Royal Commission on the Pike River Coal Mine Tragedy

Te Komihana a te Karauna mōte Parekura Ana Waro o te Awa o Pike

UNDER **THE COMMISSIONS OF INQUIRY ACT 1908**

IN THE MATTER OF **THE ROYAL COMMISSION ON THE PIKE RIVER COAL MINE TRAGEDY**

Before: The Honourable Justice G K Panckhurst
Judge of the High Court of New Zealand

Commissioner D R Henry

Commissioner S L Bell
Commissioner for Mine Safety and Health, Queensland

Appearances: J Wilding, S Mount and K Beaton as Counsel Assisting

S Moore QC, K Anderson and K Lummis for the New Zealand Police

K McDonald QC, C Mander, T Smith and A Boadita-Cormican for the Department of Labour, Department of Conservation, Ministry of Economic Development and Ministry for the Environment

N Davidson QC, R Raymond and J Mills for the Families of the Deceased

S Shortall, I Rosic and D MacKenzie for certain managers, directors and officers of Pike River Coal Limited (in receivership)

C Stevens and A Holloway for Solid Energy New Zealand

N Hampton QC, R Anderson and A Little for Amalgamated Engineering, Printing and Manufacturing Union Inc

G Gallaway and J Forsey for Mines Rescue Service

G Nicholson and S Gilmour for McConnell Dowell Constructors

P Jagose for Valley Longwall International Pty Ltd

F Tregonning for Pike River Coal Limited (in receivership)

TRANSCRIPT OF PHASE 1 HEARING
HELD ON 21 JULY 2011 AT GREYMOUTH

COMMISSION RESUMES ON THURSDAY 21 JULY 2011 AT 9.00 AM

WITNESS PETER WHITTALL ON FORMER OATH

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. Can you recall when it was in October 2010 that you took over as CEO?

A. My recollection is the 2nd of October.

Q. Later that month there was an operations report updating, I think, the board on the position with the company?

A. That's correct, there's an operations report every month.

Q. And if we could look please at DAO.003.11590, this is the operations report updated to 20 October?

A. Yes.

Q. If we could zoom in on the production and projects table in the middle of the page. I think it shows that production perhaps to the 12th of October was running at 246.7 as opposed to the budget of 686.5 and presumably that's thousand tonnes is it?

A. No, that's actually metres.

Q. Sorry, cubic metres.

A. No, not cubic metres. Metres of advance, linear metres.

Q. The table on page 5 of that document, is that the same table or is that a different measurement?

A. I don't have that table in front of me.

Q. Looks to be the same table on page 5 is it?

A. That would be because section 1 that you showed me first is the executive summary, so it would have just been cut and pasted into the first section.

Q. At the bottom of the highlighted section there we see that the table reflects the budget for 2010/2011, but that future tables would reflect the reforecast budget.

A. That's correct.

Q. Is that correct?

A. That's right. The 2010/11 budget was the approved budget that was put forward in May and approved in June.

Q. Is it the case then that as at mid-October 2010 the actual production figures were running at something like 36% of the budget?

A. For that period yes, mathematically yes.

Q. And I think it's the case that even under the reforecast budget the figures would still be below where you would want them to be on a budget?

A. That's correct, but the difference being that the reforecast budget was coming in at the time when a change of equipment to the mine was allowing us to reforecast at slightly higher rates than had previously been able to be achieved.

Q. We heard yesterday that there was a particular ship that had been delayed until December 2010, correct?

A. That's correct.

Q. If we move now to the operations meeting report from the 17th of November 2010, and it is DAO.002.15016. I think we can see on the first page of that meeting that you were not in attendance at the meeting?

A. That's correct.

0904

Q. But I wonder if you can help us with the table on page 8 of the document. Can you help us with what coal SOH means?

A. Could you zoom out and let me see the context that that's placed in please? The exact acronym doesn't spring to mind.

Q. The table then shows a series of locations and a total, is that indicating a volume of coal that is available at that time?

A. Yes it is.

Q. And the indication still required for next vessel, with a figure 40,040, does that indicate the amount of coal that is required for the ship that is scheduled to leave in December?

A. Yes, and in this context I'd imagine SOH would refer to stock on hand. So this is a balance that the logistics manager has put together to see where our coal is sitting at the time and what we needed to do to get a full size Panamax rather than a 40,000 tonne vessel, which the Indians have been more willing to take, the 60,000 tonnes for Japanese customers. So he was looking at the reconciliation of what we'd need to if we wanted to take a full Panamax to Japan.

Q. To the best of your knowledge does that table show that as at the 17th of November 2010 there were another 44,000, and just help us with the unit there?

A. Metric tonnes.

Q. Forty-four thousand metric tonnes required in order to meet the shipment due to leave in December?

A. That's correct.

Q. Do you know, based on the production figures at that time, how long it would require an order to achieve that required amount of coal?

A. I can't say sitting here because it was very dependent on the start up of hydro and how much we were going to get out, how quickly that panel was retreated. There's a panel, the hydro panel wasn't on the critical part. In other words, it didn't matter how quickly it finished it couldn't go to the next area until that roadways were developed. So if it was extracted more quickly then that would help with the shipment but it wouldn't help with the overall annual tonnage because it would still remain the same. So the panel was going as quickly as it could for its commissioning and all the other checks we had to do and it was just going to be a matter of the ship would have to go where the ship went.

Q. Is it fair to say that the rates of production through to the 17th of November had been below what you would have liked?

A. Certainly.

Q. I suppose what I'm wanting to ask is whether that figure of 44,000 tonnes still required was looking achievable at the 17th of November 2010?

A. I think it was more likely that the - in a discussion I'd had with the marketing manager was, given that the days at the port would have to be closed down over Christmas, and I think there might be some other commentary either in this document or another one where it just talks about what Lyttelton would be doing over Christmas and when we could run trains and what infrastructure was available that if it wasn't going to be available in the earlier part of December or before mid December then it was more likely going to be more pragmatic to try and ship it in mid January anyway. So this was a mathematical exercise to see what we could do if we wanted to do a 60,000 tonne shipment but the vagaries of when ships are then available from the customer, because they're the one who supplies the ship, becomes a negotiated position.

0908

Q. Was this a shipment that had originally been intended to leave in November?

A. Yeah, at the time when you set a forecast for the year and you discuss customers and you try to look to what, when ships are going to be available and when you can fill them you set a schedule, usually set a desk case schedule because that gives the customer an idea of when they might need to start arranging ships, giving them short notice that you've got coal and you need a ship doesn't really help them, so we try and set a schedule. It's at least optimistic and it's forecast for shipping and then if there's delays you just keep a relationship with those customers and they send the ship elsewhere or they don't engage in the first place so, yes, also the fact that the commissioning of the hydro panel was taking longer. We left, went on dayshift for a little while then we went on to two shifts and we'd have a few stoppages with the filter banks. I think Ms Shortall asked me to point where they were on the plan yesterday and they'd been supplied to an incorrect spec so we had

to wait and get those fixed so there'd been some commissioning start up delays with the hydro panel.

Q. In terms of the company's cash position in November 2010 we saw yesterday in Mr Jones' statement NZOG0069 and perhaps we'll start at page 14 just to recap. At page 14, paragraph 57.

A. Is this his submission to the Royal Commission?

Q. It is. It appears the position was that in September a cash or working capital shortfall was set to increase from between six and 12 million to between 20 and 24 million. Is that correct to the best of your knowledge?

A. I can't verify those figures but it's not outside my expectation for that or from my recollection anyway.

Q. If we turn to page 15 and paragraph 61, is it correct to the best of your knowledge that the cash shortfall predicted for December had increased to $54 million?

A. Now that's, my recollection is based on repayment of some funds as well so we've had to factor that in and this was becoming, had become a funding issues obviously a month or so earlier which is why we were in discussions with New Zealand Oil and Gas and a bank.

Q. The proposal as at mid November 2010 was to attempt to raise $70 million in capital?

A. That's correct, yep, and that was being finalised on the 19th of November.

Q. I think it's correct that the IPO documents had said that the expected costs to develop the mine would be approximately $270 million?

A. Yeah, that's my recollection.

0912

Q. Are you able to say what that figure was in fact by mid November 2010?

A. My recollection is it was well into 300s, I can't remember exactly. Close to 350 would be my recollection.

Q. The first shipment of coal, I think, was in February of 2010?

A. That's right.

Q. And clearly, of course, the mine had started to produce some coal?

A. Yeah, that was roadway development coal, that's correct.

Q. In various documents we see reference to the term “steady state.” Could you explain that term to us?

A. Yeah, steady state is when the miner has installed everything it’s going to install and the equipment’s running to the expected - well you may still have some efficiency issues to deal with but you've actually got the business built and doing what it’s supposed to do, and the base case for Pike was to have three development units running and the hydro installed and running as a nine cubic metre per minute device, which at this stage on the 19th of November we were still running that at half capacity, we were still building the sumps for the second part expecting to have hydro up to full capability whether we ran it that way or not by the end of the year, December, and we were changing out or we’d already changed out one ABM and had the second one on its way and would expect to be running as a two to three unit mine by January with – so steady state as far as operational capability would have been achieved early in 2011 and then continuity. So steady state which is your million tonne a year where you don't have delays between panels, would have only been achieved after we got out to the western side of the lease because we were taking small areas of coal that weren’t able to be done continuously because there are such gaps between where they are because of all the mining control zones, so probably 2000, late 2011/2012 to reach full steady state.

Q. So the position in mid-November 2010 was that you were still some months at least away from steady state or perhaps up to a year away from steady state?

A. Steady state production capability in the equipment probably months away. But steady state as in predicted so you can work out what your annual costs per tonne would be on average, et cetera and get starting to build some historical records, that would be 12 months away.

Q. I want to take you back to paragraph 9 of your witness statement for this enquiry, where you describe high fluidity hard coking coal?

A. Yes.

Q. I just wonder if you could explain some of those terms for us. Can you first of all explain the different grades of coal that there are?

A. Not my area of unique expertise. As a mining engineer we tended just get it out of the ground and someone else looks after it from there. So the areas specifically of coal generally is coking coal and thermal coal are your two broader categories. One is used for power generation and one is used in a steel making process. The coking coal is used for steel making.

Q. Just pause there. What is the coal that we might use at home in a fireplace?

A. They're thermal coal typically. Pike's not very good for your home fireplace. Too hot and it's too fluid and we'll come back to that term of fluidity in a moment. So coking coal is a coal that's used to make coke. That's why it's called coking coal. And that's done in a coke oven and they heat it to a very high temperature, you know very low oxygen environment so it doesn't actually burn off, it just heats and bakes and drives off all the volatile matter from the coal and the gases and you get coke oven gas from that, and you are left with a more, drier, lighter product which is much more intensely carbon and then that's used as a feed to a blast furnace to act as a carbon input to the iron to make steel. So uniquely coking coal is used for – you can burn it in your fireplace but it's too high a grade to worry about doing that. It's much better value for steel making. I'm sure historically they just had coking coal and thermal coal, but as coal prices have increased and steel making is a very technical matter, various grades come up especially in the recent years where we have the semi-hards, semi-softs and there's all these subgrades. There's anthracite is another grade above coking coal, but if we just stick to coking coal.

0917

A. So there's hard coking coal, there are some coals that are classed as premium, but again this is a market definition where people are prepared to pay a little bit more. So you have premium coke and coal, a hard coke, they're all hard coking coals, semi-hard and then you go into

the semi-softs and they're just different attributes of the coal but give those definitions.

Q. Without asking for a lengthy technical description, can you tell us the essential differences between hards, semi-hard, semi-soft coke and coal?

A. No, I'd rather not display my ignorance of those technical matters of coal. It is a very technical area. Actually before I came to Pike River I knew virtually nothing about it other than I used to mine hard coke and coal and that's what it was used for, didn't have a very good knowledge of that, it's not something as a mining operative person you would really get into. My knowledge has obviously greatly increased through working at Pike because I've had to work with our marketing manager, but again we have a marketing manager that understands those. The people who really understand it the most are the people who buy the coal. So the guys who make the coke and work for the steel works et cetera know exactly whether they want to buy and they have a far greater technical understanding of the coal. At the end of the day we've got a coal mine and we produce the coal. We can take it to the customer and say, "Look, this is what we think it is," but it's actually more what they think it is that drives it failure, not what we say it is. So when we do our marketing and our coal testing, despite some other statements to the contrary I made here last week, we actually take the coal as samples to our customers and say, "Well, you rate it," and they do the lab work on it and it's actually them who comes back and categorises it to us as to what sort of coal it is.

Q. Can you explain the term, "Fluidity," that you've used?

A. Again, in my mining engineers terms, fluidity is a bit what it sounds like. It's actually a characteristic of the coal that when you heat it in the coke oven it actually flows, it becomes in a fluid state. And in a very high fluid coal if you put no other coals in with it you'd end up with a molten mass and that's why I say I've had the experience of putting into our fireplace in my home, in a Shacklock, and all it does it go into a big molten blob and start burning through the grate, its' very hot and it gets very molten.

So therefore it's used as a blender to a lot of other coals. The example I use in other forums to explain it is it's a bit like baking a cake without an egg in it, you'd end up with probably all the smells and flavours but it doesn't stick together. If you just put an egg into a cake, which is your high fluidly mix of coal, maybe five to 10% and that'll actually binds with other coals together and actually helps the coke stick together much better in the coke oven and therefore in a blast furnace.

Q. What does permeability refer to?

A. There's a number of terms which are used to describe the ability for gas or other products to move through coal. Permeability, if you can imagine, is like the holes in a sponge. It's how much the coal can absorb of water and gas. You have other terms like transmissivity, which is the speed at which gas can move through the coal or water can move through it but the permeability is a measure that's usually measured in a term called millidarcies, or darcies but coal is measured in millidarcies. That's what the permeability and how much therefore it can absorb into the coal.

Q. The coal you were starting to mine at Pike, was that high permeability or low permeability?

A. High permeability, they're very high permeability.

Q. What are the implications of that in terms of methane?

A. Well it's good, it's got its challenges. One of the advantages is that it gives off its gas quite freely, so issues of outburst and other things like that don't really eventuate. It means you've got a good draw-down of your gas, it means you can degas an area. Eventually you can degas the whole mine over a much shorter period with some long bore holes, you'll continue to drain gas, it'll migrate over a long distance to get to that lower pressure in the bore hole. The disadvantage of it is that it's really hard to get a good draw-down to make that gas level lower because it keeps migrating from other parts of the mine because it's quite permeable. So your gas ribs in a lower permeability environment where gas stays in the coal so you would have a lesser outflow into your

roadways whereas in a high permeability the gas will continue to bleed into your roadway.

Q. You'll recall that Dr Elder said in his evidence that Solid Energy concluded on average Pike River Coal was likely at best to qualify only as a semi-hard coking coal which sells internationally at prices discounted significantly below premium hard coking coal. Do you have any comment on that statement?

0922

A. Oh, only on, I'm not aware of what Dr Elder's experience is with our coal. I have no idea what he's based that on or his motive for making those comments.

Q. I'll move to a new topic now which is the state of the project to develop Pike at the time that you started and I appreciate of course that your knowledge may be limited as to things that were done before you arrived at the company?

A. Certainly.

Q. But there is a one page simple chronology that I'd like to refer you to which we'll show on the screen now and I have a hard copy as well and perhaps if we produce this as exhibit 11. I have some other hard copies for counsel if that would assist.

EXHIBIT 11 PRODUCED – CHRONOLOGY DEVELOPMENT OF PIKE RIVER MINE

Q. Now in general terms you'll see that the chronology has a gap between January and April 2005 and so that first group of events between May '95 and January 2005 all occurred before you started at Pike?

A. Yes.

Q. When you started did you familiarise yourself in general terms with the work that had been done earlier on the coalfield?

A. Some work, some wasn't available to me and some you don't know what you don't know so I was only, I was given a file which had the AMC2000 report in it and at the time I started I only read that like many months later actually because when I started I'd just given the 2005 one which is far more relevant to get to know. The main advantage of the

2000 report was it had all of the environmental appendices that had been done for the resource consents so I familiarised myself with the existence of those although the environment manager started at the same time as me so that was his job, basically he got those to review to I suppose hit the ground running reasonably quickly and as has been pointed out there was a fairly tight expectation of timetable to achieve and given that Minarco were in and about the project and all over it with a report being submitted at the time or being worked on at the time then that was where I got most of my knowledge from.

Q. If we can look very quickly at the first document on that list NZOG0002, this was a pre-feasibility study done in 1995 by CMS. Do you know who CMS were?

A. I'm not, I wasn't aware of that document until I was asked to have a look at it in conjunction with the Royal Commission. I'd never heard of it before and I haven't heard of CMS either.

Q. I just want to highlight a couple of things from that early report. On page 5, second to last paragraph, it was thought in 1995 that the total capital required for the project would be just under $30 million and it was thought that the rate of return would be just sufficient for the particular project. Do you have any comment on that estimate in 1995?

A. It was going to be cheap wasn't it, mmm.

Q. On page 17 of that report in the middle of the page you'll see under the heading, "6.6 stone drives," it seems to have been contemplated in 1995 that there would be two stone drives for the mine, a man and materials drive and then a steeper return with the coal water mixture pipeline that could be used as an emergency exit out of the mine and then you'll see that somewhat optimistically perhaps it was thought that the cost of the stone drive would be a little under $2.7 million. Had you been aware of this initial proposal to have two stone drives when you started?

0927

A. No and the most, the earliest report I've ever read was again only a month or two ago in conjunction with due diligence for the sale of the mine, was one that you've got here on the third point which is a Minserv

one which I only became aware of a couple of months ago as well, and that one only had a single tunnel in it so until I saw this CMS report a few days ago I wasn't aware, no one ever had that discussion with me.

Q. After you started at Pike do you recall whether there was any discussion about having two stone drives into the mine and out of the mine?

A. No. The length of this drive at 865 is consistent with some other correspondence I did see, which revolved around I think either the '97, sorry, the '98 or the 2000 report where they discussed having the portals further up the valley but discounted those because of the terrain, so that's why they'd only be 865. Obviously they were going to start them from a lost closer to the coal area and have two shorter drifts, but no, when I started the Minarco design and the approved design was all based on a single drift.

Q. If we move now to the report you've just referred to, the Minserv report in '98, that's NZOG0005, if we turn to page 7 and again halfway down the page you'll see the paragraph saying, "The access roadway will be a single entry stone drift five metres width and three metres high."

A. Yes.

Q. You mentioned this a moment ago, obviously there had been a change in the plan between 1995 and 1998, are you aware of the reasoning behind that change?

A. No, as I said, I wasn't aware of either of those reports until one several months ago and one several days ago. One thing I would note though is although I haven't heard of CMS, both reports look like they've come from the same person, either that or they've just borrowed the first one and retyped it, because they're almost word for word the same report with the same style or the same drawings in them, but have some different content and this is one example where there's different content so it looked like it either had the same author or someone's just edited the first report.

Q. If we move forward now to 1999 at a document that's not actually on this list, DAO.022.01463. This appears to be a company release, I'm not sure if you've seen this document before?

A. No.

Q. If we look on page 3, paragraph 2 at the bottom, it was said at that stage in 1999 that the development of the coal mine would require 30 to 40 million dollars and on page 8 of the document we see a development timeline and I think you'll see there it was contemplated at that stage that the decision to start mining would be around January 2000 and the first shipment of coal would be July 2001. If we look now at page 17 you'll see that the personnel involved at that stage were Mr Ward, Mr Duncan and Mr Gunn. The first question is whether you have any comment on either the budget or the timeline that was being contemplated in 1999?

A. I have no comment on this document or the content of it because I haven't seen it before. I will comment it's been done, it looks like an internal document by New Zealand Oil and Gas to maybe preliminary market the company, I'm not sure. Mr Ward was part of New Zealand Oil and Gas, the other two were both consultants but both had been on the project for a long time. The timeline, it would be predicated on having resource consents which weren't granted until August 2004 so even step one of the project couldn't have started until then, so this was obviously pre-empting a resource consent that was not granted for some years after this.

0932

A. The timeline between a decision and coal cutting would seem very short given the reality of what it actually did take in hindsight, and the budget I would have to say even when I came on in January 2005 or February 2005 was still only rudimentary budget but done at quite a high level and hadn't been done as a line by line project budget which is what I did when I came on board.

Q. Is it fair to say that with the benefit of hindsight the earlier estimates of cost and time required to build this mine were overly optimistic?

A. I'm sure the authors of this document may think so, but that wasn't me and I wasn't involved.

Q. To what extent when you joined in early 2005 was there still a sense of optimism that the mine could be produced relatively cheaply and relatively quickly?

A. Yeah I would have to say that there was always an expectation that the resource consents would be or access agreements would be granted on the very first day that they might be due and that contracts let at a certain price would be able to be delivered at that exact price with no contingency, so I think that was an error of the leadership of the company, yes.

Q. If we look now at the 2000 feasibility study which is NZOG0007, this, I think, is the document that you said you were first given when you started at Pike.

A. Sorry. That's right I was given a file. I wasn't given this document and said, “here sit down and read this,” it was pretty much an electronic file of a whole bunch of documents, one of which was in this – was actually given to me by the project manager, Les McCracken and this was contained in that group of files as background reading, but as I said I didn't really read it for a little while because it was superseded before I even started.

Q. The June 2000 feasibility study, I think, was contained in three volumes. Does that sound right to you?

A. I think it was more than. I think it was four actually.

Q. A total of between 300 and 400 pages. Does that sound right?

A. Yeah, that would sound right.

Q. We can see on the front of it, it was completed by AMC. They changed their name to Monaco you've already said?

A. Correct. Graham Duncan was the principal of AMC.

Q. We've heard through other evidence that Minarco produced this report in return for equity or a shareholding in the company?

A. That's how I understand it although I wasn't party to those negotiations at the time.

Q. If we go back to exhibit 11, which is the chronology, we can see that between the time of that feasibility study in 2000 and your

commencement in 2005, there was a lengthy period while the resource consents and access arrangement were secured?

A. Yes.

Q. The document we see in January 2005, project update, to your knowledge was that, effectively, an update that took place because the access arrangement and resource consents were finally in place?

A. I couldn't categorically say if that was the reason but that would be my understanding, yes. A number of things happened as of that. Once they got the resource consents in place in August and the principles of the access in October '04, the company set about recruiting a mine manager and an environment manager. Myself and Ivan were eventually appointed to those positions, and I understand that Minarco then went ahead and did the next phase of the feasibility.

Q. We can see on the chronology that in May 2005 Minarco produced the final project update?

A. Yes, May. I think the final one was actually June, but it maybe that the final one was May.

0937

Q. If we look at NZOG0020 does that appear to be the final project update from Minarco?

A. It does. As I say I just, I had in my mind that there was a June version to tidy up some issues but, yes, that would be essentially the large document that was produced out of the executive summary that was done in January.

Q. Now is it fair to say that generally this report painted a favourable picture of the prospects of the mine?

A. I think the prospects of the mine were favourable.

Q. And if we look on page 57 for example, the sentence underneath the three bullet points, "This report provides strong support that the current Pike River Mine design is very conservative and is a very robust basis on which to commence operations."

A. Yes.

Q. Is that consistent with your understanding of the tenor of the report?

A. It is in that the conservative view that Minarco took or that Pike too at the time was based on the ability or the extraction areas and the large amount of mining controls which was an expectation we'd be able to extract more coal than was currently approved given that the substance had been taken a very conservative view of so Minarco held the view that there was an upside to what was being proposed so therefore they held the view that it was a conservative plan.

Q. We'll just look at one other similar comment on page 28 of the document, just under the heading "Project upside," look at that sentence, "The Pike River project has been evaluated on the basis of a target mining area that has been well defined by exploration drilling, outcrop sampling and surface mapping. For the purpose of this review Minarco believes the approach is conservative and supported by available data." Again consistent with your understanding of the report?

A. Yeah, and that's how the project was presented to me as well, yes.

Q. We said earlier that Minarco had completed the feasibility study in 2000 in return for equity and that's your understanding I think?

A. Well that's how you put it and I understand that they achieved equity through a quid pro quo type rather than actual investment in dollars although there may have been some investment in exploration work and other things so there may have been money changed hands. I'm not sure. I'd never inquired to the details of that and I was never offered those details.

Q. Would it be consistent with your understanding that, as you say in return for their work on the feasibility study, they received something like a 25% shareholding in the company?

A. No, that's not my knowledge I thought the, I thought when I started that Minarco – sorry, New Zealand Oil and Gas held about 75% and the other 25% was held by something in the order of 25 or 30 other shareholders, some of which were brought together by the principles of Minarco as a group of investors out of Australia but I remember the original shareholder listing that I saw had quite a number of individual shareholders from New Zealand and Australia so I don't recall it being a

25% Minarco holding but I stand corrected but I do recall there being quite a list of people which would indicate that they put equity in rather than just work for, in return for equity.

THE COMMISSION:

Q. I note, Mr Mount, that the Commission's own chronology which has been distributed is consistent with what Mr Whittall has just said. It actually records the remaining 28% are held by 31 private New Zealand and Australian shareholders. That is what you're referring to.

A. Yes.

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. If we leave aside for the moment the precise figure that the individuals from Minarco held as shareholders?

A. Yes.

0942

Q. Was it certainly your understanding that they were shareholder in the company at the time of the May 2005 project update?

A. Yes, at least two of the principles and one of the senior engineers witness Minarco to my understanding held shares. Again, I don't know whether they put money in for them or bought them or how they were achieved.

Q. In July of 2005, if we just return to exhibit 11, the chronology, there was a final mine plan and financial model presented to the board of Pike?

A. Yes.

Q. Was that a document prepared by you and Mr Ward?

A. We authored the document. You'll find, I think if you did a word search there it pretty much largely reflects the Minarco reports. So one of the jobs I got when I first started besides working with Mr McCracken on some of the contracts and tenders that had to go out was to start looking at the investment decision that the board would have to make. And the basis of that investment decision was effectively paraphrasing the Minarco document, given that I had been there a few months I wasn't

able to do of my own research. But the works interpretation of that document were put into that which myself and Mr Ward as my boss authored.

Q. So you relied substantially on Minarco's work in proposing the mine?

A. Almost entirely, even though I'd only started there in February, mmm.

Q. Clearly your recommendation to proceed with the mine was accepted by the board and work commenced?

A. Yes. Just to clarify when you said, "I relied entirely on Minarco," I was brought on board because of my background, at that stage 24 years experience and qualifications so I didn't blindly accept what I was told, but I was prepared to put my name to what they were proposing. I had no knowledge of the lease or coal quality or any of those aspects of it or the financials that Mr Ward had done but costs and doing preliminary reviews of budgets and was it a sound mining principle and were there, you know, accesses and all those sorts of things, could it be built that way, it appeared a logical and robust plan to make.

Q. To your knowledge had various other options been considered and rejected, for example, open cast mining?

A. I've never seen a document and I've never seen a report that analysed that. I know I asked obviously the same, well not obviously, but I did ask the same questions when I started because it was like, "Well how are we going to build this thing," you know, when I first was brought over for a look at the mine site, job interview wise, between Christmas and the New Year of 2004. My only access was to fly over the site and have a look at it and ask questions of Mr Taylor, we talked about the other day, at the time about how things can be built and what was likely to happen. At that stage I formed the view that visually it didn't look like you'd be able to open cut and mine and the plans had already put in place, as you've shown the documents, for many years, had already been contemplated as an underground mine. I was brought on board to built it, not to start a re-evaluation of what other options there were.

Q. If we look briefly at a report by URS in 2002, NZOG0015 on page 84. They address the question of whether an open cast mine had been considered. And if we zoom on paragraph 1 –

A. Sorry, could you just remind me what document I'm looking at again?

Q. Certainly. Perhaps if we go to page 1 just to remind you?

A. That would be helpful please.

Q. This is a report by URS?

A. Yes.

Q. From May 2002.

A. Yes.

Q. Entitled, "Assessment of environment effects for Pike River Coal Field Development?"

A. Yes.

Q. So if we go back to page 84, the heading there is, "Alternative Methods," and they're describing other options that may have been considered. The first of which was open cast. It is said in that paragraph that Pike River decided that on the basis of the potential scale of environmental damage open cast mining did not warrant further investigation. Is that consistent with your understanding of the position?

0947

A. It's only consistent with my anecdotal understanding of what the position was, I don't recall ever reading this report or ever seeing it but the position, as I said, by discussion was that it wasn't going to be an open cast mine and I didn't see anything in my first months that made me say, stop, have you thought of this, we should explore it more. It didn't warrant it in my mind.

Q. In his evidence Dr Elder said that at that time, and I think he was referring to at the time of the mine planning and initial development, so perhaps around the time of 2005, open cast mining would have not been commercially viable because of the cost, relative to the price of coal on the international market. Do you agree that that's a correct assessment?

A. Dr Elder may have done a lot more calculations on his computer than I have on that regard. I agree the coal prices at that stage were quite, well, they weren't depressed they were just where they were, had been historically for about 50 years, they really haven't moved except with inflation so coal prices had always been historically quite low. I would assess the fact that regardless of the coal price, I won't say regardless because it's gone up a lot since then, but the cost of open casting that area would be very, very high and would probably be precluded by more than just the straight cost, there's a lot of other technical challenges to doing an open cast mine up there, not least of which is access and environmental control, regardless of whether it's a DOC estate or not, there's standard environmental controls you'd have to put in place which would be extremely difficult in that area.

Q. Another of the options that URS referred to, if we go back to page 85 of their report, was stone drive access from the White Knight Stream and perhaps if we zoom in at that paragraph on page 85, paragraph 5, you may want a moment just to read that paragraph but I wonder if you could just help us to understand what this option may have been?

A. Yes. Are you asking me what it's talking about?

Q. Yes.

A. Well, in the last sentence, or the last, third last sentence it says, "A second portal site was investigated about 120 metres up the White Knight Stream from the confluence of the Pike River Stream." That's the current portal, this other one was around the corner from that, 120 metres down the stream and 200 metres up the stream, so it was around the corner and that was its shortest and that was why it a 1.8 kilometre tunnel. Further to that and by the time I started, around almost the same time, because one of the first trips I did up there in the bush and landing, we had a little tiny cleared area next to the portal, which didn't look anything like it looks now, it was all just very, very dense forest, was with Peter Gunn to do his final inspection on that second option and he just wanted me to go up and have a look at it and say basically this is where we think it should go, the other one we've

discounted because of steepness of access and everything else and trying to get up there, and this is where we think it should go, what do you think, and it looked like a good solid rock face to me and they'd already done all the pre-assessment. I couldn't see a reason to say, no, we can't do this so that second option in the last sentence was where it was done and that was about probably February, March 2005 and that decision had pretty much already been reached by the time I started.

Q. Just to make sure we're clear on this, can we have the map WCRC001D, do you recognise that as a map showing the White Knight Stream and the Pike Stream and the current location of the portal?

A. Yes.

Q. Could you perhaps indicate for us on that map the location that was referred to as an alternative entrance?

A. I'm not sure what the extra letters on there are for but I would imagine it would be just there, given that that's the portal, I'd imagine it's just, as I said, it's only 300 metres difference, it's just around the corner, so the access road up the valley was going to continue under that first proposal, past the White Knight Stream, and another 200 metres up there there must have been a flat area or a stone-out but I don't know, I've never been to that part of the creek. I've never walked up past the confluence of the White Knights Stream and, as I said, that had already been discounted by the time I started.

0952

Q. I think the easiest way to get this down for the record will be to give you a paper copy of the map and ask you to mark on it the area that you've just indicated?

EXHIBIT 12 PRODUCED – MAP OF ONGOING WATER QUALITY AND BIOLOGICAL MONITORING SITES

A. Certainly. It will be my interpretation of that paragraph I was just shown.

Q. Thank you. If could just tell us what you've marked on exhibit 12?

A. Yes. What I've actually written on it is an arrow pointing to a point just up from the confluence. Given the scale, I can't really make it too clear,

but it's just up, and I've written below it, "Alternative portal on Pike Stream 200 metres upstream from confluence".

Q. Thank you. If you could just pass that back to the registrar and let the Commissioners have a look at that. In Mr Bell's evidence at paragraph 7, the reference is FAM0001, page 7, paragraph 7. He said, "If Pike had been allowed to extend the road two to three kilometres further, they could have reached the coal outcrops and gone straight in at that point. This would have been a less expensive, quicker, and safer mine. Safer because there would be no need for the long single entry tunnel through very difficult ground." Are you able to shed any light on that suggestion as to an alternative entry point?

A. Well I can only assume that Mr Bell's talking about the adit where he helped us get 10 tonnes of coal out a number of years ago. I'm not sure, in all deference to Mr Bell, what his expertise in saying it would have been less expensive, quicker and a far safer mine. I would reject all three of those. I think the cost of getting a road up through that mountain wouldn't have only just been a very, very difficult road to construct, but you would have had a several kilometre alpine road that men would have been travelling on 24 hours a day, 365 days of the year in mine vehicles. I don't think that would have been a very safe option at all. I don't know that it would have been quicker given that we drove the road from all the way down from the bottom of the valley up to within 400 metres or 500 metres of the portal in only about three months, four months, but it took us another six months to get through that last several hundred metres because the ground up there is so broken and I would imagine it would have stayed that way pretty much all the way up to the upper reaches of the Pike Stream. I think it would have been extremely slow, extremely expensive, and extremely unsafe to continue to run an alpine road at a coal mine like that over the next 20-odd years so I don't agree that that's an appropriate statement, unless it's been well researched that I'm not aware of.

MR MANDER:

Sir, I just wonder for the record, when Mr Bell gave his evidence that particular paragraph was qualified by him and he disallowed some of the original paragraph contained in his statement.

THE COMMISSION:

Yes. Commissioner Henry has just made that very point with me. It's probably an arid debate anyway. The fact is the mine was not constructed there and we are enquiring into what happened in the actual mine as constructed, so I think it's probably the end of the road with this issue.

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. We know, of course, that the stone drift as constructed was a 2.3 kilometre drift?

A. Correct.

0957

Q. Can you tell us what, if any, safety implications for miners arose in the company's consideration as a result of that single entry design?

A. You mean what safety considerations were given to developing a 2.3 kilometre tunnel?

Q. I mean the implications of that design for miners who would need to work in the mine?

A. The implications would be that the access road would be adrift which was uphill so it could be walked out so that's a good thing, free drains which is good so water accumulating in the mine would not be an issue. It was solid rock so likelihood of fire et cetera in your tunnel was negligible. It was a single roadway so from an egress point of view it made it quite easy to get out of the mine so you could walk, in other words it was downhill walking and you couldn't really get lost in a single entry, single roadway. The normal implications of a, during construction of being a single entry had to be taken into account of such as the ventilation of it, restriction of number of people underground, hazard control, fire control, all those sorts of things had to be taken into account to do a 2.3 kilometre tunnel like many tunnels are driven like that around

the world in hard rock especially. Different consideration had it been a full length tunnel like that in coal you would've had other issues or tended issues of gas bleed off the ribs and keeping the air quantities up to dilute gases et cetera. Most of the gas issues during the single entry construction were gases associated with vehicle equipment, diesel gases, so dilution of those and also shot firing gases post explosives use, but in the long run as a mine access it wouldn't be an uncommon length tunnel. It was intended to be connected to firstly the primary second egress which was the shaft and then, secondly, another egress as the mine was developed a bit further to the west so most of the considerations for that as an egress route or as an access to the mine were given during its construction phase rather than the long-term suitability for it.

Q. If we move then to the topic of second egress from the mine, is it your understanding that there is a requirement in the New Zealand Regulations that there be a second egress from the mine?

A. Yes.

Q. And perhaps just for historical completeness, if we look at the way this was set out in the Coal Mines Act 1979 MED001002003 at page 110 right at the bottom of the page, section 154, originally said, “That within one year after commencing the working on any boards, stalls or longwall workings there shall be made and completed at least two separate and distinct shafts or outlets to the surface from the coal mine intercommunicating with each other so that each shaft or outlet shall afford a separate means of ingress or egress available to the persons employed in the coal mine and that they must not be nearer than 15 metres to each other.” That of course was repealed and the current provision we have is the underground mining regulation COL0010012967. If we refer to regulation 23, page 18. If we look at regulation 23, “If the employer shall take all practical steps to ensure that every mine or tunnel has suitable and sufficient outlets providing means of entry and exit for every employee in the mine and the available of suitability and sufficiency of the outlets determined having

regard to the factors outlined below," and those factors include under (c) "The need to have at least two outlets that are separate from each other but that interconnect." Is that your understanding of your current position?

A. You're showing me the current legislation –

Q. Yes.

A. – so that would be my understanding of the current position.

1002

Q. Obviously with a single drift there was a need for Pike to consider what the second means of egress from the mine would be?

A. It was already designed as being, as I said, for a period of time to be the shaft that was being constructed and then following that from the earliest plans that I had, which was the 2005 ones, there was always planned to be another egress exit added, put into the mine and formed part of that plan. So that was, as the mined developed to the west it would go out into the sub-crop pretty much the first valley over from where the fan site is.

Q. I may ask you to point that on the map in a moment. But if I can just first refer you to the tender document in April 2005, REM.037.05470 at page 108. It's the fourth full paragraph, 'The contractor shall be responsible for the design of an emergency egress system in the ventilation shaft that is suitable for use by injured personnel."

A. Sorry, can you point, thank you, to the right clause.

Q. What was contemplated by Pike at the time of those tender documents?

A. What was contemplated to put into the shaft? I don't recall having a firm view. I do recall previous reports looking at a winder system being put in and some early discussions about whether a winder was more reliable than a ladderway with stages in it. Winders break down. It's only quite a shallow shaft. There was one phase, the mine went through looking at a slightly inclined shaft with a ladderway or stairway, very steep stairway put into the floor of the shaft but that was discounted from a geotechnical point of view as well to actually construct that and make it stable so it went back to a vertical shaft. So it's always been

really a vertical shaft. It was really put in there, like most tender documents are, to keep an open mind as to what possibilities could be put in if a renderer came back and said, “Well look we’ve used this elsewhere, we think this is what would be really good for your shaft,” and you keep an open mind to what options can be put in. So this was a tender document to give the optionality for respondents to come up with different ideas.

Q. If we go back to the 2000 feasibility study that you’ve referred to, DAO.004.10174 at page 126. If we look at the paragraph that begins, “The principal access and escape way,” and then the next paragraph, “Permission will be sought from the mines inspector.” Can you see in that paragraph that it was contemplated in 2000 that there would be permission sought from the inspector to establish a secondary escape route from the mine using a temporary questing, which would be electro hydraulic ground mounted winch adjacent to the shaft mounted on a rail trolley parked away from the shaft and pushed into position in the event of an emergency. And it was thought at that time the cycle time for hoisting persons to the surface would be about five minutes and so evacuation of 30 men would take less than 30 minutes. To your knowledge was permission ever sought from a mines inspector to do that?

A. I think you said yourself this was a feasibility study from 2000 where the mine wasn’t even consented at that stage and then there was subsequent feasibility study in 2005, which I don’t believe this was in. this was many years before the mines inspectorate were even contemplated for discussion on some of these issues and this was an idea that a consultant company put into a feasibility study so I think there’s enough drawbacks to that idea, that it probably, I probably wouldn’t have proposed it to an inspector in the first place and I think an inspector would have asked for a lot of very pertinent questions as to why you would want to have an emergency system at the top of a remote shaft above the snow line where someone has to actually push it

into place in the first place. And so I probably would've not allowed that to go into a feasibility study that I was authoring myself.

1007

Q. To your knowledge no proposal along those lines was ever put to –

A. Certainly not by me and certainly not post February 2005.

Q. Are you aware at what point that proposal was dropped?

A. No, it was just not in the 2005 one so that was five years difference between the two, some stage in between I would imagine.

Q. If we look at document RM008.14187, this is a drawing dated 27 May 2005 for a ladder up the ventilation shaft. Have you seen that drawing?

A. Did you say it was May 2005?

Q. May 2005, yes.

A. Yes, I imagine this was – I recall the visual of it, I couldn't have told you where it came from but it's a URS document that's been prepared for McConnell Dowell as part of their tender. We'd only just gone to tender so that would've been very preliminary, they were probably when we went out to tender they would've given some indicative understanding or indicative offer to show they were interested and this probably came back as one of those very first phase of returns.

Q. At what point was a decision taken to use a ladder rather than a winch?

A. I think I said to you, the winch was never proposed to me and I'd never saw that until some many months or a long time later, where I saw it in the original 2000 report. There was no proposal for a winch. The tender, it didn't propose a winch, we didn't propose a winch. The fact that AMC did in 2000 seems to be a moot point.

Q. When this design was advanced in 2005 was there any risk assessment exercise to analyse the potential effects of using a ladder rather than any other option?

A. My recollection, there was a risk assessment conducted on the whole construction of the shaft and the tunnel, I'm not sure whether this specific issue was raised. Certainly the design of the ladderway had to be done to – there's a standard for ladder and escapeways in

New Zealand and that was, there was some discussion I recall with McConnell Dowell on the standards which had to be applied to it, the distances between landings and all those sorts of things were pretty much left to that's the standard, so that's what has to be complied with. Whether there was discussion on the merits of this overall winch, I don't recall.

Q. We've heard of course that in February 2009 the lower section of the ventilation shaft effectively collapsed?

A. Correct, it was unsupported at the time so it during construction.

Q. Perhaps if we refer to diagram PW20, which I understand is not a scale diagram but just a representation?

A. No, it's a nice picture.

Q. We can see of course that the Alimak raise was the solution to the problem of the ventilation shaft collapse?

A. It was half the solution.

Q. What thought was given to the particular issue of egress through the ventilation shaft following that design alteration?

A. Yes, so the original shaft was 4.2 metres wide and had a staged ladderway, actually not that dissimilar to what was shown in the thing, I don't think it was wooden though, it was a steel construction, I know it was a steel construction. That was eventually installed, so when the base of the shaft collapsed and we had an option of the Alimak as the only safe and feasible way of restoring the bottom section of the shaft, we looked at putting in, initially looked at putting in a four metre Alimak raise but that would've just basically replaced the other shaft and you just would've had a bend in the shaft and you could've done the same thing.

1012

A. The difficulty was the ground was so poor and we were only installing the Alimak adjacent to the other one, that in discussions with the Alimak contractor it was deemed – because one of the issues with an Alimak and I appreciate that it's a technical term and we haven't really discussed how it's constructed but the men who construct it start at the

bottom and they basically dig a hole in the roof and then drill holes in the roof and blast it out and then go back up inside that unsupported hole and then support all the walls around them and then drill out the roof again so they're constantly working under a cage or under an unsupported roof. We'd already assessed the fact that the shaft beside them had collapsed because of micro fractures in the sandstones and it was deemed to be of great concern to the Alimak guys, not so much the Alimak rise because you can't raise a 4.2 metre shaft in an Alimak, you have to go up and then strip it again and one of their concerns was that if they went up the maximum, it was going to be 2.2 that's what it was designed to be. It ended up with broken rock and ended up being 2.5 by 2.5 square when they excavate with an Alimak. One of the issues was going to be to then restrip that to a larger size would be extremely unsafe for the operators to do so because they would have to have fully blasted – sorry, fully bolted and potentially meshed the sides of the Alimaks they went up in and in some places they even shotcreted it to give it better stability. To then try and redrill that and blast it and then go back up inside with daggy bits of rock hanging off bolts and mesh and let them safety reconstruct that shaft to four metres was deemed to be an unacceptable risk to the guys constructing the shaft or to its stability in the medium-term and so the decision was made to do a two and a half metre Alimak and then we looked at doing either a second Alimak on the other side of it or as was the medium-term decision which was to drive about 600 metres of stone drive and then back-hole that shaft at about the same level as the Alimak raise intersected it so we'd end up with a complete ventilation circuit because the 2.5 metre rise into the 4.2 metre shaft only provided half the ventilation solution in the, if it was going to be the only long-term solution. It was fine for the first year, next year or so but for the life of mine it needed another ventilation input.

Q. You arrived at the position where the Alimak raise was the preferred solution to the ventilation issue. Is that right?

A. Well essentially that's what the shaft was being put in as both ventilation and as a second means of egress so we'd just, we'd only just hold – the tunnel had gone to its extent, turned right and gone 80 metres to the base of the shaft and as soon as that hold, the base of the shaft and the – sorry, base of the pilot hole and then we raise bored it and it holed through, from memory on the 8th of January 2009, I think that was the date, then we can start exhausting up the shaft which we did so that was an immediate solution to our reducing volumes of ventilation at the face until such times as it collapsed and we had to re-establish that ventilation so the Slimline shaft we discussed yesterday was part of that solution and getting the shaft back through in a timely manner was the other, was a major part of that solution.

Q. At the time Alimak raise was completed, what specific thought was given to implications for egress for workers from the mine?

A. Yes, we had to be able to put a ladder, that was part of the tender process for the installation of the Alimak raise was to install a, the walls had to be sufficiently stable and able to be, have a ladder way installed in that shaft because that became the egress until such times as we could mine to the west and put the permanent egress in, the walkout egress so a number of risk assessments were done, conversations were held, meetings and risk assessments attended by I think in January 2010 by that stage with the rescue service and others to look at all sorts of options for fresh airbases et cetera but the ladder way was installed in that Alimak raise as part of its commissioning.

Q. At the time that a decision was taken to install a ladder up the raise, was a risk assessment done from the perspective of workers exiting the mine?

A. I can't recall the specifics of that at the time. That would've sat within the domain of the mine manager and the safety personnel and the engineering managers at the time so I can't recall specifically.

1017

Q. Was there ever a trial evacuation of all men underground up that ladder?

A. Not to my recollection. You mean all men, as in everyone on shift? No, not to my recollection. It was used by people going up and down it but I don't recall doing a trial evacuation, no.

Q. During a shift changeover what would be the maximum number of people who might be underground in a mine?

A. Because the mine was quite small we didn't have like, where I've worked in other places where you have seven or eight, nine, 10 kilometres underground, where the whole shift went underground and swapped over with a whole shift coming out again, because we were quite small and had a small number of vehicles people were coming and going all the time around the end of the shift so you didn't have a full shifts worth of people but if there was, I don't know, say 40 people on one shift and they're being replaced by another 20-odd, which would be the largest number, not all those people would be underground at once, so possibly, I don't know, maybe 40 people underground at one time, on a shift change, maybe a bit more.

Q. There was an audit by Mines Rescue in August of 2009 I think, and if we refer her to MRS0005, and just look at the first page of the document to orient you. "Pike River emergency equipment and self escape audit 20 August 2009." On page 3 of that document, paragraph 4, and if we can zoom in on paragraph 4 please, in particular the first two paragraphs. The view is expressed there that the issue of self escape capabilities is an area of major concern. And the second paragraph, "In the event of a fire the main intake personnel would have to attempt a self escape via the second means of egress, the return shaft, this would be extremely difficult under normal circumstances but in the event of fire would, in my view, become virtually impossible." Were you made aware of those comments at the time?

A. I was aware that those views were expressed by the Rescue Service, yes. And one of the consequences of that was, discussions with both the inspectorate and a risk assessment established with a whole bunch of other people, including the Rescue Service as a consequence of us asking them to do an audit.

Q. Are you aware of any specific correspondence to or from the Department of Labour over this issue of escape via the second egress, ventilation shaft?

A. I didn't have any correspondence directly myself but I wasn't the statutory manager for the majority of the period, although for several months I was, but I don't recall having any correspondence myself with the inspector over this issue, no.

Q. You see in the third paragraph reference to the situation being addressed with the establishment of a refuge bay and the moving of the self rescue, a changeover station?

A. Yes.

Q. Were there plan in 2010 to create a rescue chamber or something of that sort?

A. That was done, that was a fresh air base at the bottom of the slim line shaft and the self rescue changeover station, was it stub 2 I think in the tunnel, so it was moved from there up to the fresh air base. I'm not sure if was as a consequence of that risk assessment, sorry, of that audit, and maybe Mr Rockhouse could remember better, but there was also supplementary a catenary wire put into the shaft that with the ladderway into the Alimak shaft that went with harnesses so fall arrest issues, because one of the issues was identified while the ladder was climbable if someone were to slip that that would be difficult, that's why you have stages in a fall stage ladderway so catenary wire and full arrest harnesses were installed and stored at the bottom of the shaft. I can't remember if that was before or after the audit.

1022

Q. You've mentioned the fresh air base at the bottom of the slimline shaft. Could you explain a little more what that was?

A. Yes. I understand, I wasn't aware of this at the time but I became later aware that it was in the process of being planned to be enlarged and made longer, but essentially a fresh air base is a place underground which has got usually access, direct access to the surface from a fresh air point of view so it can't be contaminated by, say, smoke in the mine.

So it’s a place to go to if there is smoke in the mine and you can close a door or put down a flap or something and it’s got its own access to air, sometimes compressed air being pushed in there. In this case, the slimline shaft was directly open to the surface and so it could be used as a fresh air supply.

Q. In addition to that fresh air base, was there something else that was referred to as a rescue chamber or something of that sort?

A. The rescue chamber was really the changeover station, just different terminologies. A rescue chamber is something that you can buy and they're sold by various people around the world, and you put underground and you hose it up and people can go there, shut the doors and they've got compressed air feeds separate to the mine supply and you can actually go and sit in there. There's some debate in the industry as to the validity of those and whether, if in any emergency, you would want to go and shut the door and lock yourself in there or whether you would want to escape from the mine or have somewhere else that’s got direct access to the surface rather than relying on bottles or air or some other supply. I'm aware there was some discussion about whether a pre-purchased – sorry, sir, like a prefabricated rescue chamber to be installed underground. I know there was some discussion earlier on with Mr Firmin who has given evidence here, the validity of using a rescue chamber. We ultimately went to a changeover station in the tunnel originally and a changeover station was not quite the same as a refuge chamber it was intended. It was a prefabricated steel box area. The intention as to go in there. It had compressed air source. So you could go in there into a fresh air room. It had air curtains, double door entrance, and inside it was stored all the additional rescuers. So you could go in there, take your rescuer off in fresh air, put on a new rescuer, then leave that room and continue on out of the mine should you need another one. That's not the same as a rescue chamber, so it’s the alternative to a rescue chamber was the fresh air base.

Q. I just want to look at what particular plans there were in October and November of 2010. If we look at the operations meeting on 27 October, DAO.002.14951. Again, if we just look at the first page to orient you. Again, this is a meeting where you were not present but these are the minutes. If we look at page 3, half way down the page under the heading “Mine design”. “Second egress and intake, feasibility project needs to be started. Project scoping underway. Then work continues on the rescue chamber as new information becomes available.” Are you able to help us with what that reference is to?

A. No, it may well be, “one north and one west mains,” no I'm not able. The second doc what you're asking me about or the first or both?

Q. Both, if you're able to shed light on them, -

A. I can shed more light on them.

Q. - but in particular the reference to a rescue chamber?

A. Oh, I can shed more light on the first one. No I can't shed any light on the second one at all. May just be the terminology of the person writing the minutes.

Q. If we turn to the following meeting on the 3rd of November, DAO.002.149.76 on page 5. This is a meeting it appears where you were present. Under the box, “Plan for next week,” can you see the third bullet point, “Refuge bay design and extraction PTM.” Are you able to help us with what that refers to?

1027

A. In that case the refuge bay would, my understanding is it’s another term for the fresh air base and that work was being done, as I said, to extend it, I didn’t realise to extend it until more recently in 2011, but I knew that they were doing some work on what they were going to have in there and how it was going to be set up, and the extraction PTM was a permit to mine so they’re different things but to my understanding the refuge bay design was a refuge bay, I had no reason to believe it was other than the one at pit bottom, which we’ve already discussed, as the Slimline shaft. If it was another one, I'm not aware of that.

Q. And if we go to the next meeting on the 10th of November, DAO.002.14998, this meeting where you weren't present, page 3, the very bottom of the page, second to last bullet under the heading, “Mine design.” “Preliminary layout of rescue chamber revised and final design for excavation of PTM in progress. Expect complicated excavation due to location and presence of Slimline shaft, M&M access, ventilation and gas drainage riser requires planning session with OPS.” Are you able to help us with what that was referring to?

A. That’s referring to the same area so it’s saying that there would be a complication, so this would indicate that there was some expectation of having to excavate the stub, so the stub’s only 15 metres I believe and so obviously to – the people who are working on this, I imagine it was Doug White and Neville and others that were doing the work on it and perhaps Terry Moynihan, were looking at it with a view to how they would go about doing that excavation given that the Slimline shaft was there, the gas riser is the pipe where the gas that we collect for exhausting to the surface is located, which is near the Slimline shaft as well.

Q. To your knowledge what specifically was planned at that time in November?

A. I just don't know, understanding I suppose I'm feeling a bit aware that you've said I wasn’t attending these meetings, the ones you've put up on the board are the last six weeks after I became the chief executive and you've already pointed out earlier we had a lot of funding issues that I was dealing with, and these meetings were essentially the meetings of the operations manager or site general manager, I was an invitee if you like, it was his meeting and I used to get the minutes emailed to me but I didn’t always read them if he gave me a good summary so there was a lot of things that would happen in those meetings that I wasn’t necessarily even in the room for and didn’t always need to read the minutes of them.

1030

A. So mostly my interest at getting an output of these was if the general manager had a particular reason or the operations manager had a particular reason to raise an issue with me or when they were compiled on a monthly basis to go into the operations report in the middle of the month so if there was any outcoming from these minutes that was important to go to the board then they'd be compiled within the operations report on a monthly basis but otherwise these, being weekly operations meetings that they are, would go through all sorts of detail that was being dealt with by the operations team.

Q. To your knowledge what was the emergency escape strategy for workers in the mine as at November 2010?

A. The primary egress in pretty much every scenario is the tunnel itself. There's not a lot of scenarios whereby you would need to egress from a mine other than straight down the tunnel so that's the primary egress from the mine. If there was a need to escape from the mine for other reasons such as possibly if there was no fresh airbase fire in the tunnel given that it was a stone tunnel, there's low scenario likelihoods with, where there'd be a fire in the tunnel. The machines have all got fire suppression on them and the conveyor was in the tunnel but the drive-head was outside so again a low likelihood of a fire occurring in the tunnel itself but one of the reasons, one of the ways to escape the mine would be via the shaft which was still deemed to be an escapeway. The top half of the shaft had a normal stat compliant, a staged ladderway and the bottom of the shaft had a navigable, a usable ladderway which could support people's weight and it also had the catenary wire and harnesses for a fall arrest should they be required or desired to be used at the bottom of the shaft. A preference however for a lot of scenarios would be to go the fresh airbase given that it might be a temporary smoke inhalation issue so the fresh airbase would be a more desirable thing than climbing out of the shaft. It's one of the reasons we, that discussions with the inspector were that we didn't designate it as the defined second means of egress if you like which would give it a particular status because at the, there was an

understanding both the management and the inspectorate and the workforce and I suppose in general that the people who worked in the mine that the, because the Alimak was only 2.5 by 2.5 we couldn't get a staged ladderway in and that that shaft was going to be used until such times as we could do the next egress adit in the coming year and therefore most scenarios would have you either egressing out of the main tunnel or using the fresh airbase and it'd be a very low likelihood that you would need to use your escapeway but it was available.

Q. Did I hear you say that you did not consider the ventilation shaft to be a second means of egress but rather an escapeway?

A. There's a different term for a second means of egress which you would notify the inspector that we deem this road to be a second means of egress. We actually had a lot, quite a lot of discussion and the management of the company had, as in the operational team on site, had the discussion as to whether it was best to deem it, the second means of egress. By deeming it a second means of egress that means your escape plans and your emergency response management plan and your plans that show dotted lines to your egress would've directed people to go to use that shaft. People were aware it was there. They were aware that it was able to be used and the harnesses were there and the ladderway was there and everything else and there was physical access into the area but actually deeming it to be the second means of egress would mean that you would want to direct people to go and use it as a preference. The preferred option from the operations team on site in discussion with the rescue and the inspector was that it was more appropriate to use a fresh airbase as the secondary issue for the, from the primary egress which was the tunnel.

Q. Do I understand you to be saying that the ventilation shaft was not the second means of egress at that time?

A. Unless the mine manager whose responsibility is to deal with these matters had deemed it to be so and I'm not aware of that, no.

Q. What was the second means of egress in November 2010?

A. Yes, the mine had a primary egress in the tunnel, it had a fresh airbase and it had an escapeway where you could deem the shaft to be the second means of egress or you could deem it to be an escapeway pending the installation of the permanent second means of egress.

1035

A. Prior to the shaft completing there was no second means of egress so this is a construction phase of the mine. So up until June 2009 there was no other egress other than the tunnel. So from June/July 2009 the shaft was able to be used as an escapeway. Some could have deemed it be a second means of egress. We could've taken that route and say, "Yes, that's our second means of egress, we'll just call it that." But we believed that the fresh air basis was a better option, making it a safer place for people to go to. And once you start saying that's your second means of egress and you term it that and then you train people in it, you're telling them you want them to go there. The base on a risk assessment's done in early 2010, as I said, by mine management and they our operational management, safety management and the Rescue Service and in consultation with the inspectorate, as I understand, remembering that these are operational site management issues and they are not my position to override as a general manger, they're mine managers decisions. My understanding was that it was deemed to be, or appropriate, to have a fresh air base as the secondary safety scenario rather than the shaft.

Q. Just to be clear, the fresh air base is not something that you can get to the surface through?

A. That's correct.

Q. It's not a means of egress?

A. That's correct.

Q. And I just want to make sure that we're very clear from the company's perspective, was the ventilation shaft the second means of egress in November 2010?

A. Are you asking me to speak on behalf of the company?

Q. Just speak to the best of your knowledge?

A. My understanding was that the shaft was an escapeway and the secondary safety scenario from the primary egress was a fresh air base. Whether it was deemed by the mine manager to be the second means of egress I cannot categorically state one way or the other. It was not my decision, it wasn't the company's decision and it wasn't the general manager's decision as to whether it was a second means of egress or not. You're asking me to be specific and I can't be so I'm sorry that's the answer I can give you.

Q. You've drawn the distinction a number of times, can you tell us the difference between an escapeway and a second means of egress?

A. In general parlance, are the same. In general parlance, sorry, an egress and an escapeway are the same, that's in common parlance. Then in under coalmining concept a second means of egress would be a route that has been determined by the mine manager and notified to the inspector under the legislation as being the secondary escape from the mine should a primary egress not be the desirable one. So in general parlance there is no difference but in being pedantic as a compliance with legislation position then it was deemed by my management not to be the appropriate thing to do to call it the second means of egress but for all intents and purpose it forms the same, it performs the same function.

Q. Can you tell us why there would be hesitation in labelling it the second means of egress?

A. Because you want people to make a choice between their primary egress and the secondary egress. And for all of the scenarios that were reviewed by the risk assessment and by the competent people that were involved in that, as I said, the mine manager, the safety department and the safety department and the Rescue Service and the inspectorate that reviewed the decisions that came out of that it was deemed that the primary safety scenario would be to use your primary egress. The secondary safety scenario, rather than go up the escapeway, which is an egress from the mine, would be to use the fresh air base. Once you deemed the shaft to be a second means of egress then by implication,

to the mining industry, the implication would be that if the first scenario or the first primary egress isn't available then you should go straight to the second means of egress. But the desired safety scenario was not to go to the escapeway, not to go the second egress, but to go to the fresh air base instead. That's as I understand the decisions were made by the management in 2010.

1040

Q. To your knowledge what difficulties would workers encounter trying to leave a mine through the ventilation shaft?

A. Climb a ladder.

Q. In the event that a worker was trying to climb that ladder after an explosion would that affect the difficulty of escaping by that means?

A. It depends where the explosion was.

Q. If the air were not respirable presumably someone would be using a self rescuer?

A. Correct.

Q. Was there ever a test to see if someone could physically climb that ladder while using a self rescuer?

A. I don't know, that's not something I'm aware of.

Q. What difficulties would someone encounter if they tried to climb that ladder using a self rescuer?

A. Well, breathing through a self rescuer would not be as easy as breathing without a self rescuer unless you are in an irrespirable atmosphere in which case it's a lot easier to breathe with a rescuer. It would give you fresh air so that would make it easier than climbing in smoke without a rescuer but if you're only talking about physical, someone climbing the ladder in fresh air without a rescuer compared to with a rescuer there would just be the normal snag and physical attributes to it and there'd also be the attendant issues of breathing through breathing apparatus rather than your open mouth, but again I'm sure you have other people available to you that could give you those answers better than myself.

Q. I think you referred earlier to some safety harnesses that were part of the ladder mechanism. Can you just help us to understand that?

A. No, I can only tell you that I understand there's a catenary wire down the shaft, down the Alimak phase of the shaft that's connected from the roof down and runs adjacent to the ladder and there are harnesses stored at the bottom of the Alimak shaft that can be donned by people climbing the shaft, should they wish to, they don't need it for the top section, but it was put in as an additional safety consideration for climbing out of the bottom part of the Alimak, or the Alimak itself and that you would put on those, connect to the catenary and it's a short lead fall arrest so we you'd lose your footing or potentially even just want to have a rest you could lean back and use the weight, put your weight on the fall arrest using the catenary wire, so it was an additional safety feature rather than just free climbing a ladder.

Q. Do you know how many safety harnesses there were?

A. No.

COMMISSION ADJOURNS: 10.43 AM

COMMISSION RESUMES: 11.00 AM

THE COMMISSION ADDRESSES WITNESS – SPEAK UP

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. If we could have PW28 up on the screen please. You've mentioned the fresh air base. Can you show us on the plan where that fresh air base was?

A. Yes, it was at the top of tunnel coming in from the right-hand side and it's in this stub just here where the words, "drive for fan" are located, although the arrow goes to a different place. It's opposite the road that goes up to the shaft.

Q. Can you tell us physically what was present at the fresh air base?

A. No I can't. It's not within my area of knowledge in recent times. Like work had been done on it and the last time I'd been underground was for a quick visit a week or so earlier and I hadn't gone into the fresh air base. So, no, others would be able to give you a much better understanding of what was there than me.

Q. Did you know whether it was in any way sealed off from the rest of the mine?

A. No, I understand it could be. So it had a door system or something on it. Whether it was brattice or timber, I don't know.

Q. From your knowledge of industry practice in New Zealand and Australia, is it common to use a ventilation shaft as a second means of egress?

A. Yes.

Q. Do you say that because you are aware of other mines where that is the case?

A. Yes, I've worked and managed mines where that's the case.

Q. Where was that?

A. Specifically, Tower Colliery in New South Wales was a 500 metre deep, two-shaft access mine with no walkout. Just had a winder in both shafts. That was the primary ingress and egress from the mine. Cordeaux Colliery was right next door to it and it had two shafts, primary

ingress and egress via 500 metre deep winders. Other mines I've worked at have had small staple shafts within the mine where the egress was 30 to 40 metres high up a ladderway.

1104

Q. You've referred several times to an adit that was planned and which could potentially have been a second means of egress. Is that right?

A. No, it was intended to be the second means of egress rather than potentially.

Q. If we look again at the map, WCRC0001D, which I think you may still have as exhibit 12 in front of you, do you or if we can have it passed back to you, is it possible on that map to indicate where the adit was intended to be?

A. It's not the best plan to put up for that purpose, no, I had other plans in my submission yesterday which would've been easier to show you on and I think I actually did describe it with one of Ms Shortall's questions and was able to put a mark on the map yesterday, but no, that would be a bit of guesswork on this one, the scale is too high.

THE COMMISSION:

Can you help us Ms Shortall, do you know which plan was used yesterday?

MS SHORTALL:

Yes Your Honour, let me just find it.

MR MOUNT:

Was it PW3?

MS SHORTALL:

No, it was later, I think I –

THE COMMISSION:

28 I've been told.

MS SHORTALL:

Actually I think if you try PW29.

CROSS-EXAMINATION CONTINUES: MR MOUNT

A. No, that's not a current mine plan but it will do for the purposes. The first of the hydro panels is just here and you can see the current mine workings were to this point.

Q. It's coloured in yellow just for the record.

A. In yellow, yes, sorry I was looking at the written record, so the yellow, the first extraction panel closest, out to the eastern side of the mine, on the current mine plan which is shown in other plans we have, instead of turning to the right and going to the north and having extraction panels in this area to the north the mine continues to the west, the main roadway continues to the west and then turn right and go up a bit further so the second means of egress adits were planned to be somewhere adjacent to that central line, the workings on this plan don't really show it very well. There possibly was another plan that might show it better but it wasn't the intention in my submission to show those although there are other plans that have them marked on it, so somewhere in that vicinity, west of where the first panel was and out to the west of where current workings are and just slightly to the north.

Q. In fact I think if we look exhibit 8, I think it is in fact marked on that plan. Sorry, I'm told it's exhibit 9. Perhaps if we zoom in, was the adit planned to emerge at the point where there is a red circle and the words, "Second egress?"

A. There's two actually planned for that same location, whether one or the other was used that's just the plan that was put together on 10th of November 2010, four year plan and that's got a number of panels, you can see we're progressing out to the west and then turn north and there was actually six options had been evaluated for where the closest and easiest access for a second egress would be and for a second ventilation input, it was basically to be a second intake and return, and

that was where it was chosen to be, so that was on our current plan for this year.

Q. Is it correct that that second means of exit had in fact been planned for several years by Pike?

A. Well, the whole mine had been planned for several years by Pike. It's part of the future mine plans so when the mine was started a number of features were identified. There's a whole bunch of emergency exits that were put into the resource consent that are out on the western escarpment that had been in the plan for years as well, but you would never install those until you're actually mining towards them, so yes, it was planned. The actual location of it is, I won't say arbitrary, but it's not fixed until such times as you actually come to do the detail mine planning so in the 2005, probably 2006 mine plans there was an adit, probably in a physically similar area but accessed via roadways that looked nothing like this current plan. Mine plans very rarely stay stable for several months let alone several years.

1110

Q. If we can look at GDC1761, which was the annual plan submitted on the 20th of October 2005, in particular if we look at page 68 of that document. If we look at the bottom half of the page, that's describing emergency exits from the mine. At that stage in 2005 it was contemplated that construction of emergency exits would commence in 2008 but it seems that some priority was going to be given to the second means of egress, which I think is what we've just been talking about. Is that right?

A. Yes, but this was 2005 so the concept of where it would be, and that was on a different plan, but the concept of a second means of egress to break in the Pike Stream was the one, that's actually shown on figure 12. So if you have figure 12 there to look at you'll see where it was planned for at that stage.

Q. If we look at the next paragraph there, originally Pike River planned to use the ventilation shaft as a second means of egress but with this shaft being at least 100 metres vertical it's not suited as an emergency exit?

A. Mmm, I don't agree, I know it's our document but I think that was poorly chosen words by the environment manager at the time and I think it's been pointed out to me that stayed in the document for the next 12 months and then was changed eventually to be not a permanent means of second egress. I think the point was made by Mr Jones the other day in his submission, and I'd certainly reinforce that, but these documents that are submitted to the Department of Conservation are submitted to our landlord, if you like, to give them an indication of what the likely impacts on the environment will be. It was neither Pike's expectation nor DOCs expectation that they were reviewing our safety management system for adequacy or whether we had planned egresses or not. It was not their issue to review so tended to put everything into the annual plan that you might possibly do in the next 12 months that might impact on the environment. And that was the nature of an annual plan report to DOC, it wasn't meant to be a safety oriented report.

Q. What degree of priority, to your knowledge, did the company give to developing that second egress adit?

A. Well it was being, a sort of moment ago we had a number of options we were looking at where we could put them, where we could get one that was as close to our current workings as possible and still give the requisite amount of safety. There's no point having a second egress coming out into a valley that's not accessible so we did a lot of surface reviews of multiple sites to see if we did come out into that particular sub-crop area would it be safe for the men to come out. There's no point coming out to a point that's within the flood zone, for example, of the stream. So it had to come out at a point that would be suitable and that could get helicopter access to it. Again if they come out in the back blocks of Pike Stream and you can't get to them it's not a very safe place to go to either so it had to be accessible. So there was a lot of thought put into what would constitute an appropriate place to get an egress. It's pretty tiger country, there's no easy place to come out and suddenly have a wonderful spot for a bus to come and pick everyone up from. So whatever was going to happen it was going to have to be an

emergency evacuation so we had to find a spot that was both suitable to the mine plan, in other words that you could actually mine there, and then when you did egress from the mine at that point, given that there's no outcrops in that area, the first outcrop's up at the adit, that's up at the top of Pike Stream, so none of these would be able to be just driven straight to with a coal miner, you would have had to have done drill and blast tunnelling. So we're trying to minimise the amount of tunnelling you'd have to do from the coal seal to get to that surface point. So, yes, quite a lot of consideration was given to it. And I think you've shown me a number of documents this morning that had operational reports et cetera and I'm sure in one of those I've read that priority was being given to the drive just to the west to ensure that the egress was accessed as quickly as possible.

Q. We saw on exhibit 9 the bridging panel and the work that was being done to commence hydro-mining in late 2010?

A. Yes.

Q. If, for example, the company had devoted resources to driving a roadway towards that second egress rather than commencing hydro-mining would it have been possible to complete that second egress by late 2010?

1115

A. I'm not sure. I haven't done that calculation. There was obviously an expectation to achieve a range of objectives from the mine plan and a range of objectives from the business plan, one of which was driving to the west and the consequence of that was being able to put in that next means of egress. The fact that we had adequacy in the minds of the, manager of the mine at the time and the inspectorate to, until such times as we could put that egress in was obviously recognised by everyone that having a, and it's common sense that having a walkout egress is better than a ladder egress. That's a given. It's also better than having a winder egress so getting up to a point where we could put another adit in and give ourselves a third entrance was a good thing so it was always planned to be there and it was currently part of our priority in planning.

Q. I'll move on now to the topic more generally of ventilation of the mine. Can you tell us in general terms what the purposes are of a ventilation system for a mine?

A. Air ventilation has a number of functions, one it provides oxygen and fresh air for humans to breathe. It also has the purpose of taking away noxious or flammable gases and dust from working faces, maintains the climate underground so from a cooling point of view and also prevents accumulation of those gases and generally keeps a fresh environment.

Q. There is a special regime for what are defined as gassy mines under the New Zealand Mining Regulations. Are you familiar with that?

A. Yes, I am familiar that there are regulations for gassy mines.

Q. And Pike was a gassy mine in terms of the regulations?

A. Yes, determined as greater than .25% general body over three days or three consecutive days and then we deemed it to be gassy just before it entered the coal seam.

Q. The feasibility study in 2000 contemplated that there would be a ventilation officer appointed at Pike. I think that term ventilation officer is an Australian term, is it?

A. Correct. Well I don't know if it's an Australian term but it doesn't exist in the New Zealand legislation, no.

Q. Was the position of ventilation officer established at Pike?

A. We didn't employ someone separately to be the ventilation officer, no. We had our original technical services manager, Guy Boyes, was a ticketed ventilation officer under the Queensland. It's only Queensland that has that particular role. It was one of the, Commissioner Bell may contradict me but I believe it was one of the recommendations out of the Moura inquiry that the ventilation officer be appointed to the mine and where he's, he could undertake other duties but the role of ventilation officer had to be primary so he could be within the role of the other manager in charge or the mine manager but he had to have his ventilation role as primary. Well that was at Queensland, to my knowledge Queensland legislation requirement, that's not the case in New South Wales when the ventilation officer ideally has a VO ticked, a

ventilation officer's ticket and it's a separate role depending on the complexity and size of the mine, not just because it's a gassy mine, that just means there's gas there. It's a complexity of the mine and at Pike Guy Boyes had a ventilation officer's ticket and Steve Ellis who we'd recently appointed as production manager was similarly qualified as a ventilation officer in Queensland which is the only state, relative state that actually has an official qualification for that role.

Q. Perhaps if we just look back at PW22, the chart of the management positions at Pike. We can see Mr Boaz in that position through to the end of 2006. Can you just help us with who carried the responsibilities for the ventilation system throughout the period up until the end of 2010?

1120

A. Well it didn't change even when Mr Boaz was there. The role of the ventilation officer because it's not defined in New Zealand legislation, sits with the mine manager unless it's able to be delegated to someone more qualified and they give a legal delegation of that role, but under the New Zealand legislation there's no role for ventilation officer so the mine manager is always the ventilation officer. If you've got someone else with a ticket then you may delegate jobs to them, but the role of ventilation officer is inherent in the mine manager's responsibility. As the mine got larger and we got more complicated, but I'm talking in several years time, I'm talking now, then there may have been an opportunity to have a separate ventilation officer, although more than likely that role might have sat with the technical services team or one of the underviewers, but at the moment the mine, while it's determined to be gassy, it should be not confused that gassy is the same as complex.

Q. Who designed the ventilation system for the mine?

A. It had a number of inputs. In 2000 – well there's probably someone before, but in 2005 Minarco's – or maybe it was 2006 – Minarco's ventilation officer, Phil Mitchell, did a report for Pike on the potential layout of the mine. I then engaged a guy called Andrew Self from Australian Coal Mining Consultants in Brisbane to review Mr Mitchell's

report and peer review it, and then he came over. He was doing work for Solid Energy and Spring Creek at the time and came over and did some work for us at Pike. Subsequent to Mr Self, these guys are very, very busy and very well sought after and unfortunately the West Coast is a long way from a lot of their primary areas of activity. We then engaged Mr Rennie, Jim Rennie, who was able to give us more time and consistent time and stayed with our project for a number of years and so Mr Rennie did a lot of work on our detailed ventilation design. We got work done so that we could go out to tender for our main fans and so work was also done by the fan consultants themselves, so basically in designing the fan, and then we had those reviewed by, I think Mr Rennie did those as well, and then more recently we've engaged John Rowlands, Dallas Mining I think his company is, and he became the ventilation consultant to the mine as well. So we've had a ventilation consultant involved in the design of the mine, design of the fans, design of pretty much everything consistently. We did change ventilation consultants but pretty consistently right from 2006.

Q. If we look at Minarco's ventilation and gas design report from June 2006, that's DAO.012.002007, do you recall this report?

A. Yes I do.

Q. And if we look at page 4, the introduction to the report, we can see that the purpose of the report was to determine mine ventilation quantities and fan duties?

A. Correct.

Q. But there had been a preliminary report in 2005 and this was updating that.

A. Yes.

Q. And there was reference to the Brunner seam being gassy with contents between two and 10 cubic metres per tonne. It's noted there that the permeability is variable but particular high near the fault and in the area of the drift entry. Is that correct to your knowledge?

A. Well I know the seam permeability of itself, like just steady without being broken, was very high, I think in the order of 200 millidarcies, and by

order of magnitude the mines I'd worked at which were deemed to be reasonably high permeability in New South Wales were in the order 10 to 20 millidarcies, so 200's more like Kestrel, Central Queensland permeability, but I think it would be a common sense understanding that at very broken ground you would have artificial permeability or induced permeability in the ground due to the fact that the ground would be broken and shattered for that large fault. That's not the same for all faults at Pike.

1125

A. We had a lot of very tight faults which don't show any difference in structural integrity at all, no broken ground or shatter zones as was described the other day, but around the Hawera Fault certainly, we have that broken ground there for higher permeability.

Q. On page 5 it is said that –

A. – if you'd permit me, since you already had that page up?

Q. Yes.

A. Would you let me show you something on that page as well?

Q. Of course.

A. Will you show that plan please. Just showing on that plan, that drivage there with a hook in it is the second means of egress adit that was envisaged in the 2005 plan.

Q. Just to talk that into the record, you've indicated on the plan on page 4 of the document, if we look from the bottom of the page there are two crosses going up on the left hand side, it's just above the second of those crosses?

A. Yes, and I'd note that the original point given that the tunnel is coming from the right hand side, this is pit bottom, where we're planning currently to put the adit, is probably only about halfway along that so the original plan from 2005 actually had the second means of egress quite a lot further out into the lease and we've been able to find a good spot for it closer in, so just to your point of saying did we put a lot thought into where it would be, yes we did and we were trying to find somewhere

that was as close to where our current workings were as possible, which is only about halfway to where it was originally thought to be.

Q. If we turn over to page 5 of the document, there is reference to the gas contents around the pit bottom area being between six and eight cubic metres per tonne?

A. Correct.

Q. And also to the fact that gas drainage would be required prior to mining the coal between the stone drive and the connection to the ventilation shaft, both correct to your knowledge?

A. Well, that was their opinion and it depends what you're trying to achieve. You can mine coal at six to eight metres per tonne without any drainage but if you want to retrieve a low gas environment where you don't have the same pollution in your intake roadways then an ideal target that I've had at the mines I've managed has been to try and get the roadways down to about three cubic metres per tonne before you mine them and then they're usually pretty much free of methane, you don't have to worry about it so much, but you can mine at six to eight, I've mined at 10 without any drainage. It's a bit of a pain and you have to put a lot of gas blowers, air blowers in and move gas around but gas drainage has not been around forever and mines have been mining gassy seams before so, yes, gas drainage would be ideal, at six to eight you can mine, that is below outburst thresholds, it's below anywhere, you'd be really concerned of having too much gas although it would just be difficult to manage at that level.

Q. We have a diagram, DAO.003.16431, page 12 which I'll just show on the screen, now it may be a little bit difficult, we may need to zoom in on that. This I think is an estimate of the gas content at Pike, if we can zoom in on the bottom half of that diagram so we can read the numbers. To your knowledge is that an approximately accurate assessment of the estimated gas content throughout the mine?

A. Yes to the extent that this work was done early on in the mines planning stages and it was interpreted from all of those bore holes, since I started in 2005, additional bore holes we've put down have also had gas work

done on them and nothing we've put down has indicated that this would be inaccurate but I can't attest to its accuracy across the whole lease, I didn't do any work associated with that, but that would be right, that would show that around, I think there's one bullet point up to the north and about Hawera, where we got one bore hole that showed 10 but the rest of the lease is sort of roughly zero on the western escarpment, four pretty much right through the middle of the lease and then along the Hawera Fault there's sort of sevens and eights and I think our mathematical average we did for the admissions trading scheme work indicated a mathematical average across the lease of 4.1 cubic metres per tonne.

Q. If we go back to the June 2006 ventilation report on page 6, there is reference to the fan duty?

A. Yes.

1130

Q. And if we zoom in on that first paragraph, the suggestion in that report was that the fan would be operating at 100 cubic metres a second to 240 cubic metres a second. To your knowledge was that the type of range that you were working with?

A. That's the range that you would need to develop the whole mine. If you, when you look at your plan you see where your fan's located back at the entrance, early part of the mine and subsequently you're going to be developing approximately five kilometres away so that the fans need to work at a range of duties although they need to be installed in the early life of the mine for what you think the absolute worse case scenario is going to be at the very furthest extents of your mine and part of that, when a ventilation engineer looks at the plan, they don't just look at the physical plan, they look at your mining plan as well and they look at things like, "Well where do you think you'll be mining at the same time? Are you going to have one working face, one out to the north, one out to the south, one across to the west?" That means I'm going to have all those leakage paths at the same time and they go through a modelling exercise to work out what the worse case scenario would be. We

started off the mine with a single fan on the surface with a 90 cubic metre capacity which was just enough to deal with around pit bottom. The two, we decided to go with two fans rather than one gives you a redundancy, again we're along way from the main market so if we had a major fan failure so it's better to have two and run parallel fans at about 120 cubic metres per second each and so in October the first of those two 120 cubic metre fans was installed and we were planning on putting the second, the original plan back in '05/'06 was to have the two fans quite close together around the pit bottom or 2006 was that's when we started looking at the underground fans was to have them quite close together at pit bottom. More recently we were looking at splitting those fans and having one close to pit bottom and the other one located at the other adit entrance that you showed me the two on the plan before and I think the most recent report I saw which I didn't see until I was doing homework for the due diligence a few months ago was the John Rowland's report most recent one from probably November, October/November 2010 where he suggested if we were able to get those adits and therefore reduce the intake pressures in the mine that we may be able to get away with just the one fan underground for quite a number of years if forever so these are dynamic situations.

Q. If we move on to page 8 of this report it refers to a number of key factors including the dimensions of the return, ventilation shaft and you can see there that the highlighted portion suggests that four metres diameter fully lined was the nominated figure but if it is retained as an unlined shaft 4.5 metres would be required. Can you just help us with that?

A. Yes, depending on how the shaft is excavated if you do a drill and blast like a sink shaft which is, it's called conventional shaft sinking so you come from the top down, then you'll end up with very broken walls so you get a lot of drag on the air and so if you don't line it you get quite a lot of air turbulence along the edges of the shaft and it can create, it'll effectively act as if the shaft is smaller because that turbulent area is not able to be used to transport air so the shaft is effectively smaller than what it physically looks like so one way of dealing with that is to fully line

both from a supporting the shaft point of view but giving you a smooth wall to also reduce friction and some shafts have been lined with steel tubes and then backfilled with concrete into the annulus, others are slip formed with concrete all the way depending if they need structural support. In our case because the shaft was raise bored you end up with a, and notwithstanding the fact that the lower portion collapsed, I take that into account, but the sandstone itself as I think Dr Newman spoke about is extremely fine grained sandstone. It's a couple of hundred megapascels, very, very strong and we looked at whether we'd need to even support the shaft let alone line it so we ended up with quite a good gun barrel shape. We excavated it to 4.2 and then, because that was the largest head, that the mountain where you could basically put the drill rig on the mountain was the largest shaft size that we could get with the head capable of being reamed and because it was smooth bore and then just bolted and meshed we ended up with effectively pretty much a 4.2 metre diameter lined shaft, equivalent of.

1135

Q. If we turn over to page 11 there's reference to the gas content at the proposed seam entry location. And I'll give you a moment just to read the highlighted passage?

A. Yes. Sorry, which report did you say this was from?

Q. This is the 2006 Minarco –

A. Phil Mitchell's report, yes.

Q. Yes. The last sentence of the first paragraph I think relates to what you were saying earlier about the need for pre-drainage of the coal. Here the opinion is expressed that to avoid dangerous accumulations of gas at the in-bye end of the stone drive pre-drainage of the coal is necessary. Is that a statement that you would agree with?

A. No, that's given as a factual statement, it's really his opinion. Gas, as I said, has been managed for a long time before gas drainage came along. You asked before what the purpose of ventilation is. And the purpose of ventilation is to remove gases and dangerous, prevent dangerous accumulations so there's more than one way to manage gas.

Ideally, if the gas isn't there, it's easy to manage. So pre-drainage is a very good thing to have, especially if you've got time to get the decay curve down, a decay curve being the gas is drawn down from the coal so that the volume decays, if you like, it's called a decay curve.

THE COMMISSION:

Q. It's called the what?

A. A decay curve. The gas volume decay is from say 10 cubic metres down to two or three.

CROSS-EXAMINATION CONTINUES: MR MOUNT

A. In the case of the pit bottom area where we intersected the seam we did have some gas but nothing like what was previous predicted, we didn't get the water or the gas that was touted across a number of forums as being imminent, it just wasn't there. So the area was a bit tighter than was expected. In other words didn't give us gas up as quickly as expected but that as managed with ventilation. We did do inseam drilling from pit bottom but by the time we got into the coal the ability to actually pre-drain from while you're trying to drive those roadways is limited. So that pre-drainage was able to more affect the roadways that were further away from the immediate drive to the shaft.

Q. So pre-drainage was not done at that pit bottom area. Is that what you're saying?

A. Pre-drainage was started from pit bottom but it wasn't done of pit bottom prior to mining into it, no.

Q. If we move to page 16 there's reference to gas content and the returns. And it was thought at that stage that the return methane content would vary between .8% and 1% during extraction at a nominal rate of 225 tonnes an hour. Can you just help us to understand what that reference is to the methane content and the returns?

A. Yes, that's saying that as gas is given off from the coal ribs of the driven roadways and also as it's being liberated from the cut face immediately so it's liberating the gas with a continuous miner and also as it's being liberated from the extraction process, there's a number of ways that gas

comes into the mine. Then that will increase its percentage in the roadway which is a direct function of how much air you have to dilute it. So the same amount of gas, or gas make into a roadway that has five cubic metres per second will only have half the percentage of a roadway that's carrying 10 cubic metres per second. So what this paragraph is saying is that on the estimation of the engineer that did this report in 2006 that the return roadways, which are the airways taking the air back to the shaft, would be containing between .8 and 1% if that was the way that all the gas was liberated from the mine and ran through those roadways. And the limit for those roadways for diesel vehicles is about 1%, or is 1%, and for people is 2%. So keeping it below 1% would be ideal.

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Q. And on page 21 of the report, this is still the 2006 report, there was a recommendation that gas monitoring in the mine be by way of a multi-point tube bundle system monitoring both sealed areas and main and panel returns together with real time monitoring at the main pump stations. We'll come back to talk about tube bundling shortly, but do you have any comment at this stage about that initial recommendation in the 2006 report?

A. I agree with it. That was certainly the strategy for Pike.

Q. Now following that report there was a ventilation management plan for the mine as I understand it?

A. As a consequence of this report are you saying?

Q. Following this report?

A. Yes.

Q. Now that plan we have is DAO.003.07114. It was dated the 18th of November 2008 with page 2 and signed off on that date.

A. Yeah, I think there was other versions before this but yeah this was the one that was done for the shaft holding by the mine manager, yes.

Q. That plan dated November 2008, was that the current plan at the end of 2010?

A. It was the current signed-off plan. I must admit I have asked that same question in conjunction with other discussions obviously since the date. This plan I've been back and read to see that my first impression was it was actually signed off prior to the shaft completion and I thought there might have been another one just done afterwards but the reality is this plan that Neville Rockhouse and Kobus Louw signed off on was done in anticipation of that shaft completion. So this takes into account the ventilation system post shaft completion which is fine. Ventilation management plans or any management plan is an overarching document that usually is reviewed every two years unless there's a significant change. So in this case this plan was written for a shaft with a fan on top of it and that stayed in place then right through 2010. My understanding anecdotally because I asked the question after he left, was that Doug White had been redrafting this management plan as part of the installation of the fan underground and at the time as of the 19th of November, he was operating to a, as the mine manager, was operating to a redraft of this management plan which he was finalising post the installation of the fan but may not have had time to do and the events of the 19th overtook him.

Q. If we look on page 53 of the document, I think the procedure was that only the mine manager could authorise changes to the ventilation management plan?

A. Correct.

Q. In 2008 that was Mr Louw I think you said?

A. Correct, through until early 2009.

Q. On page 57 at paragraph 103, perhaps if just show the whole page first. That's the paragraph I wanted to highlight. There was a requirement that the mine manager appoint a ventilation engineer and other competent persons to carry out the requirements of the plan. To your knowledge, were formal appointments made for the position of ventilation engineer at Pike?

A. No. I think you've asked me that question before and I said that the role of ventilation engineer was contained within the mine manager's role

until such time as it was deemed that we needed an independent person to carry out that role and I would have expected, even though it was going to be contained in the same person, that Steve Ellis who had been just recently recruited, with both a mine manager's qualification and ventilation officer's qualification, would undertake the role of both statutory mine manager and ventilation officer and he wouldn't need to appoint himself as the ventilation officer because he would already hold that role.

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Q. The distinction I think I was drawing was between ventilation officer, which was the phrase used in 2006 and this specific requirement there be a ventilation engineer appointed?

A. No, there was no specific role at Pike River entitled ventilation engineer. We did that by having, it's actually very difficult to recruit people with specific ventilation qualifications that don't otherwise have other management roles in the mine, unless you're a very, very large mine and you have a specific job for that person and it's like part of their career path, more likely will sit, especially for a small mine like Pike, within a management position until such times as the mine gets big enough to warrant that as a separate position, so we supplemented by having a full-time, on-call ventilation or a designated on-call ventilation consultant available to us and they act in that capacity.

Q. The intention at this time in 2008, I think you already explained, was to have two fans underground?

A. The long-term strategy, correct and until – that still hadn't been changed other than the very most recent report by Mr Rowlands who suggested that possibly you could do away with the other one for some foreseeable period but that hadn't been challenged or checked at that stage.

Q. The intention in 2008 was also that the ventilation shaft would be 4.1 metres in diameter. Is that right?

A. Which is what it was built to, yes, which would take the exhaust from both of the underground fans.

Q. And if we look on page 33, paragraph 6.1 the intention was that remote atmospheric monitoring would be by way of a Tube Bundle System as the primary monitoring system together with a real time monitoring system?

A. Correct, that was the intention of the management plan, yes.

Q. And at page 34 there was a contemplation that the tube-bundle system would operate continuously?

A. That's what they do, yes.

Q. Except when shut-downs and maintenance and so on. As at the end of 2010 is it correct that the company didn't yet have two underground fans?

A. That's correct.

Q. That the shaft was not 4.1 metres from the mine to the surface because of the Alimak raise?

A. That's correct.

Q. And the tube-bundle system had yet to arrive?

A. It hadn't even been ordered at that stage.

Q. I want to ask you now about the location of the main ventilation shaft. You referred yesterday to exhibit PW25 which showed the original, I think the original location of the ventilation shaft which was going to be east of the fault in stone. Is that right?

A. No.

Q. If we can pull up PW25.

A. That's showing west of the fault in coal.

Q. Perhaps you can just help us then, was that originally contemplated to be the location of the shaft?

A. Well, given that it was 1998, I didn't start until 2005 and I didn't see this report until earlier this year, I can't tell you what the original plan was. I don't know, have a look at the one that's in the 2000 – sorry, the 1995 CMS report that you showed me, I don't know whether it was nominated in that document as being different and what it was before that I don't know, I'm sure that these things change, well, it's changed on any

number of occasions since 2005 so I'm sure it's changed under the times before that as well.

Q. If we look perhaps at a report which we have as DAO.003.16431, this is a report by Mr Renk, perhaps if we just look at the first page to orient ourselves. We don't actually have a date on this document but it was obviously during the time when Mr Renk was present at Pike. On page 13 of that report –

1150

A. I think this is about 2000, it was possibly done AUSIMM conference, given that the title is quite, sounds like a conference-type title and I think it might have been contemplated, if not given, at possibly the 2007, and not 2008 AUSIMM conference, mmm.

Q. If we look at the bottom paragraph, second sentence, the proposed shaft location is east of the Hawera Fault sited in Gneiss rock, Gneissic rock?

A. Yes.

Q. To your knowledge was that correct, was that the original, or was that the proposed location at that stage?

A. There was a proposal for a period of time for the shaft and we went through an evaluation process of that. So at the outset of the development of the mine, so when the tender was let and when the tender was awarded, the contract was for the shaft to be on the west of the Hawera Fault and coal measures. We then went through a period of looking at whether we could bring it to the eastern side and whether there was any opportunity, and you'll note on some of the plans that you've had up with bore holes locations, there was a whole flurry of bore holes, some associated where the pit bottom and stone is and some associated just west of pit bottom in stone and just south of the tunnel, and those were associated with us doing some research into whether we could possibly get a shaft there which would allow us to get it in earlier and do it in parallel potentially with while we're still doing the stone drive. So it was an efficiency issue if you like, so we didn't have to wait till we got to the coal to put the shaft in. But it was abandoned as

an idea because the surface typography was so unfavourable. The surface geology associated with that typography was very very difficult. We would have had to have phenomenally large retaining walls halfway up the mountain and we could never guarantee the safety of the shaft, the fan, or the people there just because of the steepness of the cliffs. And therefore for a whole range of reasons we had to abandon the idea of putting it to the east and go back to the original plan of putting it to the west.

Q. If we look at the evidence filed by McConnell Dowell, MCD001 at page 22, paragraphs 90 and 91 at the bottom of the page. McConnell Dowell's comment is that a shaft location out-bye of the Hawera Fault was unable to be excavated by McConnell Dowell for a cost acceptable to Pike?

A. Mmm.

Q. And there were significant land stability issues. Does that accurately reflect the position to your knowledge?

A. Yes. But by definition of a cost acceptable we'll pretty much have to remove half a mountainside so, yes, it was a cost but it was not so much a five million dollars worth of work versus a six million dollar exercise, I think it was going to be a four or five million dollar exercise versus a 10 or 15 million dollar exercise. So it was quite a massive excavation and at the end of the day the ground wasn't suitable and the safety features and the suitability for the shaft as a long-term feature just couldn't be put there. I mean you saw the flyover yesterday, the ground is pretty inhospitable.

Q. When the current location for the ventilation shaft was identified?

A. Yes.

Q. Were you made aware of any concerns about the suitability of that site for the shaft?

A. Yes, the biggest issue, it was on the same site as we had two previous bore holes. I think from memory PRDH13 and 14, from memory. The biggest consideration was it was on a ridge and the ridge was deeply incised on both sides, as ridges often are, by two streams and the

ground was deemed to be quite unstable on the surface, unstable down to some depth. And the estimate of depth based on the call logs from those two bore holes back in the 1991 sort of era was that it could be unstable down to a depth of potentially 28 to 30 metres, I think from memory.

1155

A. So one of the considerations of the construction not only was the fact we would have to build large retaining walls and create a pad on the surface, quite a large substantial pad on the surface, but then we'd also have to pre-grout the hillside to stabilise the top 30 metres so the biggest consideration was how we would go about doing that and that's why it took a very long time. We actually started preparing for a raise bore back in March or April of 2009 I believe – sorry 2008, so quite early on in 2008. Also wanting to get a lot of that work done before winter because it snowed up there quite a lot, especially that winter it did, and so we did a lot of grouting, and I think, I can't remember how many thousands of bags of grout we put into that hillside but we pretty much reconstructed it. And as it turned out, when we did the raise boring that top 30 metres was beautifully stable and it had no issue whatsoever, pretty well glued together.

Q. Was a concern also raised with you about stability issues below 68 metres underground?

A. There were a number of structures in the original bore holes, I can't remember, but in another bore hole, number 31 again from memory. I can't recall all these numbers exactly but I'm pretty sure it was bore hole 31, was put down in the location of the shaft and that was call logged by URS on behalf of McConnell Dowell and they identified a couple of zones but deemed them to be minor, and I think I described yesterday when we were talking about raise bore, one of the considerations of a raise bore is there's a system called the Stacey McCracken system that you look at fracturing in shafts and the fault – sorry not the fault, but the fracture patterns and also the spacing of them to determine what the maximum span of a raise bore could be

and how long it can stand up. So all that work was done by URS and proposals were put to Pike and it was deemed that the immediate area above the coal seam interface, so the first eight or 10 metres, was of concern to them around the rider seam and Dr Newman's model that I have sitting beside me in the box here, of the rider seam with some interburden between the coal seam and the rider seam, that that would be problematic and so we had to put a lot of mega bolts in, 10 metre mega bolts, cable bolts in the bottom of the shaft area to tie up that and stitch is all together, and they also identified a couple of other fracture zones in the lower half of the shaft, but their determination was from the core analysis that that was suitable for raise boring at a 4.2 metre diameter and we also had RDCL do a report on that for us as well as URS, so we had two different geotech companies reporting on it, with a conclusion that it was raise boreable, to my recollection.

Q. We've already seen in image PW20 the effect of the Alimak raise that was put in after the collapse. Is it correct that the effect of that Alimak raise was to reduce the diameter of the shaft, effectively, from 4.1 metres down to 2.5 metres?

A. So, logically and physically yes. So the shaft, one shaft is 4.2 and the Alimak's 2.5, then yes the Alimak is smaller.

Q. Was there initially a proposal to make the Alimak raise four metres in diameter?

A. Yes. Again, I think I did discuss this earlier. There's a number of options. The 4.2 metre shaft was required to be able to, and you showed Mr Mitchell's report earlier that talked about having up to 240 cubic metres per second. So as it was going to be the only ventilation shaft, over the life of the mine it needed to be a certain size to handle the large volume of earth. In the early phases of the mine, however, you don't need anywhere near that amount of air and so the 4.2 metre diameter shaft was to take two, or in our case two, 120 cubic metre per second fans discharging into the same air stream.

1200

A. The Alimak rise was, we had some options mathematically had options without considering the physical aspects of it or the constructability aspects of it to consider whether we went with one Alimak raise 4.2 metres in square, they go up a square to completely replace the bottom of the shaft or to do a smaller size or to do two smaller size ones to half size which would give you the same and you just have one fan exhausting into each one because at two and a half metres or even 2.2 I think it was, 2.2 that was enough to be the exhaust for a 120 cubic metre fan. As I set out earlier, the concept of going to a four metre Alimak raise would've required significant stripping down of broken ground that had already been bolted and meshed and created its own hazards and because we only needed one raise to go with one fan then the overriding the safety aspect of the construction of it, the constructability of it and in conjunction with Alimak themselves because they have to be able to do the job and agree to do it. It's quite a long way going up, nearly 50 metres up an Alimak. It's not the shortest Alimak raise they would do. It's quite, testing the limits of what they would want to do safety wise. There are limits, I'm not sure if they're statutory limits in Australia for Alimak raises, there's not in New Zealand but the negotiated position if you like with Alimak was that 50 metres was fine but not stripping it out to four metres.

Q. Did the change to a 2.5 metre Alimak raise constrain the ability of the ventilation system to deliver the required amount of air?

A. No, no it didn't because the fan on top was a 90 cubic metre fan. It doesn't matter how big the shaft is, that's how much air it could've pulled because it's basically pulling its open circuit capacity because the tunnel and the shaft were not acting as a resistance in the circuit and at two and a half metres that was also more than enough for 120 cubic metre fan to exhaust without the Alimak raise forming part of the restriction of the circuit. It obviously adds resistance to the circuit because it's a two and a half metre tunnel with bolts and mesh in it so there's a resistance factor in there but it's not a resistance that wasn't overcome by the 120 cubic metre fan so it didn't resist that circuit. Had

we tried to put the second fan in then, yes, you wouldn't put two fans in on a two and a half metre Alimak raise but that was never the intention.

Q. You've referred already to the report by Mr Rowland in April 2010 which is DAO.012.02400?

A. No, I actually referred to Mr Rowland's report in October or November 2010, not April.

Q. We'll start with the April report with that reference. He said at page 4 that the circuit configuration was relatively resistive at this time but was being capably ventilated by the surface long-term standby fan, then I think it's consistent with what you've just said?

A. Yes. That fan is, in some mines the emergency backup fan is only quite small and it's only to ventilate quite a small area because we wanted to ventilate the pit bottom area where the underground fans would be we actually increased the capacity of it up to being almost a main fan capacity at 90 cubic metres per second.

Q. At the bottom of that highlighted passage we can see, "All return air exits the mine via the number one upcast shaft which has a very resistive part where the air enters the duct work at the shaft top." Now that would be consistent with what you've described I think of the design of the shaft. Is that right?

A. Sorry, I'm just reading the paragraph. Yes, it's very resistive where the air enters the duct work at the top of the shaft, that's right, which wouldn't have been ultimately once the main underground fans were commissioned.

1205

Q. On page 16 of the document there was some comment about the ventilation management plan, if we look at the top of the page, the first paragraph, there was a concern expressed at the bottom of that paragraph about considerable work to do to make that ventilation management plan a truly valuable management tool. Would you agree with that?

A. I'm not actually sure what you're asking me to comment on. Mr Rowland's reports were commissioned by and delivered to the mine

manager and the mine manager owned the ventilation management plan, until after the 19th of November I don't recall ever seeing any of

A. Mr Rowland's reports, they weren't ever addressed to me or copied to me or given to me. I know John Rowlands very well, I worked with him for many years in Australia, so I would see him at the mine, but he was not reporting on anything to me and I was neither the author of nor the editor of the ventilation management plan so I have no comment. It's the mine manager's responsibility.

Q. Finally on this report if we look on page 19 he says, "The ventilation circuit is currently relatively heavily constrained by the shaft top bend and the Alimak raise along with the resistance of a long single access drift." The view was expressed that these were relatively short term problems given that the new underground main fan was going to be commissioned. Is that consistent with your understanding of the position in April 2010?

A. Yes, it's also the position of most mines as they move towards the next phase of ventilation, they start to become constrictive, long hauls, high resistance roadways, they're overcome so putting in the new fan would overcome a lot of those issues because it's just a much bigger capacity fan and certainly putting in another adit would greatly reduce that because it would halve the resistance from the shaft, from the tunnel, so yes, and John was aware of our, John Rowlands was aware of our strategies and plans for the future.

Q. If I could turn now to the decision to place the fans underground?

A. Yes.

Q. When was that decision taken to your knowledge?

A. It was really only until you've processed, the idea was first mooted by, actually I don't know who by, I don't think it was one individual, certainly in the early stages of the mine's development our engineering manager, Tony Goodwin and myself were involved with things like Phil Mitchell's initial report and going out to tender and putting the tenders together for the fan. Whether it came up in conversation or where I don't know, but

we went back to Fläkt Woods after they made their original tender, Fläkt Woods being the fan company, Melbourne based fan company in Australia, that was probably the front runner to supply these fans and they had supplied a surface fan as their tender base. When we went back to them with an email I think I recall and said, “Have you ever given any consideration to designing an underground fan, do you know if that’s common practice.” Our concern was one of practicality in that the fan would be installed on the surface, above the snowline, with limited access, helicopter only, a real bugger in winter, fog, likelihood of a fan tripping off and no one being able to get to it except climbing up the shaft which isn't what you really want to do if maintenance fitter is going up or the electrician is going up to work out why it tripped off, so we looked at what our opportunity would be if we actually put the fan underground and exhaust up the shaft, because from a logic point of view having it above the shaft exhausting out of a little tail and having it underground is not much difference mathematically, and we didn’t really know whether that was done. I was aware myself that large booster fans, which is not much difference in concept, had been installed in Australia. One had been installed at West Cliff Colliery by BHP successfully and the ventilation officer there had gone on the speaking circuit around Australia pretty much explaining all the safety measures that had been put in place so the concept was not unprecedented in the very recent past and that’s the division I'd come from so I was well aware of that work, and I spoke to the ventilation officer from the colliery as well about what was the concept.

1210

Q. So when we contacted Fläkt Woods they said, by return email, “That’s interesting because we actually had developed that proposal for you but we didn’t have time to get it formally assessed to go into the tender, however, we’d like to propose that to you.” So they did propose that solution for two underground installed actual flow fans. And then we went through a iterative of process then by engaging, I think Jim Rennie was involved then after that Phil Mitchell wasn’t, and Jim Rennie came

and sat in a risk assessment and there was a full risk assessment done and what the ramifications would be to having an underground fan, how it would work, how you'd set it up, what you could do, what you'd do differently. And from recollection some of the conclusions were that there was only some technical barriers to making it work, none of which couldn't be overcome and that we could continue to plan for that based on the risk assessment that was done and the involvement of both the fan manufacturer and the ventilation consultant.

Q. I think we have that risk assessment you've referred to as DAO.012.02318?

A. Okay, that would be it. It was independently facilitated by Platinum Safety, just an independent safety company so that we weren't doing it as an in-house exercise because we took it as a fairly serious risk to assess.

Q. You'll see that copy is stamped, "Draft." To your knowledge was it ever finalised?

A. I don't recall. I just don't recall. Sometimes if you can hold the payment of invoices over their head then it's good to get a final copy of some reports out of consultants but they sometimes give you the draft then move onto other projects and it's hard to get one without draft written on it sometimes. So there may well be another one out of these guys that was finalised, I don't know.

Q. There were a series of controls proposed in this risk assessment I think, including if we look on page 13, that explosion protection would be built into the system. It's the fourth line from the bottom?

A. Sorry, fourth line category from the bottom?

Q. Fourth box, "Explosion protection should be built into the system?"

A. In the event of availability of spare parts proposed controls, yes.

Q. Do you know first of all what the need would be for explosion protection to be built into an underground fan?

A. Any fan. The fan that's on the surface, for example, explosion protection is a bypass door. So the fan sits off to the side of the shaft rather than directly above it so that if the explosion path goes up the

shaft it goes out through a, it's usually a rubber flap that's screwed down, so it's the path of least resistance, if you like, and that would be blown out and it should protect the fan blades so that you can restart the ventilation if required. For the underground fan, at the stage of the risk assessment it was a concept and said, "Well, you know, if you're going to put it underground you should give consideration to explosion protection," and whether that's done by bypass. One of the ways of doing it, and which was being designed for the second fan that went in, I would have to go back and look at the plans and discuss why or how that was taken into consideration with the first fan, but with certainly the second fan it was to allow an explosion path that was an alternate route to going straight through the fan. So in the case of the fan that was just currently installed underground an explosion that was to go through the return, for example, would go around the corner and would have the ability to bypass the main fan installation and straight up the shaft. But the actual detailed design of that and the installation of it I'm not the right person to be able to comment on that.

Q. Do I take it you're not sure what form of explosion protection was built in for that first fan going underground?

A. No, that's correct. The actual physical fan itself, the fan and motors and stuff were all ordered as part of the Fläkt Woods contract several years ago. But for the 12 months leading up to its installation that was being managed by the mine manager and the project managers on site. And how it was physically installed, I think I saw it when it was a concrete plinth and visited it once it was installed but didn't really have anything to do with the actual design or physical installation of it.

1215

Q. One expression we've heard in evidence already is "flameproof"?

A. Yes.

Q. And I'm not sure if you've already explained the difference between intrinsically safe and flameproof, but perhaps you can just explain those for us.

A. Yes. Again, I'm not an electrical engineer, but intrinsically safe means that the circuitry of the unit itself, the actual item, the electrical item, has such a low amperage and I think it's something like .25 a milliamp or some number like that from memory, that it can't actually create a charge sufficient to ignite methane. So the actual design of the piece of equipment itself is such that you can't ignite methane such as a cap layer is intrinsically safe or there's a number of lights, et cetera that are intrinsically safe. Watches can be intrinsically safe. It is such as low amperage where they can't create a spark. Flameproof is where the, by nature the literal system is high voltage or higher voltage than intrinsically safe and it is contained within an enclosure, invariably steel, and that steel enclosure is not hermetically sealed. So it's not fully sealed, it's not perfectly sealed. It's actually got a known gap in it and that gap has to be tested a number of thousands of an inch with a feeler gauge. So it actually has a convoluted little zed pattern path so that air can move to and from the inside and outside of the enclosure were there to be a negative pressure, for example, air wouldn't typically move in and out but it can if the electrical enclosure heats up and as it contracts it would draw air in from the outside atmosphere and so, therefore, you could potentially get a methane mixture inside the flameproof enclosure, which is expected to happen if the machine was left in an area. It's not expected to happen as in you want it to happen, but that's it's design to allow for that to happen if you like. Then if the electrical connector within the box was to ignite that methane the flame can't actually travel out of the little convoluted steel path. Just the process of getting through that gap cools the flame and dissipates it to the point where it can't ignite methane on the outside. So you could have a flameproof enclosure if the gap's been properly done and the bolts are all secure. You could have that sitting in an explosive methane mixture of 5% or more and then you could have an explosion within the flameproof enclosure and it would not ignite the methane on the outside of the enclosure, that's its nature. But you can't knowingly allow a flameproof enclosure to go into a methane environment. That's why you

have to drop power at 1¼, and if you do have that flameproof enclosure either in a methane environment or one which you suspect to be a methane environment, that you need to open up the flameproof enclosure and flush it with fresh air before you admit power to it.

Q. To your knowledge was it part of the design for the underground fan or fans that they would be in flameproof enclosures?

A. All of our auxiliary fans, all of the electrical systems on our auxiliary fans are flameproof because they work up in the mining environment. I can't attest to the electrical enclosures on the main fan. I just don't know. It was in that non-restricted zone but I just don't know.

Q. Now you've referred to the non-restricted zone. Perhaps we'd just better look again at PW28 to see what you're referring to?

A. Sure. The other thing to note though is that with the booster fan concept or in this case our main fan concept, that the fan impellors are sitting in the return. They have to be because they are the ones acting on the air, but the drive shaft for the fan is through a wall and the electrics and the drive motor and everything else are on the other side of the wall, so they're in the fresh air and it's only the actual impellors with no electrics are on the other side.

Q. So looking at PW28, you've referred to the non-restricted zone which is on the right-hand side of the mine plan?

A. Correct, and bounded by the red dotted line.

Q. And I think you explained yesterday that the difference between the restricted zone and the non-restricted zone is that there is a requirement that equipment be flameproof or intrinsically safe in the restricted zone only. Is that right?

1220

A. That's my understanding but I did say yesterday that I've never discussed this plan with the mine manager and it was actually shown on the plan that I was given so I hadn't actually understood that there was a non-restricted zone and a restricted zone except in general parlance. I had not seen it put there but that's how I interpret that to be. It's not

something that I've used in mine plans when I've been a mine manager. It's not something I've done.

Q. If we zoom in on the central area around the ventilation shaft and where it says, "drive for fan," do I understand what you said to mean that you don't think there would've been a requirement for the fan motors to be in a flameproof requirement because they're in the non-restricted zone?

A. No, I didn't say that. What I said was that the, if I show in this plan next to the word, "Gas monitoring station GD301," is the intersection where two, one red arrow is coming into it and the other one red arrow is going out of it up towards the shaft, then the fan itself, the actual impellers of the fan would've been located or were located in that intersection and there is a wall here which is why the non-restricted zone runs down the edge of that intersection and on –

Q. Just to talk that into the record, where you're indicating the wall it's just to the left of the entry to the ventilation shaft?

A. Correct, left of the intersection which is on the south side of the ventilation shaft, that's correct, so there's a wall or a stopping there and then through that stopping with a set of seals would be, seals as in rubber seals et cetera ventilation seals, would be a drive shaft running through that wall and on the other side of the drive shaft, so to the left of that wall would be the drive motor itself, the electrics et cetera and they are located, what I'm saying is they are located in this what's assumed to be the non-restricted zone but I'm not making an assessment or a knowledge as to whether the electrics were in fact flameproof or not. I don't know.

Q. And I think you did talk about this yesterday but are you just able to help us with what "drive for fan" means as opposed to the "motors for the fan" you've just described?

A. Yeah, actually what I did say yesterday is I don't understand why that would say, "drive for the fan," down there. In my general knowledge of a fan when you have a drive, the drive motor sits on the thing that drives the motor so unless that's indicating an electrical installation or like the fan starter or it's some other, perhaps there was long hydraulic lines

running, I really don't – that fan was being installed very much at the time that I was taking over as the CEO and we had a number of other people on site responsible for its installation. The details of how it ultimately was installed and commissioned I only know through discussion not through physical inspection of the site.

Q. Now there may be occasions when all power underground in the mine is switched off. Is that right?

A. Switched off voluntarily or tripped off through some fault or detection, yes.

Q. Presumably in that situation the underground fan would also stop?

A. Not necessarily. It depends what the reason the power and which power has been tripped off.

Q. There would be some situations where the underground fan would switch off because of the lack of power?

A. Yes, if you turn the power off to the fan it would turn off.

Q. What was the procedure to restart the fan following an electricity cut of any sort?

A. So the, because we have a surface fan which is why it’s there for this exact scenario, the surface fan has a generator backup and the intention would be that were the main fan underground to trip then the surface fan would automatically start up so on the assumption that that system has worked, so that would be the base case then the surface fan is now running and ventilating some parts of the mine so the manager’s rules that exist are for reintroduction of power. The actual starting up of the fan is another, is a different scenario where you have to test for the gas that would be going through the fan but in this case the first fan you would start would be the surface fan to get the ventilation circuit running. That would provide fresh air to the main fan underground and therefore once you've tested it for gas and assured yourself the fact that the area was generally free of methane then you can start up the main fan underground.

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A. The manager's rule for reintroduction of power would require that whole area to have been inspected, wherever the cable runs are and then a mining official would reintroduce power to the area. In this case, in your scenario, the first thing that would be repowered would be the underground fan, depending on where its tripped off, it may have tripped off back to the substations at pit bottom in stone or it could've tripped off back to the substation on the surface. I certainly after 30 years still don't understand why some things trip and others don't, it's a bit a mutual mystery to most mining people.

Q. You've referred to some manager's rules, was there a written procedure anywhere for the restarting of the underground fan following an electricity cut?

A. I'm not aware if there was, there certainly was manager's rules for reintroduction of power but the rules required for the restarting of the underground main fan are given it had only been installed a month or so and, as I said earlier, Doug was still editing the revamp of the manager's rule, there well could've been standard operating procedures or something else in place that would be beyond my knowledge.

Q. The first of the main underground fans was due to be commissioned I think in October 2010?

A. I think it was commissioned in October 2010, yes.

Q. Now, I appreciate this coincides with the time when you were not physically at the mine as frequently as you had been previously and I think you said you don't have firsthand knowledge of exactly what was happening with that fan?

A. No, Doug kept me updated with what was going on, that's how I found out, that's how I understood what was happening, we spoke most days, yes.

Q. Can you tell us as best you can what had happened with the commissioning process for that underground fan?

A. Yes, the actual commissioning process is quite iterative anyway regardless of whether you're having any issues or not. In this case the iteration was the fact that, as you alluded to about tripping of

underground power, underground power is interlocked to the main fan so you can't – you can have the fan running without the power which is why I qualified the fact that it doesn't necessarily always go hand in hand, so you can have the fan running without underground power but you can't have underground power without the fan because there's nothing to ventilate the areas and you have potential electricity in areas that aren't ventilated. So, the regulations in New Zealand and overseas require interlocking of power and ventilation fans, the same as it does in the panel itself where the power to the continuous miners et cetera are interlocked to the auxiliary fan for the same reason. So in our case all the power underground was actually interlocked to the surface fan because that was the primary fan. So in testing the underground fan they were running it up to speed, testing it for short periods, getting vibration right, aligning the drives, aligning the shafts, there's quite a large, you can imagine this thing is quite physically large and runs at very high speed.

Q. The process you're talking about started when approximately?

A. The process of commissioning the underground fan? I can't say with certainty. It would've been quite a small iterative process the physical installation of fan, I'm not sure what the date of it was, probably sometime in September I would imagine, that it was actually physically installed and then over time it would've just been sitting there with engineers running it but it wasn't part of the ventilation circuit, the air was just going straight past it up the shaft because the other fan was working so the engineers and the company that was installing the fan and the electrical engineering company we had doing checks on it, we had a number of engineers crawling all over it, doing the installation work, would've been just doing that in the return and in the intake air while the other fan was working, so over a month I suppose. Then once the fan was installed and could be turned on electrically the intention was, or the actual activity was to start the fan and run it for, you know, 20 minutes to see if anything banged and crashed. It wasn't the main fan at this stage, the surface fan was still on right through this period so

this is just a mechanical or electrical installation, so they'd run the fan for a short period of time, then run it and then check everything, then run it for an hour or two and then run it for three or four hours, then run it for six hours and so all those checks were done. I'm aware via many frustrating conversations that Doug had that the fan kept tripping off and going into vibration and no one could understand why. It turned out that the drives I believe for the fan had been underspec by the supplier which –

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Q. Just pausing there. What are the drives for the fan?

A. So this is basically the motor was too big for the car it was sitting in. so it was a 120, you know, 1.2 litre engine sitting inside a truck, the truck wouldn't move, so this was a small drive sitting inside a big fan trying to turn a big motor and the designers had designed it and they'd got it wrong. Took them a while to admit that they'd got it wrong because it just kept tripping off and we couldn't understand why. It wasn't quite as extreme as putting a 1.2 litre motor in a truck but it was just, it just kept vibrating so eventually the manufacturer agreed that the drives were too small and they agreed to replace them at their cost. All through this period we were still ventilating with the main fan. And then ultimately we had to do a, so that was replaced, so they replaced them at their cost, re-did the drives, re-engineered it and reinstalled them and they were fine then. And then the surface fan had to be, you got to a point where you could no longer have the surface fan interlocked to your power. You had to have the underground fan interlocked to the power so that went through a procedure, they did a risk assessment, and put procedures in place for that changeover to happen and then eventually then ran the underground fan as the newly interlocked fan. And I think they had another trip after that just as part of that commissioning. So the electrics, it's all quite complicated, the electrics I don't pretend to understand the circuits that go with the interlocking, but I believe they had another trip after that. That was just electronic, I don't think it was to do with the drives. And then after that the fan ran well and did what it

was supposed to do, produced 120 cubic metres a second, improved our ventilation underground by about 30 cubic metres a second and was still running well, to my knowledge, at the time of the explosion, for several weeks.

Q. From what approximate date was the fan working correctly to your knowledge?

A. I believe from early November but I can't recall exactly.

Q. To your knowledge was the fan delivering the volume of air that had been contemplated by the original design?

A. Yes, to my knowledge it was. I think Mr Rowlands report verified that in his November report, October/November report.

Q. I want to move on now to the question of methane gas drainage and inseam drilling. Can you tell us who designed the gas drainage system for the mine?

A. That's not an easy question either in that again these things have many parents. The inseam drilling programme was a twofold one. One was to do exploration drilling and to determine structure was one of its main purposes. And secondarily to provide a gas drainage in advance of roadways. And so the long holes that we've done for exploration drilling were intended to be initially just free vented into the return airway and then ultimately to be collected into pipes and vented from the mine. So at varying stages some holes, depending on their length and the amount of gas they were produced, were free-vented into the return airway and loaded up, at that .8 to 1% you spoke to earlier, that sort of concept, loaded up the return air because it's a great exhauster for seam gas if you keep it below 1% ideally. You can load a lot of gas into your return airway but the preference would be to pipe it away and put it up into the atmosphere outside the mine separate to your return airway. So we put in a series of pipes. Initially we didn't, I had a reasonably large knowledge of gas drainage in mines I've managed, that was one of their primary activities was gas drainage and power generation from that, so I had a lot of contacts at other mines and I had a lot of my own background knowledge.

1235

A. So I engaged, well I actually got a lot of procedures out of a number of mines that I'd had dealings with and encouraged our site people to start taking ownership of that process. So I engaged, through our tech services manager got him to engage a consultant to come over and review what our drillers were doing to introduce stuffing boxes, which is just a way of taking gas away from the bore hole as it's being drilled, water traps, start to get the fundamentals of a gas drainage in place if you like just after we re-started back in July 2009 so that era because that's when Valley Longwall started. They had started doing some drilling and they were drilling through stuffing boxes and that air was being exhausted to the shaft before that, but once we got re-started again and we're going to have more holes and longer holes and there was more need for gas. Then ultimately our geologist took control of the Valley Longwall contract and also of the gas drainage system. We connected up a series of underground pipes to the gas riser which was adjacent to the Slimline shaft. We put a diffuser on the surface with a lightning rode on it, a flame arrester so that we wouldn't risk the gas being emitted from the mine to catch on fire. So the flame arrester was put on the surface and design work was done through that, through Australian consultants, gas drainage consultants, and then ultimately in 2010, I think, Miles Brown from Drive Mining was engaged and took over the role of not managing but consulting. A bit like John Rowlands was our offsite ventilation consultant, well Miles was our offsite gas drainage consultant.

Q. Can you tell us about what risks arise from methane gas drainage within a mine?

A. The risk of the actual drainage process. So you're intentionally collecting large volumes of gas into a pipeline that runs throughout your mine so you have to be conscious that you've got a pipeline full of gas variously up to 100% methane. So inside the pipe it's safe. The issue is where that pipe might be broken and gas is emitted into the roadway. So it's another source of gas. The water trap is a – because as the gas

comes from the coal it's laden with water just from a high humidity concept, and as it goes through the pipeline at a certain pressure where it goes into ports, changing direction as it cools, as it goes through the pipeline it drops water out and the water can block your pipeline. So if you continue to hook up a whole bunch of bore holes to the pipeline but you've allowed water to accumulate at a low point, then that line will just pressurise and the gas will come back out around the bore holes and it will just be in an uncontrolled manner. So managing water in the bore holes, in the pipeline is an issue. So you introduce what's called a water trap, which is just an expanded area, allows the gas to depressurise, drops it water and then re-pressurises again, and so you have to drain the water traps. So water management, your pipeline is one. The actual pipeline itself is another. Location of your pipeline so that it's kept safe and so it's connected up to a surface point and management of the flame potential and an explosive potential of the gas being emitted from the mine is another issue.

Q. Is it the case that the inseam drilling holes that have been drilled may sometimes be intersected by other parts of the mine, for example, if a roadway is driven through?

A. Yes, yes.

Q. What if any precautions need to be taken to deal with that fact?

A. So that was actually one of the procedures I was talking about getting from West Cliff Colliery in New South Wales when we were going to be intersecting our first bore hole rather than try and reinvent the wheel because I'd used those procedures for years myself, I got the ventilation gas drainage engineer from West Cliff to send us over the BHP procedures for intersection of bore holes. So there's a number of procedures, intersection of bore holes are free-flowing, that are on gas drainage, some that are blocked, others are partially grouted. There's a number of scenarios you need to give consideration to. There's different ways of dealing with them and depending on what you want to do with it, if the bore hole has got a long virgin side, in other words if you're intersecting it quite close to where it was drilled from, it's got quite

a long piece of bore hole back into the coal measures, then you probably want to keep it open if you're gas draining because you wouldn't want to block that off.

1240

A. So one way of dealing with that is to, once it's intersected at the face, depending on the volumetric flow you may choose to try and drill into it and divert the gas but more often than not you would mine it at the face and then hose it across so you would put a standpipe into it, again depending on how much flow volume you either put a steel pipe or a copper pipe up into the hole with a valve on it, you put one into either side of the roadway because you've now intersected it and broken it effectively and then you recreate that bore hole artificially by running a hose up and over the roof and then the gas just comes out at one rib up through the hose and back into the other rib. If the tail of the hole on the virgin side isn't very long and you're not too fussed about losing it then you may choose to just block the holes as you go through them and that can be done variously with a standpipe so it can be reopened or you may just shove it full of rags and grout to several metres deep and just fill the hole up with grout effectively or concrete and just block it off so there's just different ways of dealing with it depending on whether it's on a free flow or a low flow, a high flow or a low flow.

Q. In general terms with the volume of gas being drained from the mine consistent with the figures that you previously had about the amount of gas in the coal?

A. Yes, my logic was Pieter van Rooyan, our tech services manager had done work with our inseam drill rigs to get core samples and the Valley Longwall guys were doing that work for us with our geologist overseeing it and they were taking core samples and were getting gas desorption to determine that the total desorbable gas from those cores and those cores were consistent with the gas contents that were expected in pit bottom area.

Q. Do you know whether the volumes of gas being extracted from the mine had remained stable or decreased or increased in the 12 months to the end of last year?

A. It's not an area I kept track of in detail. Again because we weren't draining gas for commercial purposes if you like for generating power or anything else, the main purpose of draining the gas was to reduce the amount of gas in the coal seam ahead of development otherwise we wouldn't bother doing so because it wasn't commercially viable to do it so it was purely for reducing gas from a ventilation point of view and so therefore the balance of gas and the return, the balance of gas going up the bore hole, how much the return loading could take was therefore purely an operational issue and one that the mine manager, with his guise as a ventilation officer, would manage with the tech services team to make sure that the places were kept below statutory levels and was being drained as effectively as possible.

THE COMMISSION ADDRESSES MR MOUNT

MR MOUNT ADDRESSES THE COMMISSION

COMMISSION ADJOURNS: 12.44 PM

COMMISSION RESUMES: 1.44 PM

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. You mentioned that Mr Miles Brown of Drive Mining assisted Pike River with gas drainage issues?

A. Yes, he had some gas drainage modelling and, yes, essentially that's the scope of his job as far as I understand.

Q. I want to ask you now about three reports that he wrote in May, July and September of 2010. The first is document DAO.012.02486. If you just see the cover page, it's entitled, "Gas Drainage Assessment," and down the bottom we can see dated 15 May 2010. Can you tell us what the purpose of this document was?

A. Well I understand the Technical Department got Miles Brown in to do some gas drainage modelling but I wasn't a recipient of the report, to my knowledge, and I don't think I've ever read any of the three of them other than to know they exist. So they weren't reports for me, they were operational reports for the technical department to be used for advice to the operational department. But I know Miles Brown very well and I saw him on site and had dealings with him several times while he was here but I didn't receive his report or have comment on it.

Q. If we look at page 4 of the document under heading 2.1, "Scope." I think the original scope was described as a detailed assessment and review of current underground gas drainage design, design and implementation of a gas drainage solution based on gas drainage model, and consultation and skills transfer?

A. As I read, yes.

1347

Q. On page 8 of the document there are some tables and the block of text just under the first table comments that, "Draining such a thick seam without a large lead time or enough data to quantify an accurate decay curve, leads to the conclusion that if there is 8 cubic metres per tonne of gas then development rates will be affected." Can you help us with what that comment means?

A. Yes, I, as I said I hadn't read this report but that's what I was saying earlier to one of your previous questions. The decay curve is the curve from the virgin content down to zero effectively and how long that would take. Usually gas will give, be given up quite slowly at first so that the top of the curve is quite flat as water is the first component of the coal to be given off and then the curve goes through a much steeper section until it peters out, usually at some background residual where the residual gas remains, it may be one or two cubic metres per tonne and it won't drain out it just stays locked into the coal so it's the time, the permeability of the coal affects the decay curve so decay curves are very unique to the actual coal and often to the, not only to the coalfield but the coal mine so you can use generic decay curves but usually those things are developed for each mine itself so what Miles is saying in this report is that with a background content of eight cubic metres per tonne then you would need a large amount of lead time to get the gas down to, it doesn't say to what, but say two or three, four cubic metres per tonne otherwise you'll have operational issues such as having to cut more slowly or having to put more air into a particular area, having to put a second auxiliary fan in for example. You may run the one heading off two fans or having to have typhoon fans or Venturi blowers up the roadway. As I said I've worked in a mine where we've had to have 10 Venturis over 100 metre distance just to move gas from 10 cubic metres per tonne type undrained roadways. It just means there's other operational things to be taken into consideration to achieve the same safe outcome.

Q. His comment in this paragraph is that the solution will be to gain more knowledge quickly and if high levels of gas are found introduce a smaller spacing of the drainage holes which would increase costs but assist with increasing development rates?

A. Potentially, yes.

Q. If we look at the bottom table on that page there is column shaded blue on the screen which is headed, "Expected time to drain to target," measured in days and the figures are all of the order of 320 days to

drain to the target. Does that figure strike you as an expected period of time to drain coal in this seam?

A. Well I don't know. I haven't got operational experience in the seam, particularly in this coalfield or Pike doesn't in general because we're only just starting in the same. We did get work done by CRL in 20007 maybe and they did some decay curve work and then we got that work repeated by Geogas in Wollongong so we've had several gas consultants look at this before Miles Brown was engaged and they certainly, because of the high permeability of the coal, as I said earlier, it's a double edged sword. You can get a lot of gas out quickly which is good but because of the permeability of the gas continues to migrate from other areas so you continue to drain without actually having a huge effect immediately so the decay curve in the Pike seam or the Brunner seam would be a lot broader and flatter, in other words it wouldn't be a steep drainage curve where you drop down very quickly. It would actually be quite a long curving graph so the time doesn't surprise me because the holes that were, I'm not sure what spacing is used and I'm not sure what in this report he takes as his, what he calls his target but I would assume his target, unless it's proved elsewhere to be different I would assume it to be about three so what he's saying is quite true. If you're going to do, target three cubic metres per tonne as a residual it would take you a long time to get there otherwise you'll just have to put up with the higher gas make in the roadway you're driving and do something different, more ventilation, go slower is another bunch of alternative. At the end of the day you measure the gas that's in the roadway and you manage that, that's the ultimate. What do you do everything for? What do you do gas drainage for? What do you introduce ventilation for? It's to manage the hazard and if the hazard's been managed in another way well then that's another way of managing the same hazard.

1352

Q. If you go over the page to page 9 there is some comment about the gas riser, and just to refresh our memory the gas riser, I think you said, goes adjacent to the Slimline shaft?

A. It's a bore hole, yeah that's correct.

Q. On page 9, Mr Brown says that "the April underground inspection confirmed that the current four inch pipeline which runs the current six inch riser is highly pressurised, and he goes on to say that the onsite decision to separate the drilling operations from the riser pipeline will immediately reduce drilling delays. These delays include gas trips, which could create higher risks especially if ventilation in a stub was inadequate." Can you help us to understand what the report is saying in that paragraph?

A. Well what I understand it to be saying, given that this is the first time I've read it, is that he's saying that if the drill rig which would be producing a lot of water with the gas because it's coming raw from the coal and its first pass would be quite a lot of moisture. As well as drilling water, it would get sucked up with the gas. So he's saying that by collecting the drill hole through the stuffing box directly into the gas drainage line, would be putting a lot of water into the pipeline which would otherwise be precluding other gas from coming into it from other drainage holes for the same reason that I explained earlier, that the water will pool in low points in the pipeline and potentially just block and create back pressure. So that's exactly the issue that I raised earlier that he's raising here, and when he's saying to separate the drilling operations from the drainage operations he's suggesting, I understand, that you would free vent from the drilling operation into the return and use your ventilation circuit to load that gas and then you could keep the drier holes which have already given off their water initially, into the gas riser. In that way you'd have a cleaner gas drainage system via your riser and your wetter more immediate face drilling operations would be vented to the return.

Q. In section 4 of the report from page 14, Mr Brown deals with particular risks. At the top of the page under the heading, "4.0," he says, "This

section of the report identifies a high level risk to mine employees' personal safety. These topics need to be addressed by management in the short term." And he goes on at paragraph 4.1 to say, "The current mining through gas drainage holes procedure can be improved with the following actions. First, overriding risk assessment for all drilling and drainage activities to allow this procedure to act as a control procedure. Weekly gas monitoring of all holes to identify early blocked or partially blocked holes so they can be reopened, piercing of suspected or known blocked holes prior to mining through and inspection of gas drainage holes 24 hours prior to mining through." Were these all risks that you were aware of in May 2010?

A. Me personally? No. As I said before, this report was by a drainage consultant through Tech Services and onsite I had a mine manager and an operations manager as well both with many years' experience. This is a detailed operational issue that I wouldn't have been involved in as the general manager. I'd be aware that Mr Brown was making reports, but reading the reports and actioning them, I left that to the operational management team to do so, and I had every confidence they would.

Q. The next section, 4.2, unblocking gas holes, says, "This must be considered a high personal injury risk. Numerous incidents and near misses have occurred in mines with gas drainage and from even low flowing holes that are blocked up and pressure. However, there is a method to deal with this." Now, of course, you say you've never seen this report, so this is not a matter that was drawn to your attention in May?

A. No, but I'm well aware of Mr Brown's experience. I worked with Mr Brown for quite a number of years at the same coal mine in a very high gas environment, much higher than is at Pike River Coal, with many, many thousands, tens of thousands of metres of inseam drilling done each year and intersecting bore holes like this almost on a daily basis either virtually in every panel in the mine. So it would be a daily occurrence rather than something unique. I'm well aware of Mr Brown's experience and the need for procedures to be put in place.

1357

Q. On page 15 Mr Brown deals with strengths, weaknesses and risks of the Pike River gas drainage system. He identifies four strengths or recognised gas drilling company on site, “Technical services department committed to improvement, a coal seam that appears to allow drainage to occur and a drill stub size which is adequate with concrete floor reducing driller injury risk.” Do you agree with all of those strengths?

A. Yes.

Q. The weaknesses he referred to were minimal data on gas content and in fact he notes that no data was sighted by him. “Inadequate drainage pipeline diameter and riser to manager gas flows. Surface access for new installations constrained. Thick coal seam containing high volume of methane per metre advanced and workforce knowledge of risks of gas drainage holes and pipelines,” which he notes is an industry issue. From your knowledge of the system at Pike would you agree that those matters were weaknesses in the system?

A. I'm not so sure on the first point because while Miles has said he hasn’t seen the data the gas content was taken in nearly all of our surface bore holes and that’s been reported through our petroleum exploration permit as a matter of course on a yearly basis and we have, I think some of the earlier bore holes, PDH1 to sort of 6 or 7, no one ever used to do gas desorption but most of the latter holes had desorption, not only composite and in several plies through the seam-way, several discrete levels in the seam, so I don’t think we had no gas content, we certainly had it for all the surface bore holes possibly earlier in 2010 they hadn't gathered a very good database of inseam drilling gas desorption. I can't comment on that, but the rest of them, the inadequate drainage pipeline, certainly they were looking to change that and I'm aware of that and they put in a four inch line because it was easiest to start with. Not sure how much gas was going to be coming out, remembering this was a new operation and then realised it was filling up and becoming a constraint, so you go through and replace it, so yes, I understand that, and the others, the surface access to new installations, that’s definitely

an issue, we've talked about that with surface bore holes as well. The other two I think are both issues, yes.

Q. The risks identified at paragraph 5.3, do you agree that they were all applicable risks at Pike?

A. The first two are general risks to any mine that's got gas drainage or requires to do gas drainage, so they weren't unique to Pike. The low lead time with regards to development is also a common hazard with inseam drilling, more so at Pike because we'd only just achieved the coal seam and then had numerous geological structures which precluded long lead time drill holes and a lot of our earlier drill holes were structured definition, while they did provide gas drainage as well.

1400

A. And unproven geological features, certainly there's a number of, I think that could apply to any coalmine in the world, unproven geological features could affect mine design. I think that's an absolute given in just about any underground mine. And affect change drainage requirements, similarly I think if the structure is present and change the drainage ability but generally because our faults weren't acting as barriers to drainage, like they weren't strike slip faults with large mylonite zones or fine coal, which will be associated with outbursts because most of the faults, or none of the faults identified in the seam had that feature, then there was no reason to believe that long holes wouldn't effectively drain the full length of the hole.

Q. If we turn across to page 16, there were a number of recommendations. The first was gas riser, and perhaps if we zoom in on that. Mr Brown said a new riser is required within three months with a minimum of 10 inch internal diameter. Was that recommendation to obtain a new riser within three months drawn to your attention?

A. No, I was aware that Pieter van Rooyan was working on where we were going to be placing rises. I think one of the original ideas was that they would run the methane drain lines back to a central point which is a most common thing to do in a mine. You'd bring it all out, a central bore hole or a pipe in the shaft or something else, but they were looking to

rather than do that to actually locate rises throughout the lease where they can do them with surface access and then have small compartmentalised gas drainage areas where they would all go back to one riser and then the next area of the mine would go to another riser. So I was aware through weekly meetings and general discussions with Mr van Rooyan, our tax services manager, that they were looking at where the next riser was going to be and how that system was going to work. But the specifics of planning for one, again this is a consultant's report, that's still got to be taken into account in the operational capabilities and needs of the mine.

Q. You were not aware of that specific recommendation?

A. No, I wasn't aware of Miles' reports at all. I was aware that he was reporting but, no, you're taking me through them for the first time.

Q. The next recommendation was in relation to the underground gas pipeline prior to the riser, as I understand it. And his recommendation was to accompany the potential new 10 inch gas riser. "All underground pipes should also be 10 inches in diameter." He goes on to say, "The current four inch line has too high a frictional resistance and this replacement now would lower the pressure in that pipeline to allow gas to be moved to the bottom of the riser." So again I take it you weren't aware of that recommendation?

A. This is in the same report?

Q. Yes.

A. So therefore I haven't seen this report so therefore I wasn't aware of that recommendation, no.

Q. On page 17, under the heading, "Data Collection," Mr Brown commented that this was the key recommendation, "Three months of data collection now can provide enough information for establishing a gas drainage model." So there was clearly a recommendation that that data start to be collected. Again I take it you weren't made aware of that recommendation?

A. No, I don't think it needed to be Miles' recommendation that we needed to collect gas starter from the mine. We needed that for a number of

reasons. One, develop the geological model and the gas model for the mine. Two, look at the omissions trading scheme that was looking to be brought in by the Government, we needed to make determinations of the outputs of gas from the mine. And so knowing what was being omitted from the mine, that they're doing a gas balance between the gas riser and the shaft, the shaft's easy, you measure the percentage of gas and the volume of flow and you can work out how much gas is going up the shaft. How much is going out of the riser is another matter. So I was aware that as a normal course we would need to be collecting data and I was aware that Mr van Rooyan was also aware that we needed to be collecting data. So I wasn't aware it was one of Miles' but that does not surprise me.

Q. If we look at that last paragraph at the bottom of the highlighted passage. In summary Pike River Coal has a chance to quickly understand what implications the inherent gas contents have on their production schedule. Data acquisition over the next few months will allow a more accurate drainage design.

1405

Q. This design can then be quantified to a cost for all aspects. The last outcome Pike River Coal Limited needs is a safety failure. The safety failures include gas trips on a continuous miner from rib emissions, along with data collection the current four inch gas pipeline is inadequate and needs upgrading. A 10 inch pipe would provide the chance for the pipeline to be managed by the operation. In addition drillers should continue to be omitted from allowing the gas from the currently drilled hole attempting to enter this pipeline." Now, at the time of this report, May 2010, you were still general manager mines, I think?

A. Correct.

Q. Would you have expected a recommendation such as this stating that the current four inch gas pipeline is inadequate and needs upgrading to be drawn to your attention?

A. I was aware that the four inch line, and I had fully expected from the time it was put in that it would eventually become inadequate and I was

aware that there was a tension in place by the operations team to replace that pipeline. I wasn't aware that Mr Brown had made that recommendation which was your question to me before, but I was aware that that was the intention, yes. I was also aware that we had – one of the reasons was because I think our operational reports, both at a weekly level and also at a board level, reported usually on the split between the amount of gas coming up the riser and the amount of gas going out of the shaft and I'm also aware that in one of those reports at least, if not in two, there was mention made of the pipeline being changed out systematically to a larger pipeline, for that reason, to take away that restriction so, yes, I was aware that that was activity of the mine.

Q. Given that there has been such a direct statement that the current four inch gas pipeline in inadequate, particularly immediately following a sentence, "The last outcome Pike River Coal needs is a safety failure," again would you not have expected that specific recommendation to be drawn to your attention as general manager of mines?

A. Not necessarily, the fact that Miles had said so, no, as I said I've got – this report is going to a technical services manager, there was a mine manager on site and there was a operations manager above him, both extremely experienced and Doug with 30 years and an inspector level qualification, those men are very, very capable of managing the operational needs. Someone making a statement in a report that says the last thing the mine needs is a safety failure, well, I'm sure with all due respect you could write that same comment yourself in a report, it's an obvious statement. The comment I think more links to also the not wanting a continuous miner to trip off. That is a problematic one from rib emissions because it's not inferring that you would have a gas event at the face. What it is saying is as the roadway is being developed that the incremental emissions coming off the ribs, just from that residual gas, has actually polluted the roadway to the point where the mine has tripped off on one and a quarter percent methane and therefore the only way to remedy that would be to introduce more air into the roadway, but

if you're relying on an auxiliary fan, which is already running at full capacity, then you're left with a few options, which is probably put two fans ventilating that roadway. The fact that the miner trips in the first place is what it is supposed to do, so it's not saying that there was an explosive mixture of gas, it's just saying its reached its lower limit at one and a quarter. The fact that it needs the pipeline, I was well aware of that so I don't think they would need to bring to my attention that a consultant had told us that. I was well aware that that's the action they were taking.

Q. The second of the three reports was dated 22 July 2010, it's document DAO.012.02419. Was this report drawn to your attention?

A. No. All three reports by Mr Brown to my knowledge and recollection were not brought to my direct attention, in other words I wasn't sent a copy of the Brown report or the Drive Mining report, nor was I given a copy to read, nor was I given a precis of it or any other summary of it to say here's what he said. It may well have come up that during operational meetings or management meetings that some of the findings from these things were minuted, if that's the case I don't recall them specifically, they were one more report and one more activity that was happening at the mine, so no, I don't recall specifics of this report either.

1410

Q. If we look on page 4, three paragraphs from the bottom, it was noted that at this time in July 2010, "Mining is currently planned in the first production unit along B heading. This production will intersect with the gas drainage holes shortly. Unfortunately these holes are pressurised with an expected high gas flow to be allowed into the development miner. The holes in question need to be depressurised by allowing the gas and water to escape to atmosphere." To your knowledge was that statement correct at the time in July 2010?

OBJECTION: MS SHORTALL (14:10:38)

MS SHORTALL:

Your Honour I wonder if I could just interject just for one moment. I think Mr Whittall has made it quite clear that he hasn't seen these documents before. No one reported back to him about them so I'm just wondering about the utility of leading him through what – I'm not sure where Mr Mount is going but perhaps through three reports that he's testified didn't rise to his level at an operational level in the company so I just wanted to note that.

THE COMMISSION:

Are you asking us to disallow –

MR SHORTALL:

Well I'm wondering whether this line of questioning is going to be useful with this witness Your Honour. I don't know that he's the right person to answer these questions.

THE COMMISSION:

We are dealing in this contextual phase with the conception and development of the mine through to the 19th of November. Mr Whittall is the only witness who can speak at this point on behalf of Pike. He held a very senior position at the relevant time and one might have thought that some of these aspects would've been, if not directly reported to him by the report writer, at least drawn to his attention, so the Commission is going to allow the questions to be asked. Mr Whittall is well able to indicate if he has difficulty in answering them for the reasons you've identified but we don't consider there's any reason why they should not be put.

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. The question I think was whether that sentence reflected the position, to your knowledge, in July 2010?

A. It's difficult to answer because I don't know what B heading it's talking about so maybe if I could see the context of the report. It's only one paragraph, there's several B headings in the mine and I don't know

which bore hole it was going to intersect or what its status of that bore hole was so.

Q. I think you've got the full page in front of you there. I'm not sure whether that helps you at all with context?

A. If you don't mind I'll just read the rest –

Q. Certainly.

A. – of it and I'll see if it does. Underground inspection finding 1.1 or number, paragraph number 1 refers to the development face in panel 1B heading and the returns which is at the bottom north C heading. It then, outside of those numbered bullet points, then says, "Mining is currently planned in the first production unit along B heading." I can only assume he's referring to the same B heading up the top as there's no other B mentioned in the report so I'm assuming it's the B heading of panel one. It's the only conclusion I could draw unless there's a plan associated with this report.

THE COMMISSION:

Q. Would it help, Mr Whittall, to refer to one or more of your mine plans just to explain what area you understand that to be?

A. I could do that, Your Honour, yes.

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. I think possibly page 11 might assist you if you can turn to page 11.

A. Yes, so my understanding from this report of where Mr Brown is talking about is the right-hand heading in the blue area, just to the right of the blue area called - the words B heading are associated with it and the holes he's talking about intersecting are those red lines that are running through the words "B heading".

1415

Q. So based on your knowledge of what was happening at the mine in July 2010, was Mr Brown's statement on page 4 correct, that production would intersect those lines?

A. Yes, yes. And they are an example. By illustration it's probably a good drawing to illustrate the concept I was giving to you before as to whether you'd want to hose a hole over or just block it. You can see on the virgin side, which is to the left side of that roadway, they would be driven. They are quite long, several hundred metres long. So you would want to keep those on drainage for a long time. So the intersection of those holes, where possible you would look to hose them over from one side of the roadway to another.

Q. If we go back to page 4, two paragraphs from the bottom there's the comment, "Overall," and Mr Brown said, "Gas make is greater than riser and pipeline capacity. Water management of the pipeline system is not consistently maintained." Now again I take it those comments were not drawn to your attention?

A. No. As I understood in line with the previous comments about whether the four inch pipeline was capable of handling it, that the issue was that they were looking to do two things. One was change out the size of the pipeline in the mine, and also to put gas from some of these holes into the return and maintain the returns up around the .8 to 1%. So I understand that that's what that is. Again, was that drawn to my attention? I don't know whether it was specifically drawn to my attention. Mr Brown had made that observation in his report. I can say that that wasn't brought to my attention, but was I aware that the pipeline was at or near capacity and that they were using the return to take the balance of the gas while they replaced the pipeline, yes I was aware that that was a strategy that the technical and operations team were using.

Q. Is the position that in May, Mr Brown had said that a new riser was required within three months with 10 inch diameter, and at the date of this report, 22 July, that had not happened?

A. One thing I would say is using your earlier mathematics that we'd been achieving 32% of development, I think you could say that therefore that would take nine months to achieve the same amount of development that Mr Brown might have thought was going to be achieved in the next

three months. So these things are not chronologically time-dependent, they're activity dependent and therefore within three months of when he was doing that inspection with the current forecast mine plan, he would have looked at where the mine plan was going to be and said, I'm assuming even though I'm being asked to interpret what Mr Brown was saying, that he would have looked about where the mine would be adding three months' time and would have said, "Well, by the time you get to that point I think you'll need this other riser in," but the reality being that development rates and at that stage we were just coming out to the other side of the graben and starting to get established on the west and they were the very first driveage to the right, still very, very slow, still a lot of haulage with load-haul-dumps and his three months chronologically recorded, would have taken a lot longer to achieve the same amount of development. And nine months from that time was well past November. So it may not have, even by November the 19th, have achieved the mine development that Mr Brown was referring to needing to achieve in three months back in May.

Q. Certainly a 10 inch riser had not been installed by the date of this report in July?

A. I know the only riser that I'm aware of, well I know the only riser we had was the one adjacent to the Slimline shaft.

Q. On page 5 of the report, and there are three numbered points, the second of which is a reference to a reading of gas in the shaft at 7.30 am of 0.96% and the underviewer was asked to investigate, and the comment was made, "The future requirement for any planned release of methane to the return requires a written instruction for the mining supervisor." Can you tell us from your knowledge of gas drainage, why there is an issue about the release of methane into the return?

1420

A. Methane in the return per se is not the issue, it's the percentage of methane in the returns. Again, if you doubled your ventilation quantity you would halve the percentage so it's the percentage of methane that's

the issue, not the volume. So if you were going to be in an uncontrolled manner, uncontrolled being by an unauthorised person who didn't understand the ramifications of what they were doing, were to be going to release methane into the return then you would run the risk of potentially putting the methane level above 1% if there was machines already operating in there but they would alarm and you'd withdraw them, or above 2 % where men might have been working in there. So having methane in the return is not the issue, it's the volume, well it's the percentage of methane in the return that's the issue.

Q. To your knowledge was there any system at Pike requiring a written instruction for the mining supervisor before releasing methane into the ventilation return?

A. No, I have no knowledge of that, that would be a mine manager's instruction and not something I was aware of.

Q. On page 10 of the report there's a comment that relates to the possible commencement of panel one production, and you can see that highlighted passage there I think. Mr Brown said, "Commencing panel one production would financial benefits for the mine however managing expected gas omissions needs to be understood using the current ventilation quantity for the mine and the current four inch gas drainage pipeline it will be difficult to maintain expected production rates due to the gas level at the shaft." From your knowledge of the gas drainage systems at the mine is that statement correct?

A. I can't qualify the statement one way or the other. I suppose what I should add is if I was the mine manager of an operation, which I have been on a number of occasions, these matters if I was dealing with them aren't the sort of matters I would raise to my boss either. So I have no concern that this wasn't raised to me by the operational managers, they were dealing with it, and if they're dealing with it to their satisfaction then I was comfortable that was their job. So in this case Mr Brown is making a statement to say what a potential could be, which is what his role as a consultant is and he's raising what potential hazards would be there. I would expect the receiver of this report to take appropriate

action to ensure that gas levels in all roadways are maintained to statutory levels, that's their job.

Q. And on page 14 of the report, at paragraph 4.2, Mr Brown said, "A solution for short term gas drainage improvement is to replace the current four inch line with a 12 inch line and utilise the current fresh air riser as the gas riser until a new 12 inch riser is drilled and installed. A 12 inch is selected due to availability and any pipe greater than 10 inch would have large benefits." Again, I take it that recommendation was not drawn to your attention?

A. No, I think the fact that even Mr Brown is talking about solutions for short term et cetera, these are ideas and these are recommendations that would've been no doubt discussed with the appropriate onsite personnel. Certainly the concept of 12 inch, I've used both 18 inch and 24 inch gas pipelines in mines I've managed with much larger loadings than what Pike was able to generate, volumetrically, so he's right, 12 inch would be better than 10 inch. It's heavy pipe to hang up, it's reasonably readily available. Takes up a lot of room and it's quite a physical difficulty for operational guys to try and hang a 12 inch pipe. You need a lot of chain blocks and they're not light. So it's not an easy decision to say, "I think we'll just throw up a 12 inch pipe," it's a big job, take up a lot of room. Two six inch pipes is actually better than a 12 inch pipe in that regard. But I'm not aware that that was a particular recommendation or that the management of the mine were leaning one way or another actually. No I'm not aware of that.

Q. And if we look on page 17, paragraph 5. Perhaps if we look at the whole page so that we can see the diagram as well. Mr Brown said that the following diagram highlights an inseam gas drainage hole which has been unfortunately grouted at the standpipe end only?

A. Yes.

1425

Q. Are you able to help us understand that?

A. Yes that was a poorly thought out exercise, it's a nice long hole and it was GBH, I can't remember what the -

Q. – ’08 I think it says?

A. Yes, it’s ’08, I'm just trying to think what the G stood for but it was one of the underground directional bore holes anyway. The bore hole has got a number of branches, you can see the lines quite, it looks like it’s been fretted so they’re all diversions within the hole.

Q. Sorry Mr Whittall, perhaps if you could use the pointer just to show us on the diagram where?

A. The hole has been drilled from down here.

Q. The bottom right corner?

A. Down in the bottom right hand corner of the road and it was – it’s important to note it was drilled somewhat opposite this cut-through here, this one with the number 4 above it.

Q. Just pausing there. We might zoom in on this to make it a bit easier to see.

A. That would be easier, thank you. It’s even easier. So, you can see the red line emanates from – originates from a point back just outbye for cut-through in a heading of the mains.

Q. Just pausing there. I'm not sure we’ve had a definition of inbye and outbye for the uninitiated yet, so when you say just outbye is that meaning back towards the surface?

A. Yes, that’s good enough, inbye is towards the coalface, outbye is away from the coalface.

Q. So you're indicating here at the bottom right hand corner of the diagram?

A. Correct.

Q. I'll let you continue, I'm sorry, I just wanted to clarify that term.

A. That’s fine, so the mine has been heading uphill from right to left, from the bottom right hand corner of the diagram to the top left hand corner. So, the drill stub, that place was originally only drilled past three cut-through far enough for those drillers to go in there and there was a little niche put into the side of the road where the drill rig was set up, a Valley Longwall rig was set up there.

Q. Pausing there. Where you're indicating at the moment is just above the word, “North,” at the bottom right hand corner?

A. That's correct, about halfway between the three and four cut-throughs, the cut-through being the road between the two main headings, A heading and B heading. So, a number of holes were drilled from there, originally to help define the graben structure through that area. Eight was a very successful hole, you can see it’s gone a long way, it’s gone out through the graben, gone out into the coal in the other side and kept on going with a lot of branches in it. It’s actually the same bore hole that was used in my submission and also Dr Newman put it up by way of description for inseam drilling, so it went through a lot of structure you'll recall, and it also had quite a number of branches, you may also recall. What it had was quite broken ground down around the entrance to the hole, where they first drilled it. It became quite difficult to manage the gas in and about the drill rig because the strata around the bore hole itself was broken and was bleeding back out around the bore hole where the guys were drilling so we had a lot of ventilation up around that area and I recall going in and inspecting that site myself on a number of occasions because the drills were actually there for quite a long time, a month, two months, something like that. They did quite a lot of drilling from that place. So the ground there was quite broken so we had to put a lot of grout into the strata around there and that was the role of our geologist’s, some of the drillers themselves are all quite competent in that activity so they were managing that process, and the site manager, underviewers and deputies would inspect that to make sure it’s being maintained in a good manner. So, it was done and managed quite well when they did the work, however we then needed to advance the place past there, and so we pulled the rig out and this roadway had to be advanced past it but because they’d drilled quite shallow to the –

Q. Sorry Mr Whittall, just have to talk these into the record. So, when you say this roadway it’s?

A. So in the A heading of, which is the lowest road in the diagram, I'll get used to talking in a direct order at some stage I'm sure, the roadway

that's at the bottom of the diagram which when we had to extend the road past where the drill was located, which is at the start of those number of holes there, then we moved the rig out, a piece of mining equipment went back in there and the fact that it's in three cut-through it may well have been a drill and blast area of the mine. I can't recall exactly what the conditions of the road there were, they may well have been sling coal, I can't recall. So, that place was advanced but because the bore hole, which is that GBH8 that we've identified as being quite a long hole there, because it was very, very close to the coal rib or the rib of the roadway, that wall of the roadway, the gas was actually able to bleed back through the roads, into the road, so what they, as in the technical team and the Valley Longwall guys together would have looked at this solution, they decided to grout 100 or so metres of this bore hole to try to, I think they were going to try and grout the whole thing but they effectively whether they decided to or they only achieved it, they ended up grouting the first 50 or 100 metres of bore hole. I can't really recall how far. That was –

1430

Q. In lay terms would that basically involved filling it full of concrete or a substance similar to that?

A. Yeah, so what they would've done was put a mechanical packer of some sort, possibly a screw packer which is a long tube, you'd push it up the hole and then wind something and the, a bladder or something other mechanical device would inflate in the hole and block it and then you could pump grout into it and the grout wouldn't continue up the hole. You'd actually have a solid plug of grout concrete, liquid concrete type stuff so it would, they would've grouted the first some distance. I really don't recall how far, 50 to 100 metres something like that. That was a great solution in the short-term and possibly the best that they could achieve so it wasn't that they made a bad decision that just was a difficult outcome because the ground was so, quite broken around that area but what that meant was you then had an open hole that went from here all the way up to the top so from the bottom right-hand corner past

wherever they got the grouting done to, right up to the full length of the hole was now open and it would've just equalised, pressure wise to the surrounding area so it wasn't high pressure hole it was just the same gas as the coal. It can't pressurise any more than the local seam, but what did it mean was that if we wanted to intersect it again then you would be intersecting a hole that was only partially grouted. Now in itself that's not that big a concept because it's no different than if you'd actually had to intersect it well back down here at the entrance to the hole. You would've had all of this length of the hole above it as virgin bore hole but the longer the hole is on the virgin side then it's going to be a higher gas volume and it's going to allow immediately a lower pressure along the length of that so right along the length of the hole you'll have gas bleeding into that hole which will make its way into the working so when the mine plan was to turn the corner and go east to west in this plan and go back into the main west headings by the time, as you can see on this plan, it would've achieved five cut-through B heading then it would've intersected, potentially intersected this other end of the bore hole which would've then had gas from the further of the bore hole, another couple of hundred metres plus right back down to its full length so you would've had a six or 700 metres bore hole emptying gas into the face so it's quite an issue, potentially quite an issue depending on the permeability so one of the things that they had to take into account was how they were going to do this. They looked at the number of solutions and I was aware of this dilemma that the technical team was going through, whether they'd relocate a drill rig back down to the entrance to the hole and try and re-drill it. That was problematic because it was on the main road and whether they'd relocate another smaller rig they actually looked off this plan down to the south of this plan to get a smaller rig to drill up and pierce the hole which is a common technique. You can use a small rotary rig and you just drill out and you roughly know where the horizon is and you try and just intersect the hole, even if you get it within a half an inch the pressure will blow out and you just form a new connection and you can just start draining off

that point. They weren't able to do that because of that road then being used as a return. They couldn't operate in there so they decided to work out how they were going to intersect the hole from the other end and, as I said, it's not an uncommon one it's just reasonably uncommon at Pike so it was a first time that they were going to intersect quite a long hole, not a lot a different to the one you first asked me about in B heading when we first started this, looking at this report. Again you're intersecting a bore hole that's across the road. The best thing for the mining team is if someone will go and drill a hole into it first and take the pressure away. If they don't then the mining operational team have to deal with it at the coalface.

Q. Just to make sure we're orientated to this. Can we go back to PW28 and are you able to show us on that plan the area that we've just been looking at?

A. Yes, it's down here just near the words, "auxiliary fan," so we were down in three cut-through I think is actually this cut-through.

Q. And you indicated there –

A. This one where the red lines go across where it goes up to the R for regulator so the first cut-through there is three cut-through. I'm pretty sure if you put the other one back up you'll see that that first angle to cut-through is four cut-through.

Q. Just pausing there again. We need just to talk this in. So there is a roadway or you've referred to it as a cut-through to the right of the words, "auxiliary fan," with the red arrows which I think mean return ventilation going through.

A. The red arrows are the return ventilation, yes.

1435

Q. And just zoomed in on that area. This might be a good moment if you haven't explained it already. Just to the right of the word, "fan" after "auxiliary," we can see a red arrow going across what looks like a bridge. Could you just explain, if you haven't already, how that functions in terms of the ventilation system?

A. No I haven't explained what an overcast is before, but that's an overcast. It's not a bad way of describing it as a bridge. It's actually two walls or it can be a box. In this case the – it's just a device whereby you split the air across one intersection. So in this case the blue arrow is the intake air and it's going through a tunnel or underneath the bridge if you like and continuing up that roadway. Whereas the red air, the return air, is going over the top of it. Now in effect, what that is is there will be a wall there as well on both sides, but it doesn't go all the way to the roof, so it's basically a box built into the roadway and is sealed on either side of it to the left and right, that way and there, and this air comes up, goes up and over the roof of it and down the other side and continues on, and in here the air goes underneath. So that's called an overcast. Were it to be built the other way, where you dig a trench and build a false floor, it would be called an underpass but they're less effective. They're good if you've got a big coal floor. You can dig them out easily, but they fill up with water and overcast is far more productive.

Q. So just so that we're clear. If you were coming through from right to left as someone in the mine, you would just walk through?

A. You'd walk straight through and you'd go through. That would be a - Instead of a – you would go from a coal roof here, you'd walk under a steel roof structure and then you'd be back under a coal roof again and rather than walking through an intersection, you've walked through a box with two walls and a roof basically.

Q. On the other hand, the overcast, going from bottom to top where the red arrow, that's just for air I take it. You couldn't go through there as a person with a vehicle or anything of that sort?

A. Oh, as a person you would. Usually there's a door in them usually. So if you want to go, if you're just walking and you're happy to go through it, you can actually go out of the door, into the roadway and back in the other door usually. Often there's only the one door, which is most likely, and then there's a bridge or like a ramp or a ladder that some pits have either. If they've built it out of a really thick seam, then you can actually ramp the road up and over, come back and excavate the overcast out

so you end up with a natural coal walkway up and over the overcast. So if you're walking along the road in the direction of these red arrows you would variously either come to a - in this case you would actually come to a steel wall and there'd be a ladder beside it and ultimately we probably would have built ramps in there if it was going to be a long term egress route.

Q. Now just to make sure –

THE COMMISSION:

Mr Mount, I actually notice in one of the glossaries there is both a definition and a diagrammatic depiction of an overcast.

MR MOUNT:

I'm grateful for that. Thank you, sir.

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. Just to make sure we are fully oriented, I think it's possible to have this cut-out alongside the diagram you were looking at a moment ago?

A. That would be helpful, thank you.

Q. Now we may be unable to zoom in quite in the way that I imagined.

A. No that's sufficient. I think if I can orientate from one to the other and then possibly we could go back to the larger plan. Would that be okay?

Q. Yes.

A. So the bore hole 8 is this long one at the top. And if you're looking at the top picture, the red lines that run up the side of the roadway. And it's emanating from a point half way between the lowest cut-through in that roadway, in this picture sorry.

Q. I'm sorry to interrupt you Mr Whittall. We're just about to move to a slightly better diagram I think. Slightly easier to see.

A. All right. So in this left-hand picture which is the one from the drive mining document, you can see that bore hole 8 emanates from partway between three cut-through and four cut-through, the perpendicular one and the angled one being four, and over on the other drawing that three

cut-through is the one that now has the ventilation in it and four is the first of the angled cut-throughs. So that the bore hole from the drive document, which shows it, is about equivalent to where the word, "Fan," is in the auxiliary fan, in the PW28 plan.

1440

Q. Thank you. So if we go back to the drive mining report, page 17 and the paragraph above the diagram. Mr Brown I think was explaining the potential risk that arose from continuing with the continuous miner through the area with the bore hole. Is that a fair summary?

A. Yes. Yes, he's talking about the piercing that I was discussing earlier.

Q. We'll just go back to the whole paragraph, both the big one and the small one?

A. So the point that I made before which is it should be noted that a long hole, I'm reading from the sentence in the middle of the paragraph, should be noted the long hole which is not blocked, ie flowing freely, poses the same risk but not the same magnitude. So it's the fact that it was blocked at one end there's nothing different to had that just been the virgin end of the hole. Yes, I've read the paragraphs.

Q. All right. Well from your knowledge of the system Mr Brown's comments in this paragraph, an accurate summary of the position?

A. Yes, it would be much more preferable to pierce the hole prior to mining through it if you had that option to do so, that's not always the case but if you could that'll be great.

Q. If we turn now to the third of Mr Brown's reports, DAO.012.02524, you'll see from the cover page that it's dated 20 September 2010. Were you shown this report at any stage?

A. No sir I wasn't. It's one of the three reports I'm aware that Mr Brown did and I was aware of that subsequent to the 19th of November. I was aware he was doing reports but I was never shown this report, no.

Q. To your knowledge, by the time of this report in September of 2010, had the earlier recommendations to increase the size of the riser to either 10 inches or 12 inches been implemented?

A. I don't think the riser had changed at all. I think we talked before about putting in a new riser but no new riser had been put in. And also the previous recommendations to install larger pipelines leading to the riser I've also said that I'm not aware of what the status of that replacement system was.

Q. From page 7 of the report and under the heading 4.0, "Short Term Tasks," Mr Brown identified 17 tasks to allow Pike River Coal Technical Services Department to increase the performance of the gas drainage system as the new mine plan is formed and numerous new holes are drilled for that mine plan. He says the tasks are not in any order of priority. I want to refer to just one of the 17, which is the last on page 11 of the report. Outburst management, if we zoom in on that section. Mr Brown said, "This topic is still of great concern. There has been no outburst threshold value set for this mine. Ongoing coring and data transfer with Geogas is a must. It is impossible to estimate what the DRI900 level will be.

1445

Q. All efforts need to be made to transfer all spreadsheets, formulae and data from the recent cores to Geogas so that an estimate of DRI900 value can be attained. Once that is done an outburst management plan can be created." He goes on to say, "The recent 8.3 cubic metres per tonne alongside panel 1 was of concern." Are you able to help us to interpret what that section is referring to?

A. The concept of an outburst is where there's a high level of gas inherent in the coal seam and it's prevented from draining naturally through the pile of permeable coal into the roadway by some structure and its usually what's called a gassy occlude as opposed to an aquiclude so it prevents gas from, occludes gas from transmitting through it. Typically in mines a gas occlude would be a strike slip fault where you get quite a lot of friction and you build up a very, very fine layer of coal or if it's broken material that's not an issue, but if it's very finely ground powdered coal called mylonite then that can act as a gas occlude against that fault and as you mine up towards that area for example the

gas that's in front of you which is all eight and a half cubic metres per tonne for example, will gradually drain down so as you're mining it it might only be two or three and right at the head, but because this structure is in front of you or off to the side or some other oblique position, the gas behind it remains at 8.5 so you can't tell that the gas is not dissipating until you get to a point where the distance between the cutting face and that virgin gas content is reduced to a point where the energy stored in the gas is able to burst that coal layer through, depending on the volume of gas and the pressure its stored at which is, I'll come to that, is depending on the relationship between those two, that might be several metres or it might be half a metre, I mean it's quite variable, it depends on the gas content to pressure ratio. The outburst threshold is therefore set quite, certainly historically it's been set with quite empirical data, in other words no one's ever had an outburst at this level so therefore it must be safe and we've had lots of outbursts at this level so it must be unsafe and therefore you put a line in through there and say that's your outburst threshold. That does vary from coal seam to coal seam and coal area to coal area in mines I've worked and, sorry, it also changes with gas content. Cardon dioxide is far more outburst prone than methane so for example, the one I'm most familiar with is say the Bulli seam in New South Wales, the outburst threshold limit is nine cubic metres per tonne at 95% methane, is as you go down to say 5% methane and 95% carbon dioxide that threshold reduces to five so anything above five cubic metres per tonne you can potentially have an outburst. So the threshold, anything below 9 cubic metres per tonne there's been no history of ever having an outburst at that level. The Bulli seam and above that, there's some barrier where there's not likely to be one in 9.1 and 9.5 but at some rate over that, you're likely to get potential for an outburst if other things are there, you'd have to have the same structure, you'd have to have all sorts of other things but because all of those have been taken into account empirically they've developed this, but I've never heard the term DRI900 level but I assume it to be a more modern way of doing analysis so you're not only relying on

empirical data otherwise you have to wait until you've had a lot of outbursts before you can start developing that relationship, so there'll be enough data I would imagine around in coal seams when they're relevant to Pike and Brunner, I don't know. Certainly the two seams I've worked at in the Illawara coalfields, both Bulli and the Wongawilli seam had different outburst threshold levels for them, even though the seams were one above the other and very different thresholds and just because the coal and the way the gas was stored et cetera was different. So, in this case and Geogas did all that work with those men for many, many years, Geogas had done work at Pike as well so what Miles is saying is because the outburst – because the gas content of Pike was deemed to be sort of one bulls eye at 10 but generally sort of eight to four was the higher range, that was already below for methane the outburst threshold of, not just myself but the previous like AMC, Minarco et cetera outbursts had never been identified as a significant or even a mild threat at the Brunner seam.

1450

A. There wasn't, anecdotally there was no history of outbursts in a Brunner seam on the West Coast to my recollection although there was other people with a lot more knowledge of West Coast other coal mines than me but that's not an area I'm aware of was a particular issue for the Brunner seam but Miles is making the point that because we didn't have an outburst threshold uniquely determined for Pike and Miles Brown's background is in mining areas that are more outburst prone he saw that as a risk that needed to be addressed and that we should address it specifically and that we should, I'm reading from this report I'm making this assumption, that he saw that as an issue that should be dealt with and we should address outbursts as a unique risk rather than addressing it generally as a risk of low likelihood and…

Q. Were you aware that he had described this as a topic of great concern?

A. No, I wasn't aware that he'd made this report. As I said, Miles and I know each other very well and he had not brought this to my attention directly like he hadn't had a concern and it wasn't being addressed by

Doug White or someone else and then thought, “Gee I better tell Peter about it,” and we often caught up if he was in Greymouth at the same time socially, but he didn’t raise this with me as an issue at all. He’s putting it in his report but he hasn’t seen it as significant enough to raise it with me separately to the mine management.

Q. I think we can see on page 4 and page 5 of this report that Mr Brown attended for a site visit between 14 and 17 September 2010. It looks as if it was a four day visit?

A. Yes, that would be typical.

Q. Do you know whether you spoke with him during that visit?

A. I'd have to refer to my diary. Even if I was on site, good chance the most I would do is say, “Hi,” as he walked past. There was often very little time in my diary for doing much else at work but I don't recall whether I specifically saw him on that occasion or not.

Q. Of course you now know that he had recommended back in May that a new riser be obtained within three months. Clearly by this time he would've hoped that that would've happened I take it. You're saying that this was never drawn to your attention?

A. No, I was aware through Pieter van Rooyan and also Doug and operational meetings that a gas riser was planned to be done. Where I don't know, but just generally I know that Pieter was working on plans with his assistant Greg Borichevsky to work out where they would put these gas risers, where they could be drilled from the surface and we’re developing a plan for that. As I explained before Miles in May talking about a three month period would be still operationally constrained as to where the mine would be at in three months’ time and if the mine was not at that point where he thought it needed to be done I’m not sure that he is, whether he said, you've read these reports obviously in more detail than I have, as to whether he’s then repeated that same recommendation in the subsequent, in this particular last report and made any comment about the fact that it hadn’t been done. I'm not sure.

Q. The comments that have been highlighted in this report about the need for improvements in the gas drainage system, would you have expected those comments to be drawn to your attention as general manager mines?

A. The need for the increased pipeline I understand it was drawn to my attention and I was aware that that was being worked on. The need for another riser I was aware of and I was aware that was being planned and being worked on. The fact that a consultant that we've engaged ourselves as part of our normal operations rather than bringing someone in to do an independent audit if you like, he is independent and he is doing an audit as such but he's someone we engage like a ventilation or a strata control we have a number of people that supplement our internal team's expertise in a number of technical areas. The fact that he makes certain recommendations or other things, unless the operations manager or the mine manager at the time of September it was the same position, unless that person deemed the recommendations to either be of great concern to him or he was unable to resource the activity or he had concerns that he would have to stop production for example or, which would be the alternative, he wouldn't have concerns that he would be increasing the or decreasing the safe working of the mine because I would expect him to just deal with that aspect of it, in other words if you can't make it safe you would stop, but if he felt that he couldn't make it safe he would stop.

1455

A. But if he felt that he couldn't make it safe and continue production, then that's something I would definitely expect him to draw to my attention. But I wouldn't normally expect him to say, "Listen, Miles has just put his report in. This is what he says and this is what I'm going to do about it." Different managers operate differently. But in Mr White's case I think it would be more within his character to take that report, discuss it with Mr Van Rooyan and get on and do something about it and probably not tell me what specifically had been done or recommended.

Q. We'll turn now to the topic of gas monitoring, and you've already described for us in some detail the system in place at Pike and you told us that's a real-time system, is that right?

A. Correct.

Q. Perhaps if we put PW28 back up on the screen. This is a diagram you've told us of the mine, showing the location of the various gas sensors within the mine?

A. As I understand it, yes.

Q. Can you tell us what particular gases were being measured in the mine?

A. From this diagram it shows a number of different sensors. It shows a CH4 sensor, a number of CH4 sensors which is methane, there's a number of those around pit bottom and there's one up in the A heading of the hydro panel up towards the top of the plan. It says "CH4 sensor". There's also carbon monoxide being monitored, which is the CO sensor. So the two primary gases. The monitoring stations I would expect, although it probably doesn't say it on here, would also have been monitoring oxygen and probably some velocities as well, but essentially methane, carbon monoxide and free oxygen in the air.

Q. The plan shows one carbon monoxide sensor towards the top of the page. I think you've referred to it as one of the headings for the hydro panel?

A. Yes, that's correct.

Q. Was that the only carbon monoxide sensor?

A. I'm not aware. I actually understood that we had some carbon monoxide sensors installed in association with the substation which is SS002 on the right-hand side of the pit bottom area, but I'm not aware. It doesn't say so on the plan. I was under the understanding that there was a CO sensor there as well, but I'm not sure. There may be a CO sensor at the entrance. There would be a CO sensor at the entrance to the tunnel as well because you'd be checking for the freshness of the air as it immediately enters the mine so I would imagine at the portal area there would be a search for, if not a search for, given that we wouldn't expect any gas to be there, but at least a CO sensor as well.

Q. You told us that there were both handheld gas detectors and machine-mounted gas sensors. Is that right?

A. That's correct.

Q. And also some that were located within the mine. Neither handheld nor machine-mounted, is that right?

A. That's the ones we've been just talking about?

Q. Yes.

A. The sensors that we're just talking about, so the three types are the handheld, mounted or remote if you like.

Q. Was it possible for anybody to override any of those three types of gas sensor?

A. Well the handheld ones you could turn it off as that would override it, but it was there as a personal safety device so that would be nonsensical because you actually take it out off your belt and use it so it's there for you to check gas so you can't adjust its settings if you like. That would be something an electrician on the surface would do, have to take the thing apart. But you can certainly turn it off. The one that's on the machine, certainly you can operate the machine and bypass. We can bypass the gasguard system. Sometimes you need to, but it has to be done. It's locked out, so it has to be done with a deputy's key. So a mining official, someone who would be responsible for the safety of the place and is qualified to test for gas has a key to the gasguard. So it's normally put in a normal operation mode and then the lock is placed on it. So the only way you can put it into bypass is if the deputy unlocks it and puts it into bypass. The sensors, which are just sensors locating the roadways, there's nothing to bypass with those ones. They just are there and they're a detector head, reporting back electronically via the fibre optic to the SCADA system on the surface or wherever else they're reporting to.

1500

Q. We've already seen reference to a tube-bundle system?

A. Yes.

Q. Are you able to tell us what the particular advantages are of a tube-bundle system as opposed to having simply a real time system?

A. An interesting point. I think they both have their advantages and not, I'm sure many years ago, and I've heard lots of stories of people who had this discussion long and hard when they're sitting for their manager's exams as to which was the best system to have in their mine. But I think the common acceptance in the industry has come that it would be most mines would have gas in them, would have both systems as a standard. They've both got particular needs. The real time, I think in my brief, I describe the real time as being very good for immediate response, especially around electrical installations, conveyors. We only had the one conveyor underground, the drive end was on the surface so it wasn't quite as important. But typically when you have a driving installation underground you'd have carbon monoxide sensor adjacent to the drive because that would pick up a fire a heating very quickly, elements of combustion. So that would immediately alarm that you had a fire or potential fire starting and you could address that immediately. Other real time sensors are things like the ones on your continuous miner but they are, they're locally operated so they actually trip that machine off. To report back to the surface you're really looking at things with a real time monitor that you can address immediately. So if you had to default between one or the other, especially in the early stages of a development or whatever, I would default to real time. The real time is more complex, more expensive, it's electronic, so you're running quite expensive detector heads. A detector head might be worth, I don't know, $10,000 for one head. So you're going measure CH_4 for at one point, cost you $10,000 just for the head alone and they do get damaged and they do get polluted by high levels of moisture et cetera. And a CO sensor would probably be the same, maybe a little bit less, maybe but there's inflation I haven't bought any for a few years but they'd be around the $10,000 mark I think wouldn't be outside of reality. So you wouldn't want to run a whole mine on real time. You'd have detector heads all over the place and it'd cost you a

fortune and they'd be really high maintenance, but you could. You could just run off full real time. The only difficulty of real time is they're not good for remote locations where you can't get to. And I'll come back to the tube bundle how it works and why. But the real time is best for actively accessible places where you want them to take immediate action and you want to know exactly what's happening there and then. And you can do something about what's happened there and then otherwise there's not much point knowing that you've got methane in the return at a certain level that you need to know immediately and you can't do anything about it. So real time is good for where you need to take action, especially carbon monoxide. The tube bundle system is a completely different concept. Tube bundles are bundles of tubes. They're about six to eight millimetres inside diameter, of that order of nature, maybe a little bit bigger, maybe 10 millimetres, I'm not sure. For longer runs you just buy a bigger tube. They're usually colour coded so that you might have all your red ones, you can choose whatever colour scheme you want. You might have all the red ones going to one part of the mine, all the blue ones going to another part of the mine, just makes them easier, they look like spaghetti, it's really quite complex. If you get a big tube bundle system for a mine you might have 40 or 50 of these small tubes all coming back in big bundles, which makes them quite prone to damage, you know, if you hit them with a machine you've stuffed the whole system, they just get breaks in them. So that's quite problematic. The big advantage of them however is for quite a low cost, because it's just plastic tubes and they just sit there for years without a lot of maintenance, they do get little holes in them occasionally, but you can monitor lots and lots of different places around the mine. But the way they work is they've got a little pump on the surface, sits on a bank of tubes coming in, and each individual tube by its very nature, because you want to know what's happening at the sample point, has to come into its own sampling port. So if you've got 50 tube bundles you need 50 ports coming into the side of the building. And then you have a little pump that switches between each port and sucks on it for an amount of

time. And so there's constant pressure but the little controller goes to each of those ports and samples for, I don't know, 10, 15 seconds until it gets a clean sample and sends it to the analyser and then it changes to the next sample point, and the next sample point.

1505

A. The actual sample from where it is, you know, because I've worked in mines that are eight, nine, 10 kilometres in that might take 45 minutes, an hour, an hour and a half for that sample to get just physically all the way from the place where it's sampling it all the way to the surface and then it's got to go on the cycle, so it might only cycle that point every 20 minutes or so, if it's sampling every 30 seconds it might take 20 minutes to get back to that one. So, it's not an immediate response but it's fantastic for your returns where you just want to look at trends, you want to know what's been happening in there in the last 24 hours, last 48 hours, what's been happening over a week because all of that data is collected electronically so you can look at trends. It's very good for remote locations where no one goes to very often, where things aren't serviced all the time, or even on the other side of seals and we talked before about what the difference between a seal and stopping is but I'm talking about real seals when you've actually, in our case, a good example if I use the plan that's on the board at the moment. We'll extract this panel, the panel being the first of the hydro panels, it will come down to probably within about 40 or 50 metres of that roadway and then a seal will be put across that road, the A heading and another seal put across the B heading and then that will be a locked away area. Okay, so it's just –

Q. Pausing, we'll just talk that in again.

A. Okay.

Q. You've indicated from the hydro panel which on PW28 is closest to the words, "Waratah guzzler," and then you've come down with the two road headings from that area towards the second road that that intersects?

A. Correct. So, just to the north of the east/west facing heading where the arrow goes over the overcast, just north of there, back up the road say

30 metres, so on that plan about a quarter of the way to the next cut-through, you would build a seal in both of those roadways and then the other side of that area, which is the rest of the panel would just remain and you'd call that a goaf, a sealed off goaf. So, what you could do is put a tube bundle hose just through the seal as you're building it, pumping it full of concrete and then you can continue to monitor and suck samples of gas and you would know that the gas, that that goaf has gone in it so you would expect in this case it would go to about 100% methane and then stay there, but you can continue to sample that for years and you'll know that that goaf is sitting at 100% methane. If it started to pick up some oxygen you'd know that the seal had cracked over time and you might go and repair it because it'd be starting to leak, leak air in through there or you might pick up CO, you'll probably go through a range of CO anyway because you expect there'll be some oxidisation of your coal and it'll generate some carbon monoxide, but then that will settle down and it should go to a neutral point, some parts per million and probably stay that way forever. If it started to increase then you'd probably get that with some intended increase in oxygen whereby the goaf might be starting to heat and you'd pick up a heating behind the seal and know that you had a potential spontaneous combustion event. You can't do that with real time monitoring, so that's what the advantage of the tube bundle system is. In real time for the hazards that Pike was dealing with, with such a small mine area and no active goaf or no sealed goaf then real time monitoring is by far the best system because we can see what's going on immediately and respond to it immediately, whereas if we'd had a tube bundle only, just if you can say one or the other, then you would've had a 30, 40 minute delay periods, you would've had tubes all over the place in a very busy area where they can get damaged much more easily and they would've been just sampling air out of the roadway, so they're not as – you wouldn't pick up any immediate, you could get a fire that would be going for 30 or 40 minutes before the tube bundle system said, hey, we've just detected CO. Well, that's not an acceptable system so the tube bundle is by far

the, sorry, the real time monitoring is by far the best system to start with first but obviously tube bundles are an essential part of the mine safety system, but we just weren't there yet.

Q. What is a gas chromatograph?

A. A gas chromatograph is a piece of electronic equipment that takes gas samples and analyses the gas composition so the content is cubic metres per tonne, the gas composition is whether its methane, carbon monoxide, carbon dioxide, hydrocarbons, it basically goes through an analysis, I don't know how, but you feed the gas in one side and numbers come out the other.

Q. Is there a gas chromatograph and tube bundle system currently at the mine?

A. Yes there is. It was installed post the explosion to monitor the surface bore holes.

Q. And what was the position in terms of a tube bundle system and gas chromatograph prior to 19 November?

1510

A. Yeah, it was put into the 2010/11 budget back in June under Mr White's budget so it was approved to be purchased and the scheduled time in the June budget was for it to be purchased in, I think it was to be purchased in April 2011, and then we did a reforecast for the capital raising that you referred to earlier, the $70 million capital raising that you referred to earlier and when we redid that forecast in November I think we reforecast that budget, the tube bundle system was left at the same point in April 2011 so that was the plan. My understanding from Mr White some time in November, and I don't know that I understood this in November, I think I've learnt this post. I just sometimes forgotten what I've read when but I understand that he was in some discussions with the supplier in Australia to start scoping up the tube bundle system. I had been approached by a bank that was looking to fund, because they knew that the tube bundle supplier had been talking to Doug and they wanted to know if we wanted to borrow money uniquely for that

particular item and so I had some correspondence with them about that in November I think.

Q. When were those?

A. Yeah, November.

Q. In November?

A. Yeah, it was some time in November, that's right, so that made me aware that he was in discussions in scoping up the costs and everything else of that at that stage and I had some discussion with him about what he was up to and told him that this bank had been contacting me and he assured me at that stage that he was going through that process to scope up the tube bundle system and it was still on track to be on schedule with his budget which was the following April as far as I know.

Q. Did you have any discussions with Mr White or anyone else about obtaining the tube bundle system earlier than April 2011?

A. Not to my recollection. In the original budget draft that Mr White put in back in May I think, so it wasn't the approved budget, it was just where people just threw all their money in if you like and we didn't, hadn't been phased at all so usually if they wanted it in 2010 they'd put it into July and if they wanted it in 2011 they'd put it into January so in his original budget in May, the draft, I think it was put in for January 2011 and then the natural iteration of budgets as they are, you go back over it a couple of times, and in his resubmission of his thing where he actually went through and phased it where he really wanted it rather than just throwing into the first period of each year his revised budget that actually went to the board was for April and that stayed that way. As I said we did a full reforecast for the budget in November and we asked the managers to reforecast where they were at and his stayed in April so I don't recall it ever being asked to be brought forward or pushed back.

COMMISSION ADJOURNS: 3.14 PM

COMMISSION RESUMES: 3.30 PM

CROSS-EXAMINATION CONTINUES: MR MOUNT

Q. As part of the planned tube-bundle system, was it intended that there would be a gas chromatograph at Pike?

A. Yes I understand so.

Q. I think you explained yesterday that the information or data from the real-time monitors in the mine are fed back to the control room at the mine site. Is that correct?

A. No, it's not completely correct. Some did, some didn't.

Q. Tell us in more detail where that information went?

A. Well as I understand it from the plan that we produced earlier, I think it was the PW28, and I hadn't had these discussions with operational management prior to the 19th of November and then intentionally didn't have it with them after the 19th of November, so I can only understand the data from having read the plans myself. There's a number of these sensors reported back to the surface via the - the word has escaped me – the SCADA system, via the SCADA system so we had a SCADA system on those computer screens we looked at in the picture yesterday.

Q. Just pausing you there. That's S-C-A-D-A is it?

A. Correct, capitals. That's an acronym.

Q. And I don't want to test you, but you don't happen to know what that stands for?

A. I happen to have my brief in front of me which tells me what it stands for. Would you like me to read that out to you?

Q. It's all right.

A. It was in yesterday's brief, yeah. So it's a data acquisition system basically. So it can be used for a number of things. In this case it was acquiring the data of the gas, but you can also use it to acquire data from the coal prep plant and other things, so it's basically a system by which it takes digital data and converts them to a screen and does monitoring and trending et cetera. So it's a data conversion system,

that's what it is. And we also had real-time monitors reporting back to other locations in the mine and as per that plan, PW28, it showed that a number of those in the return of the first hydro panel reported to the guzzler itself so that the operator could see the effects of operating the monitor on the gas make or the gas being expelled into the return so he could modify his operations. So it was a real-time thing. He could in real time see cause and effect of his operation on gas in the return.

Q. To your knowledge, did the computer system generate graphs over time so that you could see the trends?

A. Yes it did. It didn't do it - so it was like the data was there. You could graph the data if you wanted to. You could also set up to put out graphs as screen ongoing, so it was just replacing new data with old data all the time – sorry old data with new data all the time and so you could have the screen set up to show your trending over the last hour or day or month or whatever level of detail you wanted to interrogate it, or you could go back into the historical data and generate graphs for printing out or for analysing which is, for example, what was done post the explosion for people to go back and interrogate the system to be able to have a look back, so it's just historical data.

Q. To your knowledge, was it standard practice for the control room operator to have a screen showing a graph with the trending of gas?

A. That would be available to him. Whether it was standard practice or not for the control officers at Pike to do that, I can't say, but that would be something that I would expect them to have. One of the screens would have the real-time monitoring and potentially another screen would have some trending potentially on one of the points, but the control officer wasn't necessarily unless he - if he had an alarm, for example, that he might go back and start trending that point, but if he had other things he was looking at, it wouldn't be essential that he was constantly looking at trending. That wouldn't be the control officer's job.

Q. Did you say that one of the methane sensors was at the top of the ventilation shaft?

A. One of the methane sensors was located just near the top of the ventilation shaft, correct, which is in the ventilation shaft, near the top but within it, yes.

Q. What level of methane at that point would you expect to be a cause for concern?

A. The return was set to ideally be running at less than 1% to 1¼% in that area. As I said, it's a great use for the return air to exhaust from the bore hole so you can get better pre-drainage, but you would want to keep it below 1%. I'm not sure what the alarms were set out on that.

1535

A. I would imagine they'd be set at 1¼, given that that would be the limit of what you would want going through your fans. So if we were getting it at 1¼ it would alarm to say that you've gone over that. Remedy explosive range starts at five so just spikes that go over 1¼ wouldn't be cause for alarm, although you would want to investigate why you were having spikes.

Q. I think yesterday you referred to TARPS, T-A-R-P. Could you just explain what a TARP is?

A. A TARP is another acronym for a trigger action response plan. So a TARP would be put in place – TARPS, I became more familiar with, I think they were originally a Queensland terminology, wasn't something I was familiar with in my previous roles in New South Wales as much but because we had a lot of Queenslanders came to work at Pike, or a number of them, TARPS tended to become the term that was used. So we had the trigger action response plans for hazards so you'd put a trigger action response plan in for, gas is the easiest one, strata control's a bit more complicated to explain, but you might have a trigger action response plan for gas that said, and they would be set out for different responsibilities, so a different page might be for the deputy, one for the interviewer, one for a mine manager. It might set out the first trigger action is if the deputy picks up 1% in his return, this is what he has to d. And then it might say at 1¼ this is what he has to do, and 2% that's what he has to do, and this is who he has to notify and this is what

action he has to take. So they're triggers and actions that he has to do to respond to the trigger.

Q. Would you expect there to have been a TARP to deal with greater than 1% methane showing at the top of the ventilation shaft?

A. Yes, I would expect there would be, part of a TARP within the ventilation management plan would be a response to gas levels in the mine. A gas alarm. Actually I think in the photo that I showed of the control room there was a TARP for just that purpose on the wall.

Q. It might be PW59?

A. So there's acknowledgement of gas alarms. One of the documents that's right beside the control officer's head. That would be a, so there would be, I think you can see the word, "TARP," in the green letters above the word, "Acknowledgment." So there is a TARP for the acknowledgement of gas alarms right at his fingertips.

Q. Now accept that of course you were not based at the mine site at the time of the first explosion but to your knowledge were all of the gas sensors working on the 19th of November?

A. I have absolutely no knowledge of what sensors were working or were even in place. I asked for a plan some months later when people were talking about what sensors were there and what weren't there and the plan was generated for me that actually showed the sensors on it. Before that I don't recall seeing a plan that had those sensors marked on it. That wasn't a function of whether I worked there or not, that wasn't a function of my role and whether I would normally look at that detail.

Q. Is barometric pressure a relevant thing to measure in a mine?

A. It depends on the mine very much. I know Mr Bell talked about it the other day and it's something as a mining official, a deputy, and under manager, all my career, always take an account of barometric pressure. We used to have an old hand-wound barometer on the surface that was wound every day, or wound once a week, depending on the variety. The reason it's important is because the barometric pressure affects the movement of gas in and out of goaf areas especially. It doesn't have a

huge impact on the normal gas emanating from the ribs, although it does have some impact and over a big mine it would have probably a reasonable impact. So although barometric pressure would be a low ambient pressure in the mine, if you like, or a lower ambient pressure, and therefore would allow the release of gas out of the ribs, it would also allow gas to expand in the goaf areas and potentially bleed out into your intakes.

1540

A. So the biggest risk for barometric pressure is on goaf and goaf seal management rather than general intakes, so we didn't have a barometer, sorry, we didn't have an old hand-wound paper reel one which I'm sure Mr Bell would be familiar with, but we had electronic barometric pressure and so it was important to note, it was actually more noted at Pike for good standards, in other words to get used to doing it you should measure your barometer and you should report on it and you should know what it means and see if it changes anything for you, but for such a small mine with no goaf areas barometric pressure was not a significant part of our management process.

Q. I want to ask you now about hydro-mining. You described yesterday the process and equipment used at Pike for hydro.

A. Yes.

Q. Can you tell us what particular risks in relation to gas may arise from hydro-mining?

A. Well, hydro-mining being an extraction process has a similar attendant risk that any other extraction process has, you're actually winning larger volumes of coal than you would through development, roadway development so in roadway development you might cut 20 tonnes of fresh coal per metre at advance so 10 metres in a shift, you'd be cutting 200 tonnes of coal. If it hasn't drained off very well, assuming it has, and it's drained down to three or four cubic metres per tonne than you're liberating 600 tonnes or 600 cubic metres of gas, 600 to 800 cubic metres of gas in that shift, and that would be managed via your auxiliary ventilation system. Once you get into extraction systems, whether it's

hydro, whether it's board and pillar, whether it's longwall especially, then you're starting to extract larger volumes of coal, you're therefore liberating more gas just by the mining process so there's more loading on your return system, and you're also forming a goaf which is the waste area behind the mining area, which is allowed by nature in any of those processes for the unsupported roof to fall in and to form a cavity, and that's the nature of any extraction process, that the cavity is formed. So, a common hazard of extraction is higher liberation of gas. Your question was specifically about gas, wasn't it, not other risks?

Q. Yes.

A. Yes, so one of the more specific hazards of hydro monitor mining, given that I'm not an expert in hydro-monitor mining at all, and we only just started it at Pike but my understanding of the hazards that as the hydro-monitor, because it's a quite high strength and high volume flow of water and coming out at very high pressure, that it acts as a Venturi in itself, so it will draw air along with it so it will be forcing air into the goaf and it will also be stirring up the gas and just by the nature of the fact that it's actually drawing air into the goaf, well something has to come out of the goaf and if it's not the same air coming in and coming out then it's going to be gas that was in the goaf being forced out and displaced by that air. So, one of the hazards of hydro-monitoring is the fact that the monitor itself can create a large amount of turbulence in the goaf. With a longwall particularly the goaf has time to settle and the gas sits there and isn't really disturbed because the cutting process is just happening on the advancing or retreating face but it's retreating away from the goaf and it's leaving the gas make behind if you like, coming out of the goaf, whereas with hydro-monitoring you're continually stirring up the ventilation and the gas on the fringe of that goaf, which means it can force it out into the return roadway.

Q. Can you tell us also about the phenomenon of wind blast?

A. Yes, wind blast is another phenomena, it occurs with extraction panels rather than, well it can possibly occur with a massive pillar failure in a board and pillar mine, but it's not very typical, that's more of a creek.

1545

A. But in an extraction place then you can get, if you're under a very, very strong rough with no, with not very good caving characteristics then you can withdraw the coal and what, where you would hope the roof to fall in just incrementally, blocky failure then you can get the roof standing up for large areas and when it does eventually fall it would fall as one large slab and acts as a piston and by falling in one large slab it can dislodge all the air below it and therefore that pushes out. If you go to an extreme than the most common windblast phenomena that I'm aware is around the Macquarie Lakes District in Newcastle where they mine underneath conglomerate roof so sort of like little stones. It's a type of sedimentary rock but it's all lots of little stones and very, very hard cemented to get up and a number of mines there including Moody Creek and others have mined under areas where the roof just wouldn't fall in and when it eventually did fall in the windblast was enough to push 80 tonne machines up the roadway like rag dolls and people with them so they had fatality issues with windblast. They've gone to issues of, sorry strategies of drilling holes in the roof and jacking the roof down with hydraulic pressure et cetera and they do that remotely from somewhere else but windblast is not a phenomena that I've ever encountered in the southern coalfields and it's not where I've mined under massive sandstones and shales and claystones and mudstones and it's not a phenomena. You do get roof falls occasionally in the goaf where there's a big bump but it's not the same as windblast. Windblast is actually a phenomena where the wind is enough to do damage. That's the concept of windblast anyway.

Q. If we look now at Minarco's May 2005 project update NZOG0020, page 81, this I think shows the plan as at 2005 in terms of hydro-mining and it's colour coded from red at the top down to blue at the bottom. Does that show that the plan at that stage was, as I think you may have already described it, to begin hydro-mining at the furthest reaches of the mine and then work your way back essentially?

A. Yes, which year did you say this plan was from?

Q. This is the May 2005 project update?

A. Yeah, thank you. Yes, that's correct.

Q. We've already heard reference to the fact that there was a trial or test panel that was contemplated to be mined before the steady state hydro-mining?

A. Yes.

Q. Was it originally planned, to your knowledge, that this test or trial panel would take place before any of the if you like regular production from hydro-mining?

A. So the trial is, trial panel was a defined term in the resource consents so it's not just used in its normal parlance of trialling and the trial mining panel was defined to be in a certain area up to the north west of the lease where it was an area that was agreed with the Department of Conservation that would have the minimal impact and it was a trial not to try the mining equipment but to try the impact of subsidence in this area so it was a subsidence issue rather than an operational equipment issue and that's so the trial was called a trial panel and it was defined as such in the resource consent. Does that answer your question so far?

Q. It does, thank you. I think in December of 2008 there was a document headed, "Concept options to increase production outputs January to June '09." It's DAO.004.10880. Do you recall that document at all?

A. I recall the conversation in the, I don't know if I was the author of this particular document, I possibly was. I certainly remember the issue.

1550

Q. If we look on page 3, at the top of the page it's noted and I perhaps should have first said that the date was 8 December 2008, you can see that at the bottom?

A. Mhm.

Q. It's noted that at the top of the page, "Pike River Coal is experiencing difficulties meeting budgeted production levels."

A. Mhm.

Q. "Financial year '09. Production levels are strategically important with regard to cashflows amongst other issues. Also experience levels of

mining crews are lower than desired and achieving budgeted development rates for fees crews would be challenging." If we pull out from that highlighted quote, the purpose of this report was to explore various options I think, to increase production levels. Is that right?

A. Yes, that's right.

Q. If we look on page 9 of that report, we can see a diagram headed, "Indicative bridging panel layout". Can you help us with what that term, "bridging panel" referred to?

A. It's used as a general term here rather than a specific mining term. In this particular layout the concept of bridging panel was to bridge between when we would have otherwise wanted to start mining or when we could possibly start mining and when we would have to go to the trial area. So it was used as a concept of bridging between the two. Depending on where your questions go, I've got a fuller answer which may explain something as well.

Q. Well I think we can short circuit this perhaps by looking at exhibit 9, which has already been produced, and we've already had evidence on this –

A. Sorry. That panel, that one you've just shown me there is not a hydro panel by the way.

Q. I see.

A. It's a pillar extraction panel.

Q. So if we look at exhibit 9 we can see reference at the top of the page to trial panels, and then we have a commissioning panel and a bridging panel in red, the bottom third of the diagram. Can you just help us with the difference in terminology between a bridging panel, commissioning panel and the trial panels?

A. Yes I can. The trial panel was, because it was agreed with resource consent and I don't propose to be or purport to be an expert on the resource consent or Department of Conservation's rules and the way they govern. However, I can tell you Pike's interpretation of how the discussion and negotiation went. The trial panels because they're actually a defined term, they weren't within the local conservator's ability

to move. We would have to go back to the Environment Court. So I met with the local conservator, Mike Slater, and his lawyers and their local people like Craig Jones in Hokitika, with our environment manager, Ivan Liddell, to explore the options for – well, initially for moving the trial panel to somewhere else in the lease because I wasn't party to the group that agreed where the trial panel was going to be so I challenged everything and wanted to see where else I could put it somewhere closer to pit bottom where we could get some extraction earlier. The reality was that as Mike explained, because the term was defined he was very limited in his ability to move a trial panel so he explored the options. Because the trial panel's purpose was to trial the impacts of substance on the surface, we looked at other areas in the lease where we may be able to do some hydro extraction which would give a dual benefit, give Pike the benefit of getting earlier extraction and give the Department of Conservation an opportunity to look at the impacts of substance over a lesser extraction width. So the trial panel you can see in that drawing is four panels wide, which are four times about 20, so it's about 80 metres wide. So the Department of Conservation thought it was actually a good idea if we were to put another panel in earlier, but was narrower and would have less impact on the surface, and so the concept of a commissioning panel was brought up because the terminology was not the same as trial panel and therefore it didn't have to be approved under the resource consent or varied and it was something within the ability of the local conservator to approve. So we came up – and you looked at another plan earlier.

1555

A. This one particularly is a most recent one so it's got the correct layout for what we had intended, but you did show me a plan earlier that had some other commissioning panels further, slightly to the north, different orientation. So, what we originally did was propose to them that we would do a series of commissioning panels and that they would be of only a two panel width and they agreed that that was to their advantage because they would get early information on substance and it was to our

advantage because we could actually extract some coal from an area that as per the plan you showed me a moment ago, we probably wouldn't have extracted for another 20 years anyway, it was always going to be extracted, it was just more later in the mine life. Ideally you wouldn't want to start off with a commissioning panel size, and I'll come to bridging panel in a moment, you wouldn't want to start off with a commissioning panel size because it's more, when you look at your ratio of roadway development to extraction coal obviously driving several roadways to get 18 metres worth of coal, where you're getting all of that coal for just the same set of mains, is much more advantageous than all the drivage you do just to get two panels width, so by commissioning panels is a pretty unproductive way of doing it. So, we identified some commissioning panel areas but as we were also continuing to go through this graben, this is pre the graben structure being intersected, this conversation was had.

Q. That would put it roughly in what month?

A. We didn't start going through the graben until about December 2009, so this conversation, the one you had where you were looking at exploring different options, was back in late '08, so sometime when we went and saw Mike would've been sometime in early '09 I think, something like that maybe, maybe late '08, can't quite recall, and we had this concept of these commission panels, so we went off and designed a whole heap of areas of small coal bounded by faults trying to fit it in amongst the mining control zones and we had Dr Johnson George from the University of Auckland that did our subsidence management, some subsidence prediction work, for the submission to the various authorities. He redid the work on those panels and came up with subsidence predictions which were within the realms of the Department of Conservation's expectations for those mining control zones so they were happy for us to do that. I then went back and saw Mr Slater sometime later and said, well actually, what's the chance of having an even smaller one which we don't believe will have any impact on the surface but we can slot in, we've found a little spot we can slot one

panel in. It's in a higher mining control zone requirement but it'll be only one width wide, it'll give us an opportunity to put our gear in there, run it quite slowly because we won't get continuity out of it but it'll give us a chance to slowly train our men, get the equipment running, the company gets the advantages in earlier coal flow and some cash flow, but it's going to cost us a lot so it's purely from a cashflow point of view that it was an advantage, but again at an even smaller width the Department of Conservation would get the opportunity to look at the effects of extraction on the surface, so again, they're very supportive of the idea rather than going straight to 18 metres or even to 40 metres, they're now going to go to only a 20-25 metre wide extraction panel, so they were very supportive of it. We'd already used the concept of commissioning panels so we had to think of another name, so we called it a bridging panel, to bridge to the commissioning panel before the trial panel before steady state. It does seem like a bit of a play on words but it was actually something we wouldn't have otherwise proposed to the Department of Conservation four or five years ago because it was a lot of work, a lot of investment to put into a small extraction of coal, but we saw it was worth it and a 'needs must' from a business point of view and it was to everyone's advantage as far as the Department of Conservation and Pike.

Q. Did you say that the bridging panel was underneath one of the mining control zones?

A. I'd have to overlay the mining control zones in there but, yes, the mining control zones aren't all uniform like the – I think in this area the subsidence had to be limited to less than 600 millimetres or that effect and I think in trial mining area you could have up to three metres of subsidence effects on the surface because it was low, lower value land above it if you like. A lower conservation value land, as deemed by DOC whereas where the bridging and commissioning panels were, there was still mining control zones around there so that's why they had to be limited in size and limited in impact on the surface, and it was our

expectation that the bridging panel would be virtually negligible impact on the surface.

1600

Q. If we go back to PW28, the area that is shown with the Waratah guzzler at the top of the page, that's the bridging panel I take it?

A. Correct.

Q. Was there a specific risk assessment undertaken before work began on the bridging panel?

A. Work began on extracting the bridging panel?

Q. Yes.

A. Yes, I understand there was.

Q. Can you tell us, from your knowledge and it's fine if you can't, what the particular risks and controls were identified with beginning hydro-mining at that point?

A. I can't speak with authority on the particular risk assessment, I was aware of the need for it to be carried out. That was raised in operational and management meetings. I was aware that it was conducted and I was aware that there was a series of actions and some of those actions were discussed at operations meetings. Doug had actions and Neville had actions and there was a whole bunch of people, especially Terry, the project manager, so I was aware that the activity had occurred, actions were being taken, and Terry Moynihan the project manager would report back on a weekly basis as to what activities had been undertaken and signed off prior to the commencement of operations. So I was aware of the process and I was aware it was being tracked and I was confident that the men in charge of it were doing what they needed to do.

Q. When was the first extraction by hydro-mining?

A. I think it was in early September. I'd don't remember the date but I'm pretty sure it was about early September, first week maybe. Definition of extractions bit of a difficult one because we - I think we first turned the hydro-monitor on and ran it for about half an hour and then turned it off again so probably a bigger red letter day from a mining point of view is

when it's starting to form its first goaf or when roadway held across to the other roadway with a monitor but it started and we just ran it for a couple of hours a day, usually on dayshift to get all the pump systems working and train the guys and we had our Japanese hydro-monitor consultant, Oki Nishioka worked for us for three months over that period. So he was there working with the crews and working with the guys and testing the system out. So it was quite a slow ramp-up initially. So there was no, wasn't a flick the switch and suddenly we're getting 20,000 tonne a day type exercise.

Q. Were you aware of any concerns about the adequacy of the ventilation system for the commencement of hydro-mining?

A. I was aware that it was a fairly tight thing. Doug assured me that he was working on it. I'm not saying that it was his responsibility but I suppose more the point was, yes I was aware that we needed to trim air into one area. I think he even was stopping one of the continuous miners for a period of time to give him more air into the hydro-panel. Because remembering this is ahead of the commissioning of hydro underground fan, after that that wasn't an issue but ahead of that commissioning we're still running on 90 cubic metres so it was quite a tight exercise for Doug to give the hydro-face as much air as he could. So I was aware he was actively managing that process and it was probably, I won't say it was the biggest thing he was focusing on but I'd have to say from my interactions with him the fan, the commissioning of the fan and the balancing of ventilation underground was probably taking up the majority of his management thought processes as the mine manager.

Q. You referred yesterday to stone dusting?

A. Yes.

Q. Was there a particular target percentage of combustible material inside the mine at Pike?

A. Well there's statutory limits for combustible and combustible matter in the roadway and we had managers rules for stone dusting to require, I think from memory it was either to be stone dusted every 30 metres or

24 hours, whichever was reached first, and that had to be stone dusted. Usually stone dusting is to a visual standard at the face, we don't put it on and test it, guys get to know. And it's never, you're never going to fail stone dusting at the face unless they do a really really poor job because they usually put it on fairly thick. It's more over time as the mine progresses that that stone dust blows away in the wind and falls off and you start to get closer to the statutory level of incombustibles or combustibles.

1605

Q. Were you aware of any concerns about the adequacy of stone dusting in late 2010?

A. Yes, I had been made aware there was some issues either emanating and I don't recall, I did know at the time, but my memory doesn't serve me as to whether we noted an inadequacy in the stone dusting or during routine sampling or whether the inspector did on a routine visit. I can't recall which came first but Doug made me aware that through discussion with Kevin Poynter, the now district inspector that he had received or he had a discussion and I think a follow up letter from the inspector to say that stone dusting standards needed to be improved in a certain part of the mine because they'd been previously dusted but because of the amount of water at Pike it's very easy and I think actually one of the other speakers if it, might have been Mr Bell, was talking about how quickly roadways change from wet to dry somewhere in the mine so if a place is too wet to sample, in other words it's dripping with water, then it's not going to catch on fire so you're probably, it would be good practice to continue to stone dust it anyway but often areas that are very, very wet it's hard to tell what's combustible and what's not because it's all wet. There's some areas of our mine, given we'd just increased our ventilation by 30 cubic metres a second, had gone from damp to dry and Doug was aware of that and I think he was, I'd let him speak for him himself but he, on what his feelings were to other people, but his feelings to me was he was quite embarrassed that he'd got to that point because he never felt he'd ever been put in that position

before where the stone dusting standard had let slip just below the statutory levels and to my understanding he did something about that or was planning to do something about it. It was a matter of redusting. I would say that it's not the first time I've been aware of in, not in New Zealand but in my career, where stone dusting standards have been fallen below standard out by somewhere where people don't generally go. They get picked up during inspections and you restonedust so it's disappointing but it was unfortunate.

Q. In 2008 the Department of Labour invited submissions on improving hazard management within the underground mining industry?

A. That's right, yes.

Q. I want to show you a submission by Pike River Coal Limited with your name as the contact. I've just got a copy here Madam Registrar and I'll produce this as an exhibit.

EXHIBIT 13 PRODUCED – RESPONSE FORM – IMPROVING HAZARD MANAGEMENT WITHIN THE UNDERGROUND MINING INDUSTRY

Q. Yes, do you recall that document?

A. Yes, I do.

Q. Can I ask you about certain of the statements in that document and whether they are statements that you would stand by today? First in the executive summary if we zoom in on the paragraph underneath, "Pike River Coal Limited believes that the current New Zealand coalmining legislation, predominantly the regulations is inadequate in some critical areas." Is that a view that you hold today?

A. Just to qualify before I answer that. This is a document submitted by Pike River Coal. I'm the contact for it and I'm not the sole author of it so it was a collective view of the company at the time. I know myself and Neville Rockhouse were probably the main typing authors of it and Neville did most of the ground work fortunately to put this together, however it reflected the view of the company, not just mine personally, so I'm more than happy to answer my own view on it but the statements in here are those of the company, not just myself.

Q. I take it you did agree with the statements at the time that they were made?

A. To less and more, but they weren't my statements. This was a company statement so I won't take ownership of every statement in here as saying I agreed with it. Because I was the contact does not mean I was the author.

Q. Well if we take that first statement, is that a statement that would reflect your present view?

A. Yes.

1610

Q. If we move down the document to the paragraph after the set of bullet points, the paragraph and it reads, "It is the view of Pike River Coal Limited that the principal Act needs to be amended to include a requirement for competent or qualified persons. Current mining regulations need to be reviewed to support a more critical risk or hazard review approach," and it goes on to say, "A means of then demonstrating compliance needs to be created by the use of detailed codes of practice or detailed guidelines that deal to the real issues as opposed to being politically correct." Is that a statement you would agree with today?

A. Yes.

Q. If we then zoom back out and look at the set of bullet points at the bottom of the page. I'm sorry, we may in fact have had them already, I'm sorry. The bullet point, fourth from the bottom, "The short term strategy should consider and include increase the coverage and number of mine inspectors by a realistic resourcing of DOL?"

A. Yes.

Q. It's a matter you would agree with?

A. Yes.

Q. On the third page of the document, the second paragraph under the heading, "Safety case," "Pike River Coal Limited believes that a safety case regime would not be a cost effective or pragmatic measure in relation to the issues identified in the discussion document," and the

paragraph goes on, and then the second paragraph, “Our concerns about this option include issues around the current mines inspectorate not having the ability to handle the bureaucratic effort required by such a regime. The number of qualified mines inspectors has dramatically declined over the past decade or so in New Zealand. Only one full-time inspector and one trainee inspector are currently covering all of the South Island.”

A. Yes.

Q. Would you stand by those comments or are they reflective of your present view?

A. Well I’d only qualify it by saying I've never had a very satisfactory understanding of what the intention of a safety case regime was going to be. I did seek a qualification of what that meant both from the local inspector at the time and also back through the people who put the questionnaire together and I struggled to really understand what they were trying to say, other than – so, the comments earlier in that that you read out were around the fact that putting in anything that required the inspectors to properly handle a whole new concept of safety management and putting large scenarios together, what if scenarios for a mine site would be way beyond the capability and resource requirements of the Department of Labour as it was operating then and now. But that’s our, that was Pike’s view anyway.

Q. At the bottom of the same page under the heading, “Licensing regime,” in response to the question, “Do you think the licensing regime would work well for underground mining to improve the ways hazards are identified and managed?” The submission said, “Pike River Coal Limited believe that this option could only work if the Health and Safety in Employment Act were to be amended to include the term, ‘a competent person or qualified person’. Next, “the inadequacies in the current Health and Safety in Employment Mining Regulations would need to be filled and finally an approved code of practice that demonstrates at a practicable level how compliance can be achieved is

needed in this industry." Now, again, are those views that you would subscribe to today?

A. Yes.

Q. Next, under paragraph 5, in response to the question, "What activities should require a licence," the submission notes that currently there are certificate of competency requirements for a mine manager, mine surveyor, underviewer, deputy, and requirements under HSNO approved handler for explosives. Pike supports these current certificates of competency as a primary means of providing safety." It goes on to say, "This should be extended to include specific competencies for other mining professionals with equal amounts of responsibility including electrical and mechanical engineering, mine engineers, geologists and safety practitioners who all must play their part." Is that a view that you would agree with today?

1615

A. Yes, I just qualify it by saying I think it does go on to say, "We don't advocate the completion of these competencies as being a prerequisite to employment or appointment as is the case with the current certificates of competence, they be an opportunity to provide industry specific training et cetera et cetera." What that clause is specifically saying, it doesn't say that the wholesale requirement to have certificates of competency for every position at the mine is a requirement. However, there are some key ones and it's still quite beyond me that there's no engineering requirement in New Zealand, mechanical or electrical, and there's only mining requirements and specifically the underviewer has a certificate of competency but it doesn't define what his job is in there, in the regulations at all so you don't even need one of them. It's quite strange, but the geologists, safety practitioners et cetera, by having a licensing process would set standards for those positions in the industry, it would set guidelines for training standards and would set benchmarks by which those standards could be assessed, so yes, I'd stand by all those comments.

Q. On page 8 in paragraph 25 under the question, “Do you think this option would work well, that is increased supporting guidance, do you think this option would work well for underground mining to improve the ways the hazards are identified and managed?” The submission at the time was, “Pike believed that creating approved codes of practice and/or guidelines such as the MDG guidelines in New South Wales to be critical to this option. These documents represent the current state of knowledge in the industry and should clearly spell out to the reader the preferred means of compliance.” Again, is that a view that you would agree with today?

A. Yes, I'd qualify it by saying, yes, I do wholeheartedly agree with the guidelines, I think they’re great, they need to be developed properly by competent people with proper industry input. I've heard a lot of talk during this Commission on the Minex standards. This Royal Commission was the first time I'd heard that there was Minex standards in this country. No relevance to Pike and never been involved or contacted so I think if they’re going to exist and that the inspectors had a similar view of the non-involvement as well, so I think if these things are going to be developed then there needs to be a lot of thought put into how they’re being developed and by whom.

Q. On the next page, page 9, in response to question 30, extending the coverage of the mining underground regulations, the comment was, “Pike believes that the current mining regulations, administration and underground are in need of complete review and revision and should be amalgamated into a single set of regulations. These should follow the principles set out in the Health and Safety in Employment Act and be performance based, but also recognise specific standards which small mines can easily follow. The regulations need to spell out the requirements in more explicit detail and deal with specific and unique issues in underground mines.” Is that a view you continue to hold?

A. Yes.

Q. On page 10 in response to question 38 and this I think is specifically dealing with employee participation or check inspectors, “Pike River

Coal Limited have a number of concerns about the proposed check inspector regime and how it might work in practice. The Health and Safety in Employment Act adequately covers employee participation and gives them certain powers to communicate with the regulator inspectors."

A. Sorry, could we just wait until it comes back on the screen please.

Q. Yes, sorry, it's paragraph 38.

A. Thank you.

Q. You'll see the last sentence on that page, "Pike is committed to engaging with our team in a spirit of good faith and cooperation on any safety issues that are raised. Pike does not see the need for check inspectors in our industry when there is a system already in place that is effective and could be further enhanced with further specialised training by nominated safety representatives." Is that still your view?

A. Yes.

1620

Q. Paragraph 40 on the same page we're currently looking at. In relation to health and safety inspectors the view is expressed, "Currently and with no additional resource being given to the Department of Labour it is probably totally unreasonable to implement these requirements for health and safety inspectors. This comment is simply based on the acute shortage of mines inspectors. Before any of this could be considered or implemented the number of inspectors would need to be significantly increased. The roles don't pay well and probably remain unattractive to many qualified individuals. DOL took an extended time to replace the last mines inspector. We are not sure where they will get the extra staff from." Again, your current view?

A. Yes, completely agree with that statement.

Q. Two pages on, they're not in the electronic document so I'll just have to read it to you from the page. I think you expressed the view that, this is paragraph 4 of perhaps the supplementary document, "New Zealand should align ourselves more closely with the Australian coalmining industry. We have already used their inspectors to do peer reviews so

the first step has already been taken. We should encourage a more systematic approach to information sharing both within New Zealand and internationally. The mining industry is very small to be able to do things entirely on its own and hope to maintain best practices." Again, does that reflect your current view?

A. Yes.

Q. While we're looking at that document, are there any other comments you would like to make having heard the evidence at this phase of the inquiry on the topic of the inspectorate or the regulatory framework?

A. The only comment I'd make is the connection between that and the events of Pike and looking at the, leading up to the event on the 19th. The inspectors were very active I think with us to the ability of their resources and training and competencies. There was a good interaction. Pike had the advantage I suppose of having quite a number of managers who had come from other regimes where there was a long and strong associate with proactive reporting and having a good relationship with the inspectors so we proactively encourage that ourselves and brought them into everything we were doing. We did eight inspections during 2010 plus Ms Shortall's advised me probably 123, I think it was, communications and other interactions with the inspectors in 2010. So while I stand by the company's position in this paper, in all of the aspect that you've raised I don't necessarily create a link, and I haven't created a link since the event, that a new improved and super inspectorate would have in any way changed events, given we don't know what the cause of the explosions were. However, I do agree that there needs to be a significant review of where we're at with inspectorate in this country.

Q. I want to go back now briefly to the topic of your particular role at Pike River before you were appointed chief executive?

A. Yes.

Q. So if we focus on the period in 2010 when you were the general manager of mines?

A. Mhm.

Q. Can you tell us what reports or regular sources of information you had to tell you about what was happening with the mine itself?

A. So maybe go from a daily upwards. So from a daily basis I would, assuming 2010 I was not on site because this is based in Wellington, most days of the week I would have one or more conversations with Doug. I didn't, when he was the operations manager in the first half of the year and Mick Lerch was on site, I didn't tend to ring Mick. So if I was on site, which was at that stage three days a week usually unless something else untoward happened, two to three days a week that I'd be in the office and about the place. And my office was only one door away from Doug so we would see each other constantly and regularly.

1625

A. I'd go underground reasonably regularly, once every few weeks or so if I could do it and I'd, and look about the mine myself. I was onsite so I'd be in and about the mine offices. The – during that period the technical services manager, the human resources manager and the environment manager were still my direct reports, so as far as technical aspects of the mine, the reason I, the reason I maintain that, wasn't the technical aspects of the mine in regard to its operations. So things like strata control, gas, ventilation, all those other aspects were really dealt with directly between Peter and Doug. The reason I kept the technical services department initially reporting to me, was more because Peter was dealing with so much exploration work, bore holes, surface bore holes and other activities that were not really confined to the coalface so I didn't want Doug, especially with having so many requirements to develop a mine underground, I didn't want him distracted by extraneous activities offsite, our environmental compliance and things like that, so I kept those managers reporting to myself. So I kept an active role, both by due to the fact that I was there, by due to the fact that I was a mine manager myself and had been at the mine since its inception, so I kept an active interest from that point of view. On a more formal basis, I attended the weekly management meetings, which until Doug started were my weekly management meetings, so I'd been running those for a

number of years. After Doug started, I can't remember when, I know he started in January, sometime in February or March, we transitioned that meeting over to be his meeting, rather than mine. And so he took over and I became a, an attendant or a visitor to that meeting, especially since it was becoming more and more obvious that I wouldn't always be available to come to the meetings and they were initially being put off to different days to suit me, which became untenable for the other managers, so they just had it whether I was there or not after that. So I got the minutes, whether, if I was at that meeting I would actively participate, I, sometimes more actively than some of the managers would like. I would actively participate, and if I wasn't there I'd get the minutes. If I wasn't there but I was still talking to Doug, I wouldn't necessarily read the minutes, 'cos they were quite voluminous and are more actions for the people who are there, but I'd still read them at some stage to just understand what was going on and get some more detail. Then on once a month I would get the, a composite document which originally several years earlier I'd written myself, which was the Monthly Operations Report and I just authored it and then as we got more managers onboard, they started to author their own section of it and I'd pull it together and edit it, because it was in Afrikaans and German and several other languages and the languages and styles were very different so I would bring it back to one common style, if you like, for submission of the board, or submission to Gordon Ward to submit to the board, and so I offered that monthly document to the board every month for a number of years from 2005 onwards. And then more recently, especially pre the 2010, that document was put together by all the managers then edited by Doug and sent to me as a semi-complete document for submission with the board papers through the chief executive, through Gordon Ward. So that's the sort of formal reporting it was getting. If there was an area of specific interest or a technical report that was of something that I wanted to know about or came up at the meeting, I'd ask for that report to read if I was aware that it was in existence, but I usually kept myself to corporate issues,

working with the chief executive and the chief financial officer and the broader technical aspects. I kept a very strong interest in the Human Resources Department because recruitment of people was constant and again, the actual task of recruitment is quite large and especially with resignations and senior recruitments, so I kept an active role with that with the human resources manager and just general site activities and the larger contracts.

Q. Mr Whittall thank you for your evidence so far. You understand of course that there are subsequent phases to the inquiry and so –

A. Yes I do understand that.

Q. – we may need to hear from you further.

THE COMMISSION:

Is there anybody who's seeking leave?

1630

MR RAYMOND:

Yes, Your Honour. I do seek leave on behalf of the families to ask some questions arising out of evidence that we've already heard. It's just been touched on in this last piece from my friend about the general reporting lines and responsibilities and briefly touch on that and minutes of meetings and Mr Whittall's knowledge of certain things that were going on, to which some extent he's sought to distance himself from.

THE COMMISSION:

Sorry, I'm not hearing?

MR RAYMOND:

And to some extent which he sought to distance himself from. The document which Mr Mount has just put to him, being Pike River's submission, was a document I was going to put to him and have one or two questions arising out of that in relation to safety and the implementation of safety measures in the

mine. A couple of questions, sir, around egress and the fresh air base, and that's essentially it sir.

THE COMMISSION:

Is there anybody else who is seeking leave or not?

MR NICHOLSON:

I would seek leave.

THE COMMISSION:

Yes Mr Nicholson. I retained it from the other day, that error.

MR NICHOLSON:

I'm grateful sir. I would seek leave just only in relation to the issue of the development of the tunnel through the Hawera Fault. There's only a couple of questions for the witness on this. I'd anticipate taking no more than perhaps two or three minutes.

THE COMMISSION:

Ms Shortall, you'll have some re-examination I assume.

MS SHORTALL:

Yes Your Honour I will.

THE COMMISSION:

Right, thank you. How long do you think that might be, just...

MS SHORTALL:

I would like an opportunity to look in more detail through my notes, but I would anticipate it could be around 45 minutes to an hour.

THE COMMISSION:

Mr Raymond, you didn't venture an estimate.

MR RAYMOND:

No you didn't ask for one sir.

THE COMMISSION:

No. Nor did you venture it, but...

MR RAYMOND:

No longer than 25 minutes sir, I would have thought, half an hour.

THE COMMISSION:

We are just going to retire for a minute or two.

COMMISSION ADJOURNS: 4.33 PM

COMMISSION RESUMES: 4.36 PM

THE COMMISSION:

Mr Nicholson, there is no difficulty with your being granted leave and I'll actually invite you to ask the few questions that you indicated shortly. Mr Raymond we are struggling with some of the topics that you have identified, for example, the issue of the second egress, the fresh air base, the 2008 submission in relation to the DOC review, all of those have been canvassed in some detail by Mr Mount already and then the other matters to do with reporting lines and what you've described as Mr Whittall distances himself from certain matters. Again, some of those things have been raised and we are just concerned as to whether this is an examination which falls properly within this phase or not, but nonetheless we are going to grant you leave. I'm simply really serving warning that it will be policed, the questioning will be policed strictly with reference to what is appropriate at this stage as opposed to potentially later.

MR NICHOLSON:

I understand sir, thank you for that indication, I'll keep an eye on you.

THE COMMISSION:

Our other concern Mr Whittall is simply that you have been answering questions since 9.00 am and it is 4.30. Our present inclination is we are not going to finish tonight anyway because Ms Shortall has quite a number of matters obviously to raise with you, so our present inclination is to deal with the questions from Mr Nicholson, seeing that it is not anticipated will take very long. We are then quite happy to adjourn but with a view to starting at 9.00 am if that is your preference given the time you have already been in the witness box or we could carry on until 5.00 and start with Mr Raymond but have you got a preference?

MR WHITTALL:

Your first order of service would be suitable to me, thank you.

THE COMMISSION:

You prefer it that we adjourned after –

MR WHITTALL:

Yes, that would suit, given that we don't know how long the other one will take but that would suit me.

THE COMMISSION:

That's fine, we will do it that way. Mr Nicholson, if you get off your chest the matters that you need to deal with.

CROSS-EXAMINATION: MR NICHOLSON

Q. Mr Whittall, you'd said in your evidence that it was about September 2008 when the tunnel changed and it became deemed as a gassy mine and coal mine. Is that right?

A. That's correct.

Q. Was Nigel Slonker working for Pike at that stage?

A. No.

Q. He didn't join until about April 2009, did he?

A. That's correct.

Q. And so in September 2008 was he still living in Australia?

A. Yes he was.

Q. We've heard through the evidence over the last few days that the Department of Labour commissioned a report from Professor Gunningham and Dr Neal in relation to their interactions with Pike River Coal?

A. Yes I heard about that during the Commission, yes.

1640

Q. And you will have seen that there's a record in that, and I can bring it up if we need to, that Mr Slonker was alleged to have said to those authors that Pike, when the mine changed, didn't re-induct the existing

contractors like McConnell Dowell and others in the new processes needed because the mine was gassy. You aware of that?

A. I'm aware that that evidence was given in this Court, yes.

Q. Is he right?

A. Not to my knowledge, no. You're right Mr Slonker started in April 2009 and I recall leading up to the changeover to the mine being deemed a coal mine that both Mr Kobus Louw and Neville Rockhouse went through quite an extensive exercise of identifying what other skills and issues and what risks would be identified at that juncture of becoming a coal mine and I recall at the time quite extensive conversations with McConnell Dowell to that extent as well. Once that was actually raised in Court here the other day I actually asked Mr Rockhouse if that was his recollection and he also was able to remind me that to his knowledge there had been extensive retraining of people. And I also read in Mr Joe Edwards' brief that he also confirms that people were put through the 7146 unit standard. Supervisors were brought up from tunnel managers to get gas testing certificates and quite a lot of work was done with all the employees, not just Pike employees, so yes I agree with you.

COURT ADJOURNS: 4.43 PM

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