuttle car was a significant compressive force at this stage Associate Professor Du Flou would have expected there to have been more significant injury to the shoulders, possibly the collar bones and the chest itself.

333. It is very unlikely that the first movement of the shuttle car was likely to have caused the injuries to the pelvic area given that the average male is narrower across the pelvis than the shoulders. Further, if there was injury to the pelvis at that time, given the nature of the injuries which did occur to the pelvis, it would not have been possible for Mr Blee to stand up after that point which is contrary to the evidence of the other witnesses who were present at the time. Further the physical examination of the pelvis indicates that the injuries were as a result of a front to back compression or a back to front compression but not a side to side compression. Also, Mr Blee was after the initial pinning, communicating with the other men present in a reasonably rational way, which would not have been likely if he had at that time sustained the injury to the pelvis, which would have made it very difficult for him to communicate given the amount of pain that he would have been in.

334. After the initial pinning, Associate Professor Du Flou was of the opinion that there were two options in relation to possible further movements of the shuttle car. He stated that the car could either go inbye or outbye.

Mr Smith had indicated that Mr Blee was rotated in such a way that his back went towards the rib while the shuttle car was moving. If the car movement was inbye that would cause an anti-clockwise movement of Mr Blee for a rotation of about 90° through a quarter rotation. If that was the case it would be very likely that that movement would cause the release of Mr Blee from the compressive force, as the movement would be away from the rib if the vehicle was moved inbye.

335. The Associate Professor further stated that if the vehicle had been driven outbye Mr Blee would have been rotated clockwise through at least 270° in order to finish in a position where he was facing the vehicle. Associate Professor Du Flou thought that was relatively unlikely as a rotation of 270° would be quite unusual, there was no injury to Mr Blee's face which was identifiable which might indicate such a rotation and such a movement would have been very memorable to the witnesses who were present but was not described by them.

336. As a result Associate Professor Du Flou posited that the second movement of the shuttle car was inbye. Further he stated that an inbye movement at that point is unlikely to have caused any pelvic injury as the movement was in an arc outwards from the rib itself. Following the second movement of the vehicle Associate Professor Du Flou was of the opinion that the fatal injuries had not occurred. Consequently he was of the opinion that there must have been a third movement of the vehicle which would have to be an outbye movement to cause the compression of the pelvis from front to back with the associated injuries.

337. The presence of the continuous miner control box in front of the pelvis increased the effective depth of the pelvis front to back thereby increasing the width of the body and in all likelihood contributing to the crushing of the pelvis by coming into contact with the traction motor on the shuttle car in all likelihood. The scrape marks to the traction motor seen in the photographs of the shuttle car and the bending of the small guard rails around the controller itself also shown in photographs is likely to support this view.

338. The fact that when the rescuers attended to Mr Blee he wasn't actually pinned by the vehicle but was slumped partially underneath it and apparently free from the shuttle car, indicated to Associate Professor Du Flou that at some stage after Mr Blee sustained the lethal injury there was further movement of the shuttle car which could have been around the immediate time of the sustaining of the injury but the car must have moved inbye to a certain extent to allow the release of Mr Blee from that position.

339. In relation to the proposition put to the Associate Professor that the witness statement from Mr Smith indicated quite clearly that there are only two movements of the shuttle car was at odds with his hypothesis about how the injuries occurred. Associate Professor Du Flou stated that the post-mortem itself cannot answer these questions on its own but an

examination of that material, the photographs of the vehicle and area involved and reference to the witness statements had informed his opinion. However Associate Professor Du Flou indicated that his hypothesis was not a definitive reconstruction of the incident but a possible one from his examination of the material and appeared to him to be the most logical explanation for how the injuries occurred on the balance of probabilities. Certainly a more extensive post-mortem examination for instance including the chest could have offered further information from which to reconstruct the mechanism of the causation of the injuries.

340. The marks on the side of the shuttle car which Associate Professor Du Flou saw in the photographs, in his opinion would not be caused by just brushing against that area but rather a more significant contact with the machine.
341. Associate Professor Burgess-Limerick indicated that the shuttle car driver was obviously extremely stressed and the situation which he was in was error provocative. Looking at the situation as a whole it was clear that the shuttle car driver was placed under high stress, he was a relatively inexperienced driver and this was his first shift back from days off. He turned around to drive inbye and was probably panicking and Associate Professor Burgess-Limerick thought the probability that there was a steering directional error was high.
342. In relation to the movement of the shuttle car during this particular incident Mr Chaseling stated that if the steering hadn't been changed and it moved first outbye and then inbye it would have retraced the exact path because in general terms, provided that the wheels aren't spinning it will follow where the steering wheels point. If there was any movement to the left he would have expected that to be due to operator intervention with the steering.
343. Mr Chaseling stated that the problem in this situation lay with the extent to which the steering wheel may have been turned in the process of moving the vehicle and the extent of the pinning that Mr Blee underwent when the vehicle made its initial outbye movement. He stated the Mr Lucas could have used substantial steering rotation to perform the final lining up with the miner and that the wheels would have been turned into a sharp angle at that point before the continuous miner driver was trapped.
344. The sequence of events described by Associate Professor Du Flou represents a logical explanation of what may have happened on the evidence available and I consider it to be a reasonable possibility. The Associate Professor has certainly conducted the only detailed examination of the possibilities open on the physical evidence and on the whole has the expertise to opine on such matters. However, the evidence upon which the opinion relies is in some particulars uncertain

(the versions of the witnesses) or potentially deficient (the extent of the medical evidence) which does place some limitation on his analysis.

Management of Change in the Incident

345. Evidence was given and opinion sought as to whether the width of the heading was subject to change management processes. Mr Cremor stated that the SCARPs are in themselves a change management document that had been developed over a long period of time in the industry to deal with changing conditions when mining. He stated that when there was a physical change in the conditions the SCARPs set out steps that workers were required to follow on the basis of previous assessments which had been made in order to manage the change of those physical conditions and ensure that there was no loss of control in the workplace which could cause injury. I am satisfied that appropriate measures were taken in this regard to manage the change brought about by the geological anomaly causing the narrowing of this heading, including the Authority to Mine, tour briefing and other safety processes undertaken by the workers on the day (SLAMs etc).
346. Associate Professor Burgess-Limerick considered that the breaking of the track on the continuous miner had an impact in this matter as it was obviously a part of a chain of events which caused Mr Blee and Mr Smith to be standing in a different position to that in which they would have operated the miner from and if they were not in the changed position then the event may not have occurred. The presence of the shuttle car contributed to the risk of the incident as it created the hazard.
347. Mr Sykes considered that the change in the normal routine by the break down of continuous miner led to this situation arising in that the normal routine of production was interrupted. As a result Mr Blee had to try to recover from that and the circumstances that led up to the incident occurred partly as a result.

What Should have Happened?

348. At the time of the initial pinning from shoulder to shoulder Associate Professor Du Flou thought that it would have been possible at that stage for two people, one on either side, to try and push the hungry board out of the way and therefore release Mr Blee. If that was not possible, Associate Professor Du Flou was of the opinion that there was no urgent need to release Mr Blee at that stage because he hadn't suffered a lethal or even a significant injury. After the second inbye movement Mr Blee's prospects of survival were similar to those after he was trapped by the shoulders in Associate Professor Du Flou's opinion and he suspected that Mr Blee could have been released from the vehicle without significant injury at that point.
349. Associate Professor Burgess-Limerick agreed that the moving of the shuttle car at all after the pinning of Mr Blee was a poor response. The emergency stop in the shuttle car entirely shuts the machine down brings on the emergency braking system and shuts down all power to the

machine so that everything is de-energised. Mr Neilsen considered that it would have been a good course of action to depress the emergency stop and bring the car to a halt preventing any further movement of the initial pinning of Mr Blee.

350. Mr Chaseling stated there was no mechanical reason why the shuttle car after the first contact could not have been stopped at that point and the emergency stop pushed. The conclusions reached after test driving and examining the machine were that there were no faults which would prevent it from manoeuvring normally. There was a slight free-play in one steering joint but in general terms it was in good mechanical condition.
351. Mr Pate stated that at the time when Mr Blee was pinned against the rib what should have happened was that everything should have stopped. He stated that no further movement to the car should have been undertaken and that the control room should have been notified immediately and the workers present assist Mr Blee to manager his pain. He stated that the risk of additional injury or aggravating the injuries he had already sustained should have been considered by the crew.

INVESTIGATION DIFFICULTIES

The Inspectorate

352. Inspector Clough experienced problems generally with the volume of documentary material which was produced during the course of the investigation. It was necessary for the Inspectorate to request types of documents as they would have been unable to specifically identify each document needed by name. Certainly this difficulty carried over into the Inquest where both the Inspectorate and parties had a hard time easily identifying and obtaining documents from those produced. A recommendation of the inspectorate is that a computerised version of each mine's SHMS be provided to the Inspectorate for ease of access in the event of an investigation. In that circumstance, the volume of documents which might need to be obtained for the purpose of an investigation would be greatly reduced and there would be a significant time saving to the Inspectorate.
353. Chief Inspector Taylor indicated that there was difficulty during the Inspectorate investigation in ascertaining what tickets were held by which worker and where they were obtained. A recommendation has been proposed towards improving the system regarding documentation of competencies and assessments and increasing the portability of those assessments so that when a worker goes to a new site the employer is able to ascertain what competencies are held whether they require that person to be retrained in any or recognised prior learning in relation to any of the competencies or qualifications prior to them commencing employment.

354. This incident required a high level of forensic analysis and expertise which the Inspectorate does not have access to. I consider that the Inspectors did the best they could in good faith with the resources available to them. Some of the areas in which improvements could be made for future investigations and which would have assisted this investigation are:

- (a) Recording of interviews and proper retention of any documents referred to or generated during those interviews;
- (b) Interview all relevant witnesses (Mr Tupaea was a glaring omission in this matter) so that analysis takes into account all primary witness information available;
- (c) Film the scene of the incident (I appreciate that lighting could have caused problems in this instance);
- (d) Conduct a forensic examination of the machinery involved in the incident (as to the scrape marks on the shuttle car in this instance);
- (e) Keep accurate records of documents moved on site during the investigation and those seized or subject to a production notice and keep a proper index of those documents for the purposes of the Inquest;
- (f) Have access to expert and forensic resources in order to attempt to establish the mechanism of death when that is not clear;
- (g) Ensure that facts are objectively established before they are relied upon in an ICAM analysis (for instance, in relation to competing versions of events from a witness or between witnesses which cannot be established on the physical evidence) and establish the impact of the physical scene by reference to all information available (e.g. the width of the heading);
- (h) Ensure that all documents are obtained prior to any ICAM analysis is undertaken.

Whilst the ICAM analysis might have been indicative of potential causes of the incident at the time it was undertaken, the evidence has established that it was based in some instances on what eventuated as incorrect premises which negates much of the tool's usefulness to the Court.

Walter Mining

355. Walters were concerned that there were no management personnel included in the underground inspection party following the incident. Inspector McKinnon advised the Court that they gathered people with the

skills set needed (which included an electrician and fitter from Walters) for the purposes of the inspection and the reconstruction on the following day. Given the activities undertaken and Walters' interest in the matter, it would have been preferable that representatives of Walters' management be involved in the inspections.

356. Mr Cremor stated that since the incident, Walter Mining unfortunately did not have the opportunity to clearly understand what the contributing factors and major causes were for the incident. Mr Cremor stated that Walter Mining had set up their own ICAM investigation by engaging Safety Wise to provide them with an independent lead investigator. Mr Cremor stated that there were quite large amounts of information to which Walter Mining had no access as that information was held by other parties conducting their own investigations. Some of the workers also received advice not to speak to Walter Mining and at the end of the day he advised that Walter Mining was unable to complete the process of the ICAM investigation.
357. Documents that had been seized by the Inspectorate which were held by Moranbah North Coal were not provided to Walter Mining. Walter Mining offered to undertake a joint investigation with Moranbah North Coal and the Inspectorate rather than have individual investigations being conducted by a number of different parties. Formal requests were not made of the Inspectorate for access to the documents that they had in their possession by Walter Mining as in Mr Cremor's experience previous similar requests had always received a negative response. Walter Mining did retain copies of all of the training documentation and documents that were provided to the inspectorate pursuant to a notice to produce were all copied and those copies held by Walter Mining. However they were not able to copy the documents which were seized at the time of the inspectorate's initial investigation on the day of the incident and so were without any copies of those documents. Mr Cremor was not even aware of which documents the Department had seized on the day of the incident. As it became clear from the evidence of Inspector Casey, there were no documents actually seized on the day but the crib room documents were set aside for later production.
358. Mr Cremor stated that at no stage was Walter Mining given a list of documents which were seized by the Inspectorate from the mine site. In fact Mr Cremor stated that Walter Mining had to resort to freedom of information applications in order to attempt to gain access to the documents which were seized by the Inspectorate. These applications were unsuccessful on the basis that the investigation would be obstructed by the provision of the documents and it was too onerous to copy and produce the documents to Walter Mining. I am aware that the provision of the final report of Inspector Clough to the Coroner was in fact delayed by the FOI applications, delaying also the provision of that material to the parties.

359. Mr Cremor stated that it was very frustrating that Walter Mining was not able to determine and clearly understand what happened during the incident. He was especially concerned by this as he wanted to make sure that Walter Mining were actually do the right thing to prevent such an incident occurring again in the future. He stated that if the company clearly understood the nature and cause of the incident then they could ensure that the correct controls were put in place to prevent such an occurrence again. Mr Cremor would have liked to have seen Walter Mining join forces to investigate the incident with other parties. He stated that it was quite important that changes to address the accident should be implemented a lot sooner and more confidentially than they were presently able to do.

Moranbah North

360. Mr Hobson was also quite frustrated by the fact that he didn't have all of the facts following this incident and he felt that without the key information that may or may not have assisted him in determining a way forward he struggled with that situation given his responsibility to his own workforce and the rest of the industry to determine what the root cause of the incident was and to ensure that it was not going to happen again. This situation occurred partly because he wasn't able to speak to Mr Lucas and Mr Smith but also there were some documents which he wasn't able to access in the early days of the investigation. Further he stated that more clarity was needed in the notice to produce documents from the Inspectorate as a huge amount of documentation was produced with the best intentions to try and ensure that the company as providing what the Inspectorate was asking for but in the knowledge that some of those documents may not have been relevant.

361. Mr Hobson confirmed that he did not undertake an ICAM investigation from the company perspective due to the lack of available information at the time. He stated that an early sharing of information would certainly assist companies to honour their obligations in relation to analysis of incidents. He has seen tripartite investigations conducted well in the past outside of Queensland. He contrasted that situation with the current model operating in Queensland which involved three or four different parties all going in their own direction and potentially missing out on some part of the information with all parties producing their own reports. He stated that a tripartite investigation involving the company, the ISHR on behalf of the union and the Inspectorate would mean that all parties shared the same information and would be able to produce either a consolidated report or a report for their own purposes but at least based on the same information. He stated that a company representative could be involved in this tripartite investigation on a commercial in confidence basis and ISHR officer and inspector not from the immediate area to avoid any potential conflict of interest or harm to relationships between those parties. He felt that the greatest advantage of the tripartite investigation would mean that within say three months a report would be available to all of those with an interest in the matter. He envisaged the investigation as including co-joint interviews and re-enactments. He

confirmed that the advantages of a tripartite investigation by person at arms length from the company would effectively create an audit of the incident.

362. In relation to Mr Hobson's suggestion, the Chief Inspector was of the opinion that tripartite investigation are virtually being done now. I do not consider this to be correct. Clearly all parties embarked on separate investigations, none the least of which was the Inspectorate. All parties involved in the matter were concerned about the prevention of access to information from various parties during the course of investigation. Walter Mining had no access to investigation or any details of the incident apart from receiving the inspectorate report. I think there is merit in the parties having access to all of the relevant material at an early stage of the investigation to ensure that safety matters are able to be attended to in a timely fashion on the ground.
363. Of course such a situation is complicated if the Department do not make a timely decision regarding a prosecution arising from an incident. In this matter, the prosecution decision was taken at the 11th hour, delaying the Inquest by some months as it had been listed for hearing prior to that time. Further, I note the comments of the Ombudsman in his Report, *The Regulation of Mine Safety in Queensland, A Review of the Queensland Mines Inspectorate June 2008* in relation to the tension which flows from combination of the prosecutorial and safety functions within the Department. Those tensions would be highlighted by a multi-party approach to investigations.
364. In the event that a tripartite or multi-party investigation was to occur in such a matter as this, taking into account the practicalities of the current Departmental arrangements, there would need to be protections for parties participating in the investigation in order to ensure that the investigation was open and frank. Specifically, parties would need to be confident that the evidence gathered was not used to their prejudice, in particular for any prosecution or liability purposes.

Drug and Alcohol Testing

365. The mine's policy and procedure in relation to drug and alcohol testing is that routine drug and alcohol testing is undertaken with workers on a frequent basis. When there is an incident any one who actually directly involved in the incident as a contributor is automatically tested. This test usually follows the interview process with that person. This process applies to contractors as well as staff. Previously the testing was done by urine test with control room operators trained to take those tests. The testing was done on site with results obtained the same day. Recently at the suggestion of the ISHRs, the mine has moved to saliva testing which is a lot quicker.
366. Following this incident Mr Lucas the shuttle car driver was not drug or alcohol tested. The issue from the mine's end seemed to be that with all the activity happening at the time and the fact that Mr Lucas and Mr

Smith went back to Walters area for statements and interviews, the issue of drug and alcohol testing was overlooked. It seems that whilst it was clearly accepted by Mr Sykes that it was the mine's responsibility to conduct the testing, doing so was not a delineated responsibility for any particular position holder at the mine. This issue has since been included in the duty card system so that there is a double check to ensure that that process is actually undertaken in the event of an incident.

Autopsies in Industrial Accidents

367. In this matter, the restriction on the extent of the autopsy which was conducted meant that the medical evidence was not able to be easily used to assist in determining the mechanism of the fatal injury occurring. Expert evidence was needed to achieve some level of awareness in this regard. A more fulsome autopsy including photographs and X-rays would have assisted the Court in determining precisely how the injury occurred.
368. Associate Professor Du Flou advised that in New South Wales a protocol or procedure had been put in place shortly before the Inquest in October 2008 in respect to who would conduct certain types of autopsies. The protocol was based on a Royal College of Pathologists of Australasia developed a set of protocols, which were in turn based on a New Zealand and United Kingdom document. The protocols set out circumstances where various autopsies should be done and by whom and what the nature of those autopsies should be. In relation to industrial accidents the protocol disclosed that autopsies should be performed by forensic pathologists in Sydney or Newcastle. The standing of the protocol was an advisory document primarily. The protocol referred to Industrial accidents involving machinery or falls for example were matters requiring autopsies by forensic pathologists.
369. Associate Professor Du Flou indicated that he had discussed this issue with Associate Professor Charles Naylor who is Chief Forensic Pathologist of Queensland who indicated that there would be definite advantages to having such cases examined thoroughly in a forensic pathology institution. The reason for this is that a forensic pathologist has, in general, greater experience in the area of injury description, assessment and analysis than an anatomical pathologist who has usually a diagnostic workload as well. The facilities available is also a matter to which reference needs to be made, particularly in relation to x-ray facilities and CT scanners. Further, if an autopsy is conducted in a major centre where a number of forensic pathologists are located, this gives the advantage to the examining doctor to be able to discuss the case with other forensic pathologists on site.
370. Associate Professor Du Flou agreed that there are some very experienced forensic pathologists who are located in the regions of Queensland who would be very capable of undertaking very thorough autopsies in this type of case without the need of transporting the body

many hundreds of kilometres to Brisbane except in the situation where specific medical equipment might be needed to conduct a complete examination of the body.

Statutory Report – ERZ Controller

371. The statutory report of the ERZ controller is required to be completed under section 308 of the Regulations to the Act and is used for a number of purposes. One is to ensure that a safe working environment is maintained during the shift. Another is as a handover tool for the oncoming ERZ controller. Inspections include ventilation, height and width of roadway, ground support, compliance with cable standards and positioning of machines.

372. As previously stated, Mr Pickstone's inspection regime was interrupted by the tragedy at an early stage – during the first of the two hourly inspections. Mr Pickstone did keep notes of his readings and inspections generally in his notebook. Mr Pickstone did not return to the mine after the incident until the following week. He went back on two tours of 5 days each. Mr Pickstone was then transferred to Singleton and he requested the contents of his locker be sent to him but the notebook was not included. It cannot be located. Mr Pickstone did not complete the statutory report for 9/4/07. He gave evidence that it was effectively overlooked following the incident. He did not receive any follow up from Moranbah North or his own management in relation to the provision of the report.

373. The panel was closed immediately after the evacuation of personnel and was closed for some time. In order to reopen the panel it was necessary for an ERX controller to conduct a prestart inspection to ensure a safe working environment. In the usual course, Mr Pickstone was required to hand the report at the end of the shift to the Undermanager MNC and discuss any issues with him regarding the report. The report is usually compiled by commencing it at the end of the first four hourly inspections round and adding to it during the shift as the inspections were completed. It was required to be completed at the end of the shift.

374. Mr Lappin was an ERZ Controller employed by Walter Mining at the time of the incident and he was allocated to the outbye section of the panel. He was performing a belt inspection and recovering pogos in the return airway at the time of the incident. He had completed the statutory report for the nightshift two days before the accident. He confirmed that the statutory report is required to be completed at the end of each shift and tendered to management. As inspection rounds are completed, notes are made onto the report as per the requirements. He could not conceive of any reason not to complete the report barring illness mid shift which meant he was physically unable to complete the report.

375. Mr DeVoodg was of the opinion that as the inspection was not completed, there was no requirement for the report to be completed although he could not point out the authority for that view in the

legislation. Once the area was closed off and required inspection to re-open, he also felt that there was no need for the report. He also stated that due to Mr Pickstone's condition on the day he would not have expected him to complete the report. He confirmed that he did not follow up with Mr Pickstone regarding the provision of the report at any later time.

376. Mr Allan was of the opinion that the completeness all of the statutory inspection and reporting should have been tidied up and completed. The failure to have the statutory report completed had no practical effect in this incident but it should have been done in any event, he stated that the deputies reports are most important from the point of view that it provides continuity to on coming shifts on the circumstances of the area because the mining environment is a constantly changing environment.

377. In relation to the statutory report, Mr Sykes advised that there is usually a double check in the MNC system in that the shift co-ordinator is the person actually responsible in the inspection scheme for making sure that all of the areas of the mine are inspected and signed off on. On this day it was Mr Addis who was also the principle person involved in the rescue. Later in the afternoon when Mr Pate took the police underground, he identified that the area wasn't inspected so he inspected the area prior to anybody entering the panel. Moranbah North Coal were intending to actually interview all of the persons, including Mr Pickstone, to ask questions and identify if there were any issues that could have contributed to the incident. In relation to the provision of the statutory report on the inspections of the deputy, Mr Sykes stated that they were supposed to be completed after the inspection but that the statutory requirement in relation to the inspections was covered because another inspection was conducted prior to anybody entering the panel. It seems that the mine was either not able to have access to Mr Pickstone for the purpose of the interview which may have tidied up this issue.

378. It may have been prudent to include in the procedures to task the responsibility of ensuring this deputy statutory report was completed to a particular person in the process. From the mine's point of view, the purpose of the inspection is to ensure safety and ensure those entering the area are aware of what the conditions are. The Inspectorate would certainly have a view that an additional point in relation to the purpose of the report is to have those issues on the record. From a coronial point of view, a benefit of the report is to see whether the inspection has identified any particular circumstances or conditions that could have impacted on what actually happened and how it happened in the heading. Given that the primary information is no longer available due to the loss of Mr Pickstone's notebook, it is impossible to obtain that information by any other means to reconstruction what did happen on that morning in that regard.

379. In the end result, it seems that the absence of the statutory report had no immediate impact on this incident but for the situation that it highlighted

the need to ensure that statutory obligations are complied with. Further, it seems that DME did not positively establish that the report was not done, this was done during the Inquest. It has been submitted by MNC, and I consider there is merit in the submission, that an appropriate course might be for DME Inspectors to ensure that statutory officers are not released from site during an investigation until such obligations are complied with or a positive requirement is made and enforced for compliance at a later time if the situation warrants.

OTHER ISSUES

Permanent Ambulance / Paramedic Staff Onsite

380. Mr Lucas expressed the opinion that having “proper” ambulance staff onsite would enable a quick medical response to an emergency. He felt that it was an important safety aspect of his previous employment in a meatworks. Mr Smith was of the opinion that a trained paramedics team on site would assist, especially in relation to being familiar with underground conditions in the event of an incident.
381. In relation to the issue of whether Queensland Ambulance Service paramedics or private paramedics could be stationed on the mine site as opposed to in the closest town, Mr Pate stated that when he worked at Gordonstone Mine which was located 60 kilometres from the nearest town, there were paramedics on site there who were ex-ambulance officers. He stated that because Moranbah North was much closer to town, that such a course was not considered necessary. He stated that in the past there had been ex-ambulance people working at the mine but that generally an on site paramedic was not required given the short response time for ambulance personnel from Moranbah to the mines.
382. Mr Hobson had experience regarding the employment of paramedics in the control room position. He stated that in his experience there was a high turnover of those staff due to the lack of retention of skills they encountered in the position. Mr Hobson has, with respect to the medical issues, focused on increasing the level of in-house training for workers which now includes a Certificate III in Advanced Care which includes issues like crush syndrome.
383. In relation to access for informed medical assistance during the course of an emergency Mr Sykes stated that he was not overly familiar with the use of paramedics or other senior medical personnel on site. His favoured approach would be to have local easily contactable people who can provide medical support across a number of mines. Further, to have people other than Mines Rescue trained in a response to certain types of situations and not just trained in the application of the sort of medical advice and treatment but trained for the situation as well as the medical condition. This would involve some of the local medical people in emergency mock exercises, site visits and familiarisation. Mr Sykes commented that Moranbah North Coal had 23 Level 3 emergency trained people over and above the 26 mines rescue people on site. He

stated that the ambulance was within 15 minutes of the mine and that familiarity with the situation in which the incident has occurred is a critical issue to enable medical personnel to make a realistic assessment over the phone about what should happen in order to advise emergency rescue personnel. In the past some site visits for some of the ambulance people in town and perhaps local doctors has been possible but has not been conducted in any sort of structured or consistent fashion. The same situation applies for police. Mr Sykes indicated that he did not have a difficulty in including police and medical personnel in exercises conducted at the mine and to provide familiarisation to those persons.

Notification of Next of Kin

Walter Mining

384. On the day of the incident Mr Cremor was at home, April the 9th that year being Easter Monday. Around 10:30am, Mr Cremor received a call from Andrew Itzstein from Walter Mining advising that someone had been hit and they were potentially pinned by a shuttle car. He told Mr Cremor that they thought that it was Jason who was the person involved but Mr Itzstein wasn't very clear on that point. Mr Cremor questioned Jason who and Mr Itzstein advised that he didn't know. Mr Cremor advised Mr Itzstein that he would head off to the mine. Shortly after Mr Cremor left Mackay to travel to Moranbah North he received another call from Mr Itzstein. Within the hour Mr Itzstein confirmed with Mr Cremor that it was Jason Blee who was involved in the incident and that he had passed away. Mr Cremor turned around and went back home and made number of phone calls to various people about the incident.
385. At about 11 o'clock he received a call from Leon Dupree who was the contract holder at Moranbah North. Mr Dupree was requesting Jason's home address and the name of his wife and family. Mr Cremor had to source that information from the office of Walter Mining in New South Wales but once that information was obtained he gave it to Mr Dupree immediately. Mr Dupree advised him that the police had arrived at the mine site. Mr Cremor asked Mr Dupree about whether any notification had been made to Jason's family and when it was going to happen because he wanted to be present. He was told that the police were going to finish their initial investigation first and then they were going to confirm everything and let the wife of the deceased know.
386. At about 2pm Mr Itzstein, who had by that time had arrived at the mine site, made contact with the police and advised Mr Cremor that a police crew was on their way to Mrs Blee's house. Mr Cremor went straight to the address which was not far from where he lived and arrived as the police were arriving. He introduced himself and went inside with the police and spoke to Rachel who was in her home with her four children. Mr Cremor was at the home for a number of hours and had mobilised counselling and support services for Mrs Blee. He received a number of phone calls from Moranbah North requesting that a senior person from

Walter Mining attend the site. He left to travel to Moranbah North at about half past six that evening.

387. It was put to Mr Cremor that the company didn't seem to have given consideration to notifying Mr Blee's family in the first instance that there had been an incident and that he was being rescued. He stated that he had never contemplated that course of events before and that in the event of fatalities the company relied on notification to the next of kin by the Police. Mrs Blee felt Walter Mining should have advised her of a serious accident, they could have done so in person from their Mackay offices early in the day.

Moranbah North

388. Mr Hendry indicated in his statement that Moranbah North were currently working on the issue of notification to families about incidents. At the time of the Inquest there was no prescriptive document that addressed notification to families of incidents which may have caused injuries to workers. The primary management of incidents occurs through the duty card system. Duty card number 4 is the SSE's card which places the responsibility on the SSE through the HR section to deal with the incident on the day. Steps are detailed which must be followed to establish for example who the next of kin is.
389. Mr Hendry stated that the principle that had always been applied at Moranbah North was where possible the next of kin was "brought into play" as far as the incident was concerned. As soon as possible families are advised that their family member was involved in an incident and are assisted, for instance where an injury occurs, with information about their family members recovery and treatment. Mr Hendry stated that in the circumstances of a high potential incident where an injury but not fatality is involved that the company endeavours to notify next of kin as quickly as possible that there has been an incident. This is particularly crucial given the speed of modern communication devices.
390. Mr Hendry confirmed that there had not been any contemplation at the time of the incident of notifying Mrs Blee that her husband had been trapped and was being rescued. He stated that one reason for this may have been that at the time everyone was focused on dealing with the situation as it was unfolding.
391. The records management system did not contain a comprehensive ledger of the contractor's employees as far as the next of kin and notification details were concerned. Mr Hendry stated that the task of maintaining the currency of information in relation to their own employees as far as changes to relationships, addresses etc was a huge task. There would need to be reliance on an appropriate person at the contractor company to obtain the information relating to the next of kin.
392. In relation to the notification of next of kin at the time of the incident the notification was to be handled through the company via the SSE under

duty card number four. In the issue of notification of next of kin of an incident it does not seem to have been any clear identification of a procedure in that regard in the duty card system. Mr Sykes however commented that if it is able to be done and if anything was to happen to him he would like it done for his family.

393. In relation to the identification of who is involved in an incident at an early stage Mr Sykes confirmed that the control room seemed to be aware of the person's identify within about 20 minutes of the incident occurring. He also stated that the documented process at that time was to restrain from providing names so that word didn't spread around the mine in an inappropriate fashion. Mr Sykes believed that identification cards might assist with early identification of persons involved in incident to enable the mine to use that information quickly. He believed that more robust form of identification was necessary other then the registration numbers of the equipment that the miners use, as sometimes they are removed in the crib room and potentially mixed up with that of other people.
394. The mine is moving to the use of the MEMS system which is a useful management system as it splits up the categories of task into certain areas, allowing people to focus on the area of their particular task and provides for tasks not being subject to blending as is the case in a lot of emergencies.
395. In relation to the notification to the next of kin Mr Hobson's previous experience is that the police handle that issue. However he felt that the company also has a moral obligation to notify the next of kin with the details of the incident as soon as practicable. Anglo is currently working on developing various scenarios in order to assist the mine to implement early notification to the next of kin. In this respect they have accessed information from the armed forces which have similar issues.
396. Mr Hobson also indicated that whilst the mine was good at keeping communication open with the workforce on site and on shift it was very difficult from a management prospective to get lines of communications with families open quickly. He indicated that during planning for the emergency response plan there was consideration being given to a dedicated telephone number that anyone could phone in on and get a pre-recorded message with updates and a separate system for the workers at the mine to receive a text message by way of an all points bulletin. The mine is also looking at placing information on its website in an up-to-date fashion to increase communication. It would be preferable that the mine had open communication in both directions with families of workers (as occurs in other mines) to ensure that up-to-date information is maintained and family members receive the priority they deserve in the event of an incident. In relation to next of kin notification details Mrs Blee felt that it was a top priority for the mines to ensure that they had information such as, to whom to make phone calls to who to notify and in what time frame. She stated that there was also a need to make sure that the worker updated their information regularly as she did with Jason.

She thought it was a good idea for the mine to provide families with contact details for the mine in relation to making enquiries about urgent situations.

Mrs Blee

397. The accident happened about 10.15am with everyone knowing that it was Jason involved by 10.30am. Mrs Blee still had a lot of grievances in relation to the fact that she wasn't notified by the police officer of her husband's death until 2.53pm when a simple phone call at 10.30am when the control room knew it Jason might have helped her. She noted that there were a lot of phone calls made to various people from the mine but that her name was not on that list. She stated that if she had been notified earlier of the incident before it became a fatality she could have travelled to the mine site to be with her husband.
398. When police officers came to her door they had no information to give her about what had actually happened and merely informed her that her husband had been killed underground. Shortly before the police officers arrived she had received a text message at 2.42pm from one of the boys at the mine asking was she ok. It wasn't until 3pm that she had 2 Walter Mining employees at her front door that had no further information to the police. She considered that the notification issue was poorly handled as she was home alone with four small children. She had to notify Jason's parents of his death and she had no one with her to support her. In relation to next of kin information held at the mine by the employer Mrs Blee thought that there should be a second person on the notification form stating who they are and what their relationship is, even if it is a friend or a neighbour. That person could then be present during the notification as a support person. She felt that a death notification should be done in person in a timely fashion, in pairs and in plain language and with compassion. Mrs Blee states that notification of the next of kin should be top priority to any employer as it was a very sensitive issue. She considered that the employer has a duty of care not just to be notifying the family but to be offering counselling and some sort of assistance financially perhaps by way of a financial advisor, helping with the running of the household and child care – especially through an Inquest and other formal proceedings. Mrs Blee stated she had to handle all of that herself.
399. Mrs Blee considers immediate counselling was needed. She did not see the counsellor until the following day when they arrived from Brisbane and wondered why a counsellor from Mackay was not available.
400. Mrs Blee did receive financial assistance from Anglo Coal and Walter Mining, but no financial advice assistance, which would have perhaps assisted her given that she and her husband had just signed the papers for purchasing an investment house and in the week after the accident she decided to cancel the loan as she didn't think that she'd be able to keep up the payments but in retrospect that may have not been the best financial decision for her to make unaided.

The Inspectorate

401. Chief Inspector Taylor recognised that it was the responsibility of the employer of a coal mine worker or contractor who suffers a serious injury or fatality to include within that company's emergency system immediate steps to inform the next-of-kin of the incident. It was thought those persons should be trained in grief counselling and where possible one should be a female. Records should be readily accessible detailing the employee's next-of-kin and a person that could assist the family in the event of a tragic occurrence. The Chief Inspector indicated that Roger Billingham, Chief Inspector of Mines had been in "constant touch" with the Queensland Police Service regarding the recommendations made in the Davis and Brown Inquests concerning the informing of the next-of-kin but it seems that that issue has not been resolved in those intervening years. The Court has not been informed of any developments in this area by the Chief Inspector since the Inquest (as was undertaken to occur) and presumably the issue has not progressed significantly.
402. Chief Inspector Taylor further stated that in his opinion, some next-of-kin are just so traumatised by the whole process and particularly the circumstances of notification especially if there is a lack of information relayed to them, that they can't even face the coronial process. This obviously robs them of being involved in a very important element of the investigation and does not afford them the opportunity of expressing concerns or having their questions answered at the Inquest. Chief Inspector Taylor, in a previous employment role had undertaken provision of a financial consultant to the family of a victim through the Human Resources system at the company that he was employed at to assist the widow through the period after the incident. The Coronial process currently does everything it presently can for families, including the provision for counselling, but the system as illustrated in this matter can be cumbersome.

Identification of Person Involved in Incident

403. The evidence before the Court was to the effect that the positive knowledge of the identity of the person involved in the incident on the day was not clear until Jason was brought to the surface of the Mine. Mr Glen O'Hara was in the control room and was responsible for running log of the events of the day. The first telephone call to him noted Jason Blee as the person involved and Jason's name was placed on the whiteboard on which the notes were being taken. Once it was known that there was a fatality, Jason's name was removed from the board as a sign of respect. It seems, then, that if the procedures had called for the notification of the incident to the next of kin, the identity of the worker involved was sufficiently known to put that notification process into action.
404. As this situation was not made clear until the latter part of the Inquest, evidence was heard on the basis that the identification was not clear early in the day. Methods of potential identification were explored. Mr Hendry stated that there was a fundamental identification and recovery

system which would be able to be used to identify a particular worker who was involved in an incident through the numbers on their cap lamp and self rescuer. The cap lamp and self rescuer have numbered identification and are cross referenced against a log that is kept in the control room in relation to permanent staff. In the situation of contract staff or visitors to the mine they are required to complete a book on a daily or visit basis which records their name against the identification number for the cap lamp and self rescuer. This information could be used to identify a person involved in an incident.

405. Mr Hendry advised that in relation to coal mine workers identification on the person during work was restricted to the self identification tag which is placed on the board in the tag room allocating that person to a particular area of the mine and in fact in the mine indications on the tag board identify people within that section. He did not consider that workers wear any other identification on their person whilst working but did comment that Mr Blee was working with his own crew and people who were well known to him. Mr Hendry further stated that the company are very aware of the necessity to have accurate information to provide to the families and to ensure that versions of events are not distorted. Communication from the control room to the area under ground was direct as it was conducted through the DAC which is an intercom system or by a telephone.
406. Identification of medical information outside of the norm for workers, including contractors, could be built in to the mine's systems. However, Mr Hendry doubted that the retrieval of that sort of information could be done quickly. Since the incident Mr Hendry has stated that Moranbah North Coal has been looking at all the parameters across notification and records management and access to contractor's information in a timely and accurate fashion, but it was not anticipated that maintenance of contractor information would occur at Moranbah North Coal.
407. In relation to identification of the person involved in an incident Mrs Blee suggested that perhaps the use of a personal card holding identification in the form of a swipe card that stays on the person with medical history attached and perhaps the next of kin and a photograph identification of that person should enable instantaneous identification of the person who is injured or involved in an incident. Mr Sykes has indicated that the mine has made a commitment to a swipe card system being implemented.
408. Mrs Blee has been working with the mine, Walters and the Inspectorate regarding these issues since the incident.

Thanks from Family

409. Mrs Blee expressed her gratitude to various people for their support and assistance during her ordeal. She was particularly grateful to Peter Smith and Graham Lucas for their actions and support after the incident which showed her that they respected Jason and that they respected

her. She acknowledged that it had been a very difficult time for them and she hoped that they could find peace after the incident. Mrs Blee also personally thanked the members of the CFMEU for everything that they had done to help her and the children since the accident and despite the fact that Jason was not at the time a member of the union.

410. Mrs Blee's involvement in the Inquest in both its preparation and its conduct has represented significant involvement that had helped to shape the enquiry and the matters that were looked at during it.

Changes since the incident

Walter Mining

411. Mr Lamb was the Safety and Training Co-ordinator for Walter Mining NSW and Qld operations at the time of the incident (10 sites). He was on-call in times of peak load, absenteeism or where there was a need in the safety and training area across those 10 sites. Once policies were introduced for a project, they were mapped against the SHMS at the site the project was located at.
412. Since Jason was killed, Walter Mining have reviewed and changed procedures and risk assessments. They have developed additional training on those procedures and done awareness sessions with the entire workforce. They have sent out safety alerts and bulletins and distributed information on the Inspectorate report recommendations in this matter. Mr Lamb developed a number of training videos and animations on no go zones, accident investigation and behavioural observations. He has also developed and conducted risk focus sessions with the workforce.
413. The week after the incident, Mr Pickstone returned to the mine for a meeting organised by Walter Mining for the workforce to review the incident and have a discussion as to how to move forward.
414. Behavioural observation training is prerequisite to every employee who joins Walter Mining and refresher courses.
415. Mr Cremor confirmed that following the incident in the mains panel the safety procedures were also reviewed in the bord and pillar project and had similar changes made to them as was the case under the other method of mining. He further stated that there was a continuous review after that time which lead up to the development of the sequence control manual for the place change mining.
416. In addition to going through and reviewing all of their operations and work processes across the site, they also reviewed the training processes, the methods used for training and communication, familiarisation and raising awareness with the workers of these issues. Walter Mining developed a number of training packages and computer simulations and provided training for people on behavioural

observations, no go zones, pinch points, isolation and tagging. Mr Cremor commented that his understanding was that Walter Mining was one of the first organisations in the industry which used computer simulations in this way. Walter Mining also continued their safety meetings and off site safety training with workers including invited speakers to share their experiences and facilitate awareness raising amongst the workforce.

Moranbah North

417. Since the incident a number of things have changed. I note in particular that many of the recommendations of Inspector Clough have already been addressed. Moranbah North did not commence mining operations in the same area but is using the same process of mining in different areas. They separated the operation into the tasks involved and actually developed similar diagrams for the no go zones through the risk assessment for all of the elements of mining they combined the requirement around mobile equipment with the requirements around continuous miners and production equipment and combined that information when applied to the process.
418. Large diagrams of all of the no go zones are situated in each crib room and are easy to read and displayed prominently for continual reinforcement with the workers. Pogo sticks are situated at 10 metre intervals to provide a visual cue to the safe area for pedestrians. The no go zone displays in the crib room include all steps in the sequence and shows the distances and positioning of machinery and people and gives some description of the obligations of individuals during each step of the cycle. During each step in the cycle restricted zones and no go zones are clearly delineated by different colours. If there was to be any change to the sequences that were delineated in those diagrams for instance introducing a continuous miner with a scrubber on the right hand side then all of those diagrams would need to be reassessed, redrafted subject to underground testing and then put in place. The workers would be retraining of the new procedures. The current display of no go zones does contain some brief written description about what is happening in the process and who is to move where at whose direction. The diagrams cover right hand cuts, left hand cuts, break aways and flitting. I consider this to be an effective and important advance in relation to this matter.
419. Further the procedure in relation to movement of pedestrians and shuttle cars had changed so that the pedestrian actually stay with the driver of the car. The car stops and pedestrians move to the area beside the cabin of the shuttle car in the safe zone along the rib and walk beside the shuttle car as it moves into its position. The shuttle car driver can actually see and speak to those persons. Further there was a complete review of the risk assessments and other risk assessment documents which were in existence at the time of the incident.
420. Since Jason's death Moranbah North Coal has also done several things to try and make its safety system a stronger system. In doing so they

have put in place controls which they hope are better in order to avoid a similar incident in the future. The interaction between machinery and people is always an issue according to Mr Hendry. The Moranbah North action from the investigation that it conducted into the action was to address the way that the place change operation at Moranbah North was being undertaken and to introduce new control systems.

421. Since the incident there has been ongoing and repeated sessions and training around communication for all the coal mine workers on site. This included issues such as directing the repositioning of the shuttle car. The current situation is that it's a three way discussion between the miner operator, the shuttle car driver and the cable hand so that all of those persons are informed about what is going to happen and all aspects of the decision are communicated to all of those people.
422. Mr Hendry stated that Moranbah North were working with a team of people since the incident on designing an audit system relating to the training system relevant to machinery and a review of the trainer assessors in that area. The purpose of the audit would be to match the fact that a person that achieves a qualification with their ability to demonstrate that they could actually do what they had been qualified to do, that is, to truly test competence against qualifications. It is envisaged that such an audit system would complement the reviews already built into the system in relation to qualifications. Mr Hendry further stated that Moranbah North were also working on an improved registration system which would ensure that competencies were date logged and flagged to ensure that particular competencies for workers did not expire.
423. Since the incident Mr Pate indicated that there had been changes to the inventory on the emergency response trailer situated at the go line. He stated that there was now a second set of airbags with a better control lever on them and that additional airbags had been purchased with a regulator to allow them to be run off a caber cylinder. Moranbah North Coal has also developed a procedure in relation to the operation of an air bag extraction system. Mr Hendry confirmed that a procedure for the use of airbags was developed after Jason's death (Ex 84) and a SWP (safe work procedure) was to be developed into a SOP (standard operating procedure) in due course.
424. Mr Pate stated that Anglo had put a committee together looking at issues such as vehicle collision, pedestrian interaction and were in the process of mocking up a system to run as a pilot on site to demonstrate its capabilities. Mr Pate stated that he would like to see documents such as those that apply to the EIMCO TS490 vehicle for which a risk assessment had been done to give an understanding of the visual limitations of that machinery to be applied to every piece of underground machinery to assist in formulating no go zones and work processes around the machines.

425. Anglo has already committed to the swipe card system which will include information that has already been discussed during the course of the Inquest to assist in identification issues.
426. Mr Hobson advised that in order to increase the level of retention of knowledge of workers in a training situation Moranbah North has introduced an audiovisual, more interactive style of training. In relation to the Anglo Coal Golden Rules yellow signs highlighting those are situated on the approach road entering the underground area of the mines. Those golden rules include issues such as not going under unsupported roof, not working on equipment unless it's been isolated.
427. Moranbah North had conducted, through an independent person, an audit of the incident which recognised a series of problems with documentation and the recording of documentation relative to the safety and health management system at the mine. Moranbah North Coal had started addressing the issues raised in the audit early March 2007, prior to the receipt of a final report from the auditor.

Potential Changes to Improve Safety

Lighting

428. Mr Hobson indicated that he would have liked to have seen more area lighting in relation to the shuttle car involved in this matter. Whilst Associate Professor Burgess Limerick did not consider visibility contributed to this incident he did state that if there had been area lighting then the position of the wheels of the shuttle car as it was being loaded may have been more apparent to the continued minor operator and cable hand, enabling them to view the orientation of the shuttle car wheels more easily and be alert to the inappropriateness of its position. Associate Professor Burgess Limerick did agree that this style of lighting is available and can be supplied by joy. It was suggested to him that the current take up by customers was in the order of 50% but the associate Professor was unable to comment on that proposition. Difficulties in relation to increased lighting on the vehicles included lights being broken by coming into contact with other items and some difficulty in terms of maintenance of the lights.
429. In relation to lighting Mr Neilsen stated that the current generation of shuttle cars have automatic front to rear lighting so that you have bright white light to the front and red LEDS to the rear depending on the direction of travel. Mr Neilsen stated that side lighting was available upon customer request and that so far 40 to 50 cars that had been put into market over the last couple of years (Which is probably about a half) contain more lighting than standard stock Mr Neilsen stated that there are some concerns that if you have too much lighting around the car it can actually affect the sight of the people situated around the car.

Shuttle Car Design

a. Proximity Detection

430. Associate Professor Burgess-Limerick felt that the best design control would be a proximity detection system which was interlocked with the braking system of the mobile plant, in this case a shuttle car. He indicated that such systems are in place in surface mines and would be commercially available for underground coal mines from 2009.
431. Associate Professor Burgess-Limerick did not prefer the option of proximity detection on vehicles such as shuttle cars in preference to the removal of people from the area as the proximity detection reliability and accuracy would be questionable. Further proximity detection could not be seen to be meant to replace an operator keeping a proper lookout. Associate Professor Burgess Limerick agreed that in relation to proximity devices there were none being used in coal mines on a day to day basis at the present time and that they were in fact a future potential development.
432. Mr Chaseling expressed a reservation about whether in this case the sensors would have picked Mr Blee up early enough to shut the vehicle down before it contacted him.
433. In relation to proximity detection systems Joy has a number of projects underway for the last three years, two of which they feel may be appropriate to the industry. Those projects run in South Africa and the United States and provide some opportunities for improvement in the place change system. There are many challenges being encountered in these trials which are continuing. The proximity detection devices operate by shutting down the vehicle rather than retarding speed and use visual and audible indications when in a particular zone and then the vehicle is shut down when it gets to what could be a hazard area. The vehicle shuts down and stops in the space of about three metres.

b. Ergopod

434. Associate Professor Burgess-Limerick indicated that an ergopod shuttle car was in development which consisted of a cab with a seat, has a steering wheel in front and the whole seat and steering wheel rotates, maintaining the compatibility between the steering and the direction of travel at all times. Some issues which have arisen in the testing of the ergopod has included the necessity of operators to relearn their skills in relation to the change to the steering compatibility and configuration of the seat and steering wheel and taking into account roll-out time for the changes to be implemented across a site. Associate Professor Burgess Limerick did not consider the ergo pod to be the only solution to the issue nor necessarily the best solution but that it was a possible one. He was aware that the ergo pod had now been pulled out of Oaky Creek Mine and that the facility had rejected the design but Associate Professor Burgess Limerick was of the understanding that those reason were un

related to the current design. He could not say how many ergo pods were currently in use.

435. Mr Nielsen stated that the concept has some good ideas and it was something that Joy had looked at in the past. In the United States and South African markets there are vehicles with the seat arrangement that is joystick controlled and a demonstration cab with that arrangement is in the experimental area which is being looked at present.

c. Seating Arrangements

436. Improvements which could be made to the seating arrangements in the shuttle car to improve the exposure to the general hazard of whole of body vibration and jolts and jars to the operator would be to improve the roadway standards (which is undertaken as a matter of course in most mines) and to pay attention to the suspension in the shuttle cars which Joy Mining is currently investigating. Certainly Associate Professor Burgess-Limerick agreed that the provision of a seating system which didn't need to be adjusted by an individual but was self-adjusting would be of assistance to operators, particularly in relation to the adjustment process currently being reliant on individual behaviours. Associate Professor Burgess-Limerick's personal preference would be for a seat with a joystick which removed the whole problem of the steering wheel and could address many other issues if the mounted joystick and the seat rotated.

d. Steering

437. A further possibility would be the change of design controls to the current shuttle car. Associate Professor Burgess-Limerick indicated that he didn't see any reason why shuttle cars needed to operate in a dissimilar fashion to all other vehicles. He stated that the shuttle cars in the United States have reverted to a more conventional system of steering and compatibility for some considerable time.
438. Associate Professor Burgess Limerick agreed with the suggestion to him that Joy Mining had attempted to introduce a stick steer system into Australia within the last two or three years and approximately four cars were ultimately put out with that steering system. Associate Professor Burgess Limerick indicated that the stick steer would not necessarily fix the control response compatibility problem and he would like to see simulation trials as to whether such a system works in a single seat that rotates 180 degrees with the joy stick control. He stated that the stick steer shuttle car he had seen used a horizontal lever protruding from the extreme inbye of the shuttle car cab which was at a horizontal level which when pushed or pulled changed the orientation of the steering wheels and effectively functioned as a tiller. Such an operation still involved incompatibility in the steering which was the reason Associate Professor Burgess Limerick did not prefer that option. He also stated that

preliminary data gathered suggested people still made more errors in the inbye direction using that process.

439. Mr Neilsen regularly talks to shuttle car drivers and has not had any feedback from them in relation to the issue of the steering despite other issues that they want to see some improvement on. The stick steer arrangement (Tiller steering) from the United States was attempted to be introduced by Joy into Australia and the response was not overly positive.

e. Steering Valve

440. Mr Chaseling advised that one manner of addressing the steering incompatibility in shuttle cars would be to insert a valve into the steering which would allow it to operate as it does now in the intuitive direction but could set up a sensor on the seat that would activate the valve when the operator moved into the other seat and would switch the steering polarity (to intuitive from that direction). Mr Chaseling stated that this was not unduly difficult as it would be a fairly standard job and could be retrofitted into existing machines. He stated that the actual fitting of the valve would only occupy a day but there would have to be extensive testing immediately afterwards for some days to ensure that the valve worked correctly and that the exercise may take perhaps a week. He expected the design of fitting the valve would be about \$5,000.00 a machine without about \$20,000.00 to \$30,000.00 of development costs for the first machine. The cost of the shuttle car is in the order of one million dollars.
441. Mr Chaseling stated that in the short term there would be drivers who would have a problem with the use of the shuttle car involving the change to the steering by way of the valve but that since it brought them back to the same kind of steering they were used to in their family car over a reasonable period of time any difficulties associated with the change would dissipate. The roll-out of the vehicles in relation to the drivers who had become familiar with the new system would have to be taken into account until the whole fleet was retrofitted. The valve has been tested under operating conditions in relation to a forklift and it is considered by Mr Chaseling to be a relatively simple modification.
442. Mr Chaseling stated that the re-design of the hydraulic circuit occasion by the valve was not a major operation and that in fact the more complex part was the changes to the electrical circuitry. He agreed that a reliability assessment would have to be undertaken and various formal assessments and testing and approval by the appropriate regulatory authority of the prototype prior to any roll out.
443. Mr Neilsen had reservations about that approach which he would see as a major change requiring some significant assessment and testing. He considered that the time frame for that to be looked at would be realistically by six to twelve months if the appropriate approvals were granted.

f. Visibility – Video

444. There has been attention paid to the layout of the cab to ensure that better visibility is possible and Joy has been working on videos and camera systems to assist with visibility. They have had some success but there are a number of maintenance issues which need to be resolved before such a system would be readily available. One of the issues is the extent of information that a man can take in when he's operating a shuttle car in relation to visual input, especially considering the situation of multiple screens in a relatively fast moving vehicle is a small area underground.
445. Video cameras might be affected by the extent of the coal dust in the environment in which the shuttle cars operate in and there would be difficulties with keeping both the cameras and any screens in the cab clean and possible difficulties with the reliability of components. There was also the risk that the video information might be over-relied on by the operators when the optimal solution was a clear line of sight for the operator themselves. Video cameras and their use on shuttle cars is still in development in Australia. In relation to the use of video cameras Associate Professor Burgess Limerick considered that video cameras may not be at a point where they can be supplied readily to the market by Joy due to the reliability issues.

g. East/West cab

446. In relation to the design of cabs, Joy has been conducting developmental work on two cab designs. The first is a north/south facing cab which is a two seat cab secondly and east/west cab design with a single swivel seat which was thought to improve visibility. Joy has experimented with different seats and diagnostic displays in the development of these cabs. They are looking at many different alternatives of the cab design including a completely different way which the vehicle is controlled. There are approximately 20 to 30 vehicles in the market operation at present in the east/west design. The feedback has been mixed from operators.
447. In relation to the foot pedal situation in Australian shuttle cars Mr Neilsen was not aware as to why the pedal arrangement in the United States was different to what we have here. He did comment that in the east/west cab design the pedal arrangement is a bit more like a standard car.

Removal of Personnel from Mining Area

448. Mr Hendry stated that the removal of the interaction of personnel and machinery, or the ability to put in place a hard barrier between them seems very, very important in order to prevent a reoccurrence of this incident. He stated that in the metalliferous industry technical changes had removed personnel from the harm environment at the mining face.

449. The hazard which has been highlighted by this case will remain as long as there are pedestrians standing in the vicinity of shuttle cars and so the most effective control according to the Associate Professor would be to remove those pedestrians from the area. One of the examples of removal from the immediate area is the use of the remote control for the continuous miner which allows the operator to be located at some distance from the cutting head. There are some possibilities in relation to the use of the non-line of sight remote control but the disadvantage is that such a system has an extreme impact on productivity and so may not be viable in an economic sense but advances were continuing which may make this approach more feasible in the future.
450. Mr Neilsen, when asked about designing pedestrians out of the system, stated that the issue was aspirational at best and that autonomous mining was realistically five to eight years into the future with some significant technological hurdles to overcome.

h. Monorail

451. Another issue which may be possible to address is the removal of the cable hand from the immediate area which can be feasible using a development monorail which is a system that does currently exist in Australia. The cables and other services for the continuous miner are suspended from a monorail which runs along the roof of the heading and consequently removes the men from the line of fire. Further, mobile conveyors, available at a high capital cost, are able to remove virtually all personnel from the area of the mining however fatalities in both involving mobile conveyors have occurred in the United States but the Associate Professor assumed that the risks involved with mobile conveyors was still less than those involved with the use of shuttle cars.
452. Associate Professor Burgess-Limerick favoured the more extensive use of the monorail system as he considered it to be an excellent innovation but his preference would be for a non line of sight remote control of the continuous minor coupled with automatic bolting, automatic measure placement, as well as the development monorail so that there were no pedestrians in the vicinity of the shuttle car at all consequently eliminating the hazard. He agreed that was not a system which was currently available and that that the monorail system wasn't viable for use in the condition or in the type of mining that was occurring in relation to this particular incident but he stated that that was not to say that the monorail could not be adapted to be able to be used under that situation.

i. Refuge Bays

453. Refuge bays may be able to be implemented (depending on the stability of the rib area from time to time). The bays are niches (or cut outs) cut into the ribs to allow workers to step into niche and out of way of machinery (as used in metalliferous mining).

Personal Safety Equipment Modification

454. In relation to the self-rescuer battery and continuous miner remote control being worn by Mr Blee, Associate Professor Burgess-Limerick indicated that the general problem with carrying around so much weight was that it was a health concern. Further, the equipment increased the effective width of the person when working in a relatively small space. The Associate Professor was of the view that the self-rescuer and battery can both be smaller which may have an impact on time of use but those factors could be taken into account from a safety basis.

Training Improvements – Simulation

455. The Associate Professor felt that it was possible to objectively assess competency to drive shuttle cars through the use of virtual reality simulation so that the trainee would be driving through a fixed scenario and their performance would be measured objectively and compared to criteria competence. He stated that simulators exist for mining equipment in general but he's not aware of any shuttle car simulator that would be able to simulate these vehicles currently in Australia. He further stated that simulation holds an opportunity to provide drivers with exposure to a broader array of situations than they might normally encounter during their training and had the potential to improve the quality of the training and that may improve safety.

456. Joy has also been doing work in relation to simulators. Mr Neilsen advised of an organisation called Fifth Dimension Technology from South Africa who are developing very advanced simulation tools. Joy were not yet convinced that simulators would be a strong training aid.

Emergency Services Familiarisation

457. In relation to familiarisation exercises with local emergency personnel and police Mr Hobson indicated that he had previously undertaken such exercises and had extended the exercises to doctors as they were often called upon in relation to workplace rehabilitation issues and he found that their having a greater knowledge of the workplace and environment assisted them in treating workers in a rehabilitative sense. Both he and Mr Sykes indicated that the Mine would be able to facilitate such training. Mr Pate had also indicated that the Mines Rescue facilities could be used for this purpose. This would be an issue across the industry.

Improvements to DME Investigative Process

**** DME Access to SHMS***

458. A recommendation has been suggested which would require an electronic version of the safety and health management system of each mine to be lodged with the department, Chief Inspector Taylor indicated that the way in which he considered this system would work would be for the mines to provide the systems on CD and that those discs would be stored within the various offices relating to the mine, so that should there be an incident, the inspector would have a quick and easy access to the

safety and health management system of the mine. He stated that the principle document to be provided was the safety and health management plan and the statutory standard operating procedures and any major work procedures that flowed from the plan. He did not expect for all minor working plans to be provided as part of that documentation provision. Again the Chief Inspector considered that a recommendation from the Advisory Council to the Minister for a standard to be established or legislative change to be introduced in relation to the implementation of that system. He agreed that it would be quite a significant step for the industry.

Improvement of DME Access to Forensic Tools

459. The department was keen to develop a relationship with the Queensland Police Service which would include the ability for them to access the QPS Forensic Science Unit should their investigation require that.

Assessment of Innovation Requirements

460. Mr Neilsen stated that in relation to any technical innovations there is a long lead time in terms of the assessment process and in the Australian market a company needs to deal with regulators in Queensland and New South Wales and sometimes different outcomes are reached as a result of the assessments of each of those regulatory bodies. This can represent an obstacle to future innovations being implemented and may require a cross-jurisdictional discussion.

Best Practice Analysis

461. The Chief Inspector stated that the United States has long been recognised as the experts in close change mining. The Chief Inspector considered that there was a need to have a look at the total system of place change operations in Australia and to ensure that Australian mines are currently undertaking that process of mining to the best possible standard and using best practice on a world basis. He considered that one way of doing this would be the establishing of a standard under the legislation which would indicate to mines the minimum requirements for conducting that system of mining in Queensland.

Industry Forums

462. Associate Professor Burgess-Limerick indicated that there are forums in the industry where manufacturers and suppliers can collaborate in relation to the improving of designs of mining equipment. The Associate Professor is currently involved in the Earthmoving Equipment Safety Round Table which has the involvement of eight multi-national companies. The round table is facilitated by the Minerals Industry Safety and Health Centre at the University of Queensland. The aim of the group is to highlight areas of concern in relation to equipment design in a united way and to create design philosophies. The round table members collaborate with manufacturers with the aim to encourage them to come up with solutions to the issues that have been highlighted. Items of equipment which are thought to have particular concerns attached to

them, including shuttle cars, have been raised with manufacturers to date. The human factors in the ergonomics of equipment have been increasingly a focus for the Minerals Industry Safety and Health Centre and a thesis of study done in July 2003 called "Analysis of long haul development systems in Australia underground hard coal mines" has been undertaken. The valuable work being undertaken in a collaborative fashion by such organisations should be encouraged and supported.

FORMAL FINDINGS

I am required to find, so far as has been proved on the evidence, who the deceased person was and when, where and how he came by his death. After consideration of all of the evidence and exhibited material, I make the following findings:

Identity of the deceased person– The deceased person was Jason George Elliott Blee born on the 20th day of September 1973.

Place of death – Mr Blee died at the Moranbah North Mine, an underground coal mine, situated 16 kilometres north of the town of Moranbah in Central Queensland.

Date of death –Mr Blee died at 11.53am on the 9th April 2007.

Cause of death – Mr Blee died from a pelvic crush injury sustained while he was working. This is not a case of workers participating in aberrant behaviour but rather of an adverse incident occurring in a situation where coal mine workers have followed existing procedures and requirements.

There is significant controversy about what actually happened in this incident. It is difficult to determine from the direct and reliable evidence, with any certainty, what movements of the shuttle car took place and when during those movements the fatal injury to Jason Blee occurred.

What is clear is that Mr Blee was injured as he was trapped between the shuttle car and the rib after initially being pinned by the shoulders as the shuttle car moved to leave the heading as directed. It is not clear what movements of the shuttle car were made in what sequence and which of the movements inflicted the fatal injuries. The precise sequence of events remains unknown.

The expert forensic pathology analysis of the injuries represents a possible and logical explanation of and hypothesis as to the movements made by the shuttle car.

Shuttle cars are large, heavy machines which are designed to be manoeuvrable at speed and providing for heavy loads. They are not designed for fine directional control at low speed such that would have been required to free Mr Blee from the initial pinning. There is no evidence that the design of the shuttle car itself was causative of the death.

After the injuries were inflicted Jason Blee was slumped between the rear side of the shuttle car and the rib and was able to be removed by rescuers.

At the time of the incident, Mr Blee was not in a No Go Zone, but a Restricted Zone over which he had authority. He was acting in accordance with usual mining procedure when he left his work area to verbally communicate with the shuttle car driver as required by the Safety Alert. He gave an appropriate command to the shuttle car driver to move out of the heading in preparation for repairs to be made to the continuous miner.

The width of the heading was not extraordinary in this context and the floor conditions do not appear to have contributed to the incident. The mine management system was comprehensive and, on the whole, safety procedures were in place in relation to such a potential incident.

The efforts of the workers and QAS staff who attended on Mr Blee are to be commended. The response of workers and the mine management to the incident was timely and experienced rescue personnel attended the scene quickly. Management of Mr Blee's condition was medically appropriate and caring.

Tragically, given the serious and unsurvivable nature of the injuries inflicted, there was no potential for any other outcome.

Recommendations

I thank the parties for the joint and individual submissions made regarding recommendations which were of significant assistance. I have adopted some of the recommendations proposed in those submissions.

I make the following comments by way of recommendations pursuant to section 46 of the Coroners' Act to prevent a similar occurrence in the future and in the interests of public safety. I acknowledge the significant work of the parties in making changes to improve safety since the incident. To the extent that the parties have already taken remedial action, the court expects that those actions are bona fide and implemented long term.

IT IS RECOMMENDED:

Recommendation 1

That the Department resolve the outstanding issue of notification to next-of-kin with Queensland Police Service as a matter of priority. Reference should be had in those negotiations to the principles set out herein and a protocol developed and communicated to coal mine operators as to the circumstances in which QPS will conduct the notifications, for example in the case of a fatality. Where QPS are required to make the notification, I strongly recommend that the task should be given priority over all matters other than those involving a life threatening emergency or a crime in progress. The QPS should have reference in these circumstances to alternative resources being employed to ensure that the notification is treated with priority.

I further recommend that coal mine operators adopt the following guiding principles in relation to the important task of notifying next-of-kin of coal mine workers in the event of a serious injury or fatality:

- (i) each mine's safety and health management system should include a protocol for the notification of next-of-kin in the event of a serious injury to or fatality of a coal mine worker;
- (ii) the protocol should assign specific responsibility to a person to ensure that the notification is made as a matter of priority and in accordance with the protocol;
- (iii) The protocol should require each employer at the mine to maintain a register, to be updated annually, of next-of-kin details and the name and contact details for a support person who may assist the next-of-kin. Where the employer is a contractor, the contractor should be required to immediately provide relevant details to the mine operator as and when required. If an injured worker is capable of instructing how notification should occur then the worker's instructions should be complied with when it is practical to do so;
- (iv) If a worker is unable to provide instructions or is deceased, the next-of-kin should be advised as soon as possible after the incident occurred and the worker has been positively identified by at least two people well known to the worker, preferably one of whom would be the worker's immediate supervisor;
- (v) Notifications should be carried out by or on behalf of the employer in person by at least two appropriately trained people, and wherever possible one person should be female. To the extent possible, details of what has occurred should be able to be provided at the time of the notification;
- (vi) In the event of QPS conducting the notification in the first instance, additional support services should be provided by the employer as quickly as possible and in accordance with the needs of the next-of-kin;
- (vii) Consideration should be given to how the notification will be made in circumstances where the next-of-kin resides a great distance from the employer, including interstate and overseas.

Recommendation 2

That the Minister for Mines give serious consideration to amendment of the Coal Mining Safety and Health Act to provide for tripartite investigations involving the employer/coal mine operator, Department and ISHR, into serious accidents involving grievous bodily harm and all fatal incidents. Further, consideration be given to amending the Act to ensure that all material generated as a result of such investigation including but not limited to all statements, reports, diagrams, digital images and recordings be privileged such that they cannot be used by any person (including the Department) in any proceeding under the Act, any other statute or the common law, other than a Coronial hearing.

Recommendation 3

That all coal mines include in Alcohol and other Drug Policies a requirement for all workers involved in fatal incidents or those involving serious bodily injury, be tested for the presence of drugs and alcohol. The results of such tests should be provided to the Department and QPS as soon as they are available. The Queensland Mines Inspectorate Manual and QPS Operation Procedure Manual should be updated to include the requirement that the investigating inspector and investigating officer require the Site Senior Executive to ensure that the tests are carried out and the results are obtained in a timely manner. In the event of suspicious circumstances, QPS should conduct their own testing for evidentiary purposes.

Recommendation 4

That underground coal mines review arrangements in relation to the interaction between pedestrians and machinery and, following a suitable risk assessment process, revise and to the extent necessary, establish No Go and Restricted Zones to govern the interaction. Where this occurs, coal mine workers should be trained in them and they should be enforced. To assist, where appropriate, the No Go and Restricted Zones should be represented in pictorial form and made available in crib rooms and other such locations to act as a reminder for coal mine workers. Ultimately, operators of mobile equipment must ensure that it is safe to move equipment before they do so.

Recommendation 5

That coal mining operations equip each underground district with airbags of sufficient capacity to move or lift the heaviest equipment in the district. Operations should conduct a risk assessment to establish the most likely causes of trauma to coal mine workers, which as a minimum contain a trapping which may result in a crush injury. Once the type of traumas has been identified the SSE should ensure that a number of personnel are trained and available to deal with such trauma until a higher level of medical care is available. Trauma care kits should be readily available such that the correct first aid equipment is available to treat those that have suffered a crush injury or other trauma. The Mines Inspectorate should have discussions with Queensland Mines and Rescue Service to develop training programs for QMRS trainees to undertake exercises in the extrication of persons trapped by heavy machinery and objects underground.

Recommendation 6

That all coal mining operations urgently audit the efficacy of their management of change standard and if one does not exist, it should be immediately developed.

Recommendation 7

That coal mining operations and the Department (as the approval body) move quickly with manufacturers and other appropriate bodies to have developed, tested and approved proximity detection devices for use in underground coal mines to detect the presence of pedestrians in and around mobile equipment including shuttle cars.

Recommendation 8

That the Department move to ensure that any uncertainty which may exist in the legislation, that there be one safety and health management system at a coal mine, be removed.

Recommendation 9

That a working party comprising the Department, coal mine operators, workers, Union representatives and other interested organisations form to meet with manufacturers of shuttle cars to review and discuss, with the intention of designing out or improving the design of some of the concerns related to the ergonomic and/or safety factors and control surfaces of shuttle cars.

Recommendation 10

That manufacturers of coal mining machinery and stakeholder groups investigate whether the regulations and regulatory bodies governing modification to design of machinery are unnecessarily prohibiting or delaying the implementation of innovation within the reasonable time frames.

Recommendation 11

That the Department liaise with emergency service providers (police, ambulance, fire, rescue service providers and where appropriate medical personnel) to establish an ongoing program to familiarise emergency services personnel who are based in mining communities with mining operations. Where practicable, this may include relevant personnel receiving generic inductions to mining operations. Mining companies should take all reasonable steps to assist in the successful implementation of such a program.

Recommendation 12

That the coal mining industry adopt a system (whether through a central database or otherwise) whereby a coal mine worker, on departure from an operation, is provided with a full copy of their competencies, tickets and authorisations achieved whilst employed on that site. Further, that those documents be required to be placed on the record at subsequent operations the worker might be employed at in order to provide a ready cross reference of previous experience. The Department should consider legislative amendment or other requirement being issued for this system to be implemented across the industry.

Recommendation 13

That a Memorandum of Understanding be established between the Queensland Mines Inspectorate and the Queensland Police Service which incorporates the provisions of section 8.5.5 of the QPS Operation Procedures Manual and also includes the assistance of QPS forensic science facilities and staff should they be required in determining the nature and cause of any mining related deaths in Queensland.

Recommendation 14

That the Department review and if amended, reissue, Safety Alert MDA 148/06 in light of this incident to enhance the alert with respect to these factual circumstances.

Recommendation 15

That the Minister for Mines give serious consideration to the amendment of the relevant legislation to require all coal mine operators to submit to the District Inspector of Mines electronically (in an approved format) a copy of the Safety and Health Management System for the operation. The document is to be updated annually by the coal mine operator and any amendments submitted by the required date upon the written request of the Chief Inspector to the SSE.

Recommendation 16

That the Standards Review Committee formed as a subcommittee reporting to the Coal Mining Safety and Health Advisory Council thoroughly review the “place change” system of mining with a view to establishing best practice guidelines to be recommended to the Advisory Council for consideration of developing a Recognised Standard for promulgation to the Minister. The Standard should include the guidelines and seek to ensure that risk assessments are conducted to the highest possible standard to ensure the lowest level of risk.

Recommendation 17

That the Department make the SIMTARS simulation prepared for this matter available for use as a training tool.

Recommendation 18

That in all industrial deaths, particularly mining deaths, the autopsy on the deceased person be conducted by a Forensic Pathologist and that the autopsy should include a full internal and external examination of the body including the taking of photographs (and x-rays and other tests if warranted in the circumstances of the death) to ensure that such deaths are treated with the same level of attention as suspicious deaths in order to ensure that the circumstances of the death are able to be fully understood from a medical viewpoint.

To Rachel and her children and Jason’s extended family and friends my sincere condolences for their loss. I thank Rachel for her involvement and assistance throughout the Inquest and hope that the process has helped her in some way.

I close the Inquest.

A M Hennessy
Coroner
10 September 2009