

DAY 15

JANUARY 9, 1996

WESTRAY MINE

PUBLIC INQUIRY

HEARD BEFORE: The Honourable Justice K. Peter Richard,
Commissioner

PLACE: Stellarton, Nova Scotia

COUNSEL:

Solicitor for the Commission: Mr. J. Merrick, Q.C., and
Ms. Ena MacDonald, document coordinator

Solicitor for the Department of Justice Canada: Ms. Lynn
Gillis

Solicitors for the Department of Justice Nova Scotia:
Messrs. R. Endres, Q.C., J. Traves, and Wm. Wilson, Q.C.

**Solicitor for the United Steelworkers of America and the
Nova Scotia Federation of Labour:** Mr. David Roberts

Solicitor for the Westray Families Group: Mr. B. Hebert
Representing the Canadian Union of Public Employees: Mr.
Robert Wells

Solicitor for the United Mine Workers: Mr. Hugh McArthur

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1 January 9, 1996 - 9:33 a.m.

2 COMMISSIONER Good morning. Mr. Traves?

3 MR. TRAVES Thanks, Mr. Commissioner.

4 **DR. MIKLOS SALAMON**, previously sworn, testified:

5 EXAMINATION BY MR. TRAVES

6 MR. TRAVES Dr. Salamon, I suppose a good a place as
7 any to start this morning would be the Southwest 1 area
8 as actually mined in January or February of 1992. Sorry,
9 February and March of 1992, to correct myself. This is
10 the thin finger pillar area which has been discussed at
11 some length. And, in fact, we can see it on page -- or
12 sorry, 45, 8, which is the large diagram at the bottom
13 board, in pink. Would you agree this is a completely new
14 area which was mined at that time? However, it's still
15 within the area approved in 1988 by the Department. In
16 other words, the area which was set out in Kilborn. And
17 I could refer you to 71, which is -- Exhibit 71, the
18 technical and cost review prepared by Kilborn Limited.
19 And they set out a mining layout at page 8, I think it's
20 marked.

21 A. Page?

22 Q. Page 8.

23 A. 18 or?

24 Q. It is marked in my corner as page 8; it's right
25 behind Figure 3.2 which has the principal mining method.

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. This -- plan --

2 Q. That plan there. And perhaps, for a little bit more
3 ease of comparison, I would refer you to 45, tab 8, the
4 mine layout designs that the Department of Natural
5 Resources prepared. And you can see that the Kilborn
6 mining layout is the '88 mine layout, would you not
7 agree?

8 A. Yeah --

9 Q. That's the blue. And the area as worked, which is
10 in red, shows those finger pillars essentially in an area
11 which was approved?

12 A. You --

13 Q. Simply the area --

14 A. You are referring to West 1?

15 Q. Southwest --

16 A. South --

17 Q. -- 1, yes.

18 A. Southwest 1. Yes, yes.

19 Q. Thank you. Were you able to find any evidence, Dr.
20 Salamon, that this layout in Southwest 1 was submitted to
21 the Department of Natural Resources for approval?

22 A. I never alleged that it was.

23 Q. I beg your pardon?

24 A. I never alleged that it was.

25 Q. I'm not suggesting it was, I'm just asking were

DR. SALAMON, EXAM. BY MR. TRAVES

1 you --

2 A. No.

3 Q. -- able to --

4 A. No.

5 Q. -- determine? No. So there is no approval that
6 you're aware of for the mine to be mining in that -- or
7 the mine operators to be mining in the Southwest area?

8 A. Not as far as I can recall.

9 Q. Thank you. Is there anything to suggest that the
10 Department of Natural Resources even knew that the mine
11 was in that area in that time frame, which was February
12 and March of 1992? That you're aware of?

13 A. Well, I have no firsthand knowledge of it --

14 Q. Thank --

15 A. -- but whether the Department should have been aware
16 of it is a different matter.

17 Q. I suppose that's a separate question though --

18 A. Yeah.

19 Q. -- that they -- there's nothing to suggest that the
20 Department knew that they were in that section?

21 A. Yeah.

22 Q. Great, thank you. And that's an interesting point
23 that you raise, that perhaps they should have been aware.
24 And would you not agree with me that the Department would
25 find out eventually?

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. [No audible response]

2 Q. They're likely to find out eventually that they're
3 in that area at some point? You'd would agree with me --

4 A. Yeah.

5 Q. -- that's a fair assumption? And, in fact, if we
6 look at your exhibit book 15 at page 229 we have Mr.
7 Phelan's letter to the mine.

8 COMMISSIONER Page 2-2?

9 MR. TRAVES 229.

10 COMMISSIONER Nine.

11 A. Right.

12 MR. TRAVES And, Dr. Salamon, this letter is dated
13 December 30th, 1991?

14 A. 31st.

15 Q. 31st, thank you. And it's addressed to Mr.
16 Phillips. And in this letter -- you've had an
17 opportunity to review this letter, I believe?

18 A. I'm sure I must have read it in the course of the
19 last three years.

20 Q. And he is setting out there some suggestions for the
21 mine to follow, on the second page, in terms of rather
22 than -- I would read at the top of the page: "Rather than
23 attempt to define significant change to your mine plan, I
24 suggest you do the following to ensure you are in
25 compliance with the Mineral Resources Act." And he sets

DR. SALAMON, EXAM. BY MR. TRAVES

1 out some points there; three of them. The first one:
2 "Submit a revised mine plan any time you make changes to
3 location of main entries." Those sort of things.

4 A. Yeah, I remember --

5 Q. The second --

6 A. -- this. In fact, if I'm not mistaken in my
7 original report, in fact, I referred to this.

8 Q. I believe you did, yes. And the second is "To
9 submit a detailed plan or layout for each of the mining
10 blocks before entering the block." And the third,
11 "Periodically, but not less than every three months, you
12 will submit an overall mine plan and a plan for each
13 active mining block if the room-and-pillar workings are
14 not shown on the overall plan."

15 So there is a requirement that he is setting out
16 that they will file not less than every three months. Is
17 that not correct?

18 A. Well, it says so here.

19 Q. And if I would direct you then to the terms of the
20 lease, and a copy of the lease is included in the same
21 book, Exhibit 15, at page 241. And in fact if we look at
22 page 3 of the lease, which is 243, I believe, of the
23 exhibit book, paragraph 6: "The lessee shall before the
24 20th day of each of the months of January, April, July
25 and October of each year furnish to the lessor a correct

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1 plan or tracing on a scale of not less than 400 feet to
2 an inch; 1:48,000 or equivalent, of the workings up to
3 the first day of the month mentioned above."

4 A. Yeah.

5 Q. So there is a requirement within the lease?

6 A. [No audible response]

7 Q. And so at the end of January then, if we look at the
8 development in terms of how far they'd gone in that mine,
9 I would direct you to 45, tab 9, which, again, is our
10 large scale layout on display. In January --

11 A. Just --

12 Q. -- the end of January --

13 A. I --

14 Q. Sorry?

15 A. Let me find it here, it's --

16 Q. Sorry.

17 A. -- easier for me see it. What -- in the book --

18 Q. 45, tab 9.

19 A. Nine?

20 Q. Yeah. The development chronology.

21 A. Yes, yes. No, it's just easier for me to see it
22 than over there.

23 Q. And, in fact, we can see there that the blue block
24 is the one which indicates their development as of
25 January of 1992?

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1 A. Yes.

2 Q. And they did not, at that time had not commenced and
3 did not start the Southwest 1 section?

4 A. Well --

5 Q. According to this plan.

6 A. -- I'm not too sure about that because on the --
7 it's true enough that they didn't start the Southwest
8 section as we now call Southwest section, but they
9 started driving on the other side. And if you look at
10 Road, C-1, and the extension of that and the turning off
11 to the right were started and the road beyond that, the
12 brown, which was driven in November '91 those two are, in
13 my opinion, so close that they were in fact the start of
14 an experiment or trial as the manager -- Mr. Phillips was
15 referring to in his letter to the staff of the company.

16 Q. But, Dr. Salamon, they're not the five-entry room-
17 and-pillar layout which is -- has been described --

18 A. Well, you can't create the five-entry room-and-
19 pillar layout instantaneously; you have to start
20 somewhere. And it seems to me -- you know, in that
21 letter, if you recall, he says that they have decided to
22 carry out a trial, correct me if I'm -- my recollection
23 is not correct, and -- so I read it that this was, in
24 fact, his attempt -- because he had to show that these
25 narrow pillars will actually work because otherwise I

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1 think he would have not done the five-entry development.

2 So, you know, if you read Mr. Phillips' mind, I
3 mean, neither of us can be sure of what he actually
4 thought, but I read it, let's put it that way, I read it
5 that he decided on somebody's advice that he is going to
6 try this. But before he was running into it he's going
7 to carry out and sort of test his fingers; is the water
8 warm enough, principle. And I think this was in fact an
9 attempt to do that.

10 If you notice also -- you know, it's a little
11 difficult to know which blue is blue. There is -- there
12 are other fairly narrow pillars have been developed there
13 which I'm not sure which blue I should associate with.
14 The further higher up between -- extensions of Road 3 and
15 A there are blue drivages, from Road 2 and B there are
16 blue drivages which tend to be narrow pillars. And I
17 tend to interpret the situation on this plan that those
18 were, in fact, trials of this five -- you know, in the
19 five-entry the prob -- the important thing is that
20 they're doing narrow pillars, and he wanted to test out
21 that these pillars, which are significantly narrower than
22 what was agreed in or suggested in the Kilborn study. He
23 wanted to show, I think, that these will work. My point
24 was that these trials, on the basis of these trials which
25 apparently worked and, in fact, the geotechnical map

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1 indicates that the conditions were reasonably good, he
2 then concluded that that proves that the system works.
3 And my -- you know, my point earlier was that I disputed
4 that conclusion. I didn't dispute his, you know,
5 reasonably good intentions of trying it out; I just said
6 that by doing one pillar you're not -- you haven't proved
7 it.

8 Q. But, Dr. Salamon, I -- maybe I misled you. I don't
9 believe that I asked you in terms of what his intentions
10 were and the trialing but rather in light of the
11 requirement of the lease that he file a plan before the
12 20th day of each of the months of January, April, July
13 and October showing the workings up to the first day.
14 Would you not agree that the plan that would have been
15 filed at the end of January, as required by the lease,
16 would not show the Southwest 1 --

17 A. But it would --

18 Q. -- panel?

19 A. -- show these blue drivages I mentioned --

20 Q. But I don't --

21 A. -- which are -- these drivages I just talked
22 about --

23 Q. But I --

24 A. -- which are narrow pillars.

25 Q. But I don't believe you agreed with me that, in

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1 fact, it would not show Southwest 1 panel.

2 A. Well, Southwest panel, 1 panel, was -- let me see,
3 was -- let's just be sure that I'm -- yeah, that wasn't
4 done yet.

5 Q. Correct.

6 A. You know, I don't -- as a matter of fact I don't
7 think we really can be in any dispute about it. All we -
8 - perhaps if we are disputing anything is all we are
9 disputing -- my interpretation of his intentions of doing
10 some of the work on the right-hand side, I would say that
11 those are in preparation to do the work on the five-entry
12 system --

13 Q. And I don't --

14 A. -- and you apparently dispute that. I mean --

15 Q. I don't believe that I've disputed that at this
16 point. I've simply gone to what the plan -- or sorry,
17 what the actual layout at any particular time was.

18 So let's look then at the end of April which is the
19 next time frame for the requirement as set out in Mr.
20 Phelan's letter and the lease. And at that time the plan
21 would, in fact, show that they are in an area which was
22 not approved. Is that not correct?

23 A. Say that again.

24 Q. The next requirement to file a plan with --

25 A. Would that --

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1 Q. -- the Department was at the end of April?

2 A. Except in the lease, they -- if I remember
3 correctly, there was monthly filing specified.

4 Q. I beg your pardon?

5 A. Wasn't in the lease a monthly filing specified?

6 Q. No, I believe I just read --

7 COMMISSIONER Quarterly.

8 MR. TRAVES -- the section and --

9 A. Quarterly?

10 COMMISSIONER Quarterly.

11 MR. TRAVES Quarterly?

12 A. Quarterly. Mmm.

13 Q. So the next would be, as it sets out in the lease
14 and Mr. Phelan's letter that we looked at minute ago,
15 would be for the end of April, correct? That's the --

16 A. It's --

17 Q. -- next quarter?

18 A. You know, I've -- of course, I am not aware of when
19 he file -- you know, what was his system of filing. The
20 letter was written in -- the requirement was written in -
21 - 31st of December, but the lease was arranged much
22 earlier. So I don't know when the quarter started. You
23 know, it could have been January, February, March and at
24 the end of March or early April could have been the
25 sequence. I realize that the letter Mr. Phelan written

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1 was in 31st of December but the lease was done much
2 earlier than that, so the mine already had an obligation
3 to file.

4 Q. And, in fact, the lease was done -- if we look at
5 the date on page 241, on the 3rd of October of 1988
6 was --

7 COMMISSIONER Maybe we can clarify this just by saying,
8 Doctor, that the lease in subsection (6) states that "the
9 lessee shall before the 20th day of each of the months of
10 January, April, July and October of each year file." So
11 that's -- obviously, the one we're looking at here is
12 April 20th.

13 A. Mmm.

14 MR. TRAVES No dispute?

15 A. Right.

16 COMMISSIONER Okay?

17 A. Right.

18 COMMISSIONER So that -- there's no confusion there, I
19 don't think.

20 MR. TRAVES I didn't believe that there was, but -- so
21 at the end of April then, my question was for the plan
22 that was required to be filed pursuant to the lease and
23 Mr. Phelan's letter, that the plan would show that the
24 mine operators were in an area which was not approved by
25 the Department of Natural Resources, correct?

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1 A. Well, I don't know what plan was filed, so I 'm not
2 quite sure what it showed, but if, assuming that it
3 showed what is shown here, end of April, that's in dark
4 blue, that did not include -- mmm --

5 Q. Perhaps if I could just clarify while --

6 A. Yeah, let's just see.

7 Q. -- you're on that point. You said, in fact, that --
8 you've just commented that you don't know what file was
9 planned [sic], but you've already agreed with me just a
10 moment ago that the Southwest 1 section panel was not an
11 approved plan. It was not a layout which they had --

12 A. Not to my knowledge --

13 Q. -- approval for. Not to your knowledge, yes. So,
14 to your knowledge then, if they filed a plan at the end
15 of April, it's going to show that it's not approved?

16 A. Presumably.

17 Q. Presumably?

18 A. Mmm.

19 Q. Okay. In fact, definitely, I would suggest.
20 There's no debate after what we've just looked at.

21 A. Mmm.

22 MR. ROBERTS Mr. Chairman, I'm wondering perhaps
23 through you -- I'm having some difficulties as to whether
24 or not any plans were in fact filed as required under the
25 lease because we haven't seen them in any documentary

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1 record that I'm aware of. And Mr. Traves is asking
2 hypothetical questions about if he had filed plans about
3 dates in the past. Presumably, that could be easily
4 cleared up if in fact they did file plans that were in
5 the possession of the Inquiry.

6 COMMISSIONER Do we have such plans, Mr. Traves?

7 MR. TRAVES I think, Mr. Commissioner, that the
8 evidence of the officials of the Department of Natural
9 Resources will show what actually happened in terms of
10 the plans that were filed and --

11 COMMISSIONER Were they filed?

12 MR. TRAVES -- the sequence. As far as I'm aware --

13 COMMISSIONER If they --

14 MR. TRAVES -- there was --

15 COMMISSIONER If they --

16 MR. TRAVES As far as I'm aware, Mr. Commissioner,
17 there was a plan which was filed in -- my understanding
18 was there was a file -- a plan filed for January of 1992,
19 subsequent to Mr. Phelan's letter.

20 COMMISSIONER And that's the only one?

21 MR. TRAVES And --

22 COMMISSIONER Was there any --

23 MR. TRAVES I can't say off the top of my head if that
24 was the only one which was filed with Natural Resources.

25 MR. MERRICK We --

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1 COMMISSIONER Do we have them?

2 MR. MERRICK We have no evidence that in January --

3 MR. TRAVES And I'm willing to -- I would stand
4 corrected on that --

5 MR. MERRICK We have --

6 MR. TRAVES -- but I'm looking at it in terms of the
7 structure which was set out and envisioned by the lease.
8 And simply that and nothing more.

9 MR. MERRICK Can I just clarify something? We show a
10 plan dated March 30th, '92, which is Exhibit 65, which
11 was filed with the Department. We show a plan April the
12 9th, '92, Exhibit 66, which was filed with the
13 Department, neither of which were approved but they were
14 filed. Are we talking about another plan? Because
15 that's all we have evidence of. And a plan being filed
16 or dated in January of '92 comes as a surprise to us.

17 A. [Inaudible due to microphone being turned off]

18 COMMISSIONER That's what we're trying to get to.

19 MR. MERRICK Sorry.

20 MR. TRAVES I'm informed, Mr. Commissioner, that a
21 plan was filed at the end of January.

22 MR. MERRICK I stand corrected. There was one plan
23 filed at the end of January which was the change in the
24 East Mains to allow us to come back up here which allowed
25 this little finger in here. It was a -- it was in a

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1 letter, January the 23rd, '92 to the Department. It's
2 Exhibit 35-A, page 49, and it was approved January the
3 27th, '92, at page 52 of Exhibit 35-A. But it's only
4 relating to this change here.

5 COMMISSIONER Okay.

6 A. Can I --

7 MR. MERRICK And --

8 A. In 35 --

9 MR. TRAVES If I could -- maybe we can just clarify
10 this for a second with the Commissioner. My
11 understanding, in fact, was that there was a plan dated
12 the first -- or sorry, the 23rd of January, 1992,
13 received by the Department on the 23rd of 1992, the plan
14 number is 020.01.MP.007 and NSD&R file number R-1. It is
15 entitled "Current Status." It is a scale of 1:5,000.
16 It's a colour plan showing the location of the access
17 tunnels, development, contour elevations, old workings
18 and the barrier pillar as of January 23rd, 1992. And I
19 believe that this list of the plans has been provided to
20 the -- in fact, I'm --

21 MR. MERRICK Yes.

22 MR. TRAVES -- sure it has been provided to the
23 Commission and that the plan would be on file.

24 MR. MERRICK Could I suggest --

25 MR. TRAVES And that would be an annual -- it would be

DR. SALAMON, EXAM. BY MR. TRAVES

1 a plan subsequent to Mr. Phelan's letter and it would be
2 in compliance with the requirements of the lease.

3 MR. MERRICK Can I suggest this, can we look at Exhibit
4 35-A, page 49.

5 COMMISSIONER 35-A, 49.

6 A. 35-A, page 49?

7 COMMISSIONER Yes.

8 MR. MERRICK That's a letter from Westray to the
9 Department asking for approval of the change and
10 attaching a plan, which is at page 51. And I'll just
11 take you very quickly through this because I'm going to
12 ask you if this is what you're talking about.

13 At page 52 there is a letter from the Department to
14 Westray approving the change. And then finally, at page
15 53 there is a, what is called a "life of mine plan."
16 It's not a plan as such in the sense of a diagram; it's a
17 plan in the sense of projections and calculations. Were
18 you talking about something other than that?

19 MR. TRAVES No, I must apologize. I suppose that I
20 could have seen this coming, but I don't believe the plan
21 that's here on page 51 is not a colour plan and the date
22 on it indicates 91/12/30 which -- the plan which I have
23 just referenced was dated, according to this, '92/01 of
24 23. And I can't say -- I have no knowledge -- I suppose
25 we'd have to see from the evidence of the officials as to

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1 whether or not this was the particular plan.

2 However, in any event, I would suggest that it does
3 show some degree of layout, the current status. And
4 whether it would be --

5 COMMISSIONER You're referring to 51 now, are you?

6 MR. TRAVES I'm referring to 51.

7 COMMISSIONER Okay.

8 MR. TRAVES And whether it would be sufficient for the
9 purposes of the Department in light of --

10 COMMISSIONER Yeah, okay.

11 MR. TRAVES -- Mr. Phelan's letter and the lease would
12 be something that they would have to address.

13 MR. MERRICK I am advised in our computer data that we
14 do have a plan that is referred to by the title that you
15 referred to it but it's a different reference number.
16 It's not in as an exhibit at this point.

17 MS. MACDONALD It's drawing number 02001MP0011.

18 MR. TRAVES I hadn't intended to refer to it as an
19 exhibit today. In fact, it's only as a result of Mr.
20 Roberts' question that I suppose --

21 COMMISSIONER Well, it's just that I'm concerned --

22 MR. TRAVES And I understand --

23 COMMISSIONER -- that we're not mixing up our plans and
24 that we're all talking about the same thing.

25 MR. TRAVES And I'm not suggesting, in fact, that

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1 plans were filed on a quarterly basis prior to Mr.
2 Phelan's letter in December, I'm --

3 COMMISSIONER But that's another matter?

4 MR. TRAVES That's another matter.

5 COMMISSIONER Okay. Yes.

6 MR. TRAVES I am suggesting that subsequent to Mr.
7 Phelan's letter which sets out look, I want you to start,
8 I want you do this, that a plan was filed, to my
9 knowledge, subsequently which would be the end of January
10 plan. And that a plan that would be expected to be filed
11 at the end of April would show that they were in an area
12 for which they had no approval. And that was only --
13 that was my point, Mr. Commissioner.

14 MR. ROBERTS I don't want prolong this, but have we
15 established that the end of January plan is the one
16 that's in the book on page 51 or is there another end of
17 January plan, that's all?

18 MR. TRAVES I think the Director of Research has
19 indicated that there is another plan and that we would
20 have to go to the Department to see which of the two is
21 the one that they're referring to. Or perhaps the
22 database of the Commission could sort it out.

23 MR. MERRICK We have a plan in our database at the end
24 of January that has a different reference number, but it
25 is identified as "state of mine" or something, end of

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1 January, but it was not obtained from the Department; it
2 was obtained from the Toronto documents that were seized
3 in Toronto. We have no plan that we know that was
4 received from the Department at that time under that
5 reference number.

6 COMMISSIONER I don't know if that helps; it doesn't
7 help me much, but -- okay.

8 MR. TRAVES But the list of these plans was --

9 COMMISSIONER Sure.

10 MR. TRAVES -- provided to the Commission --

11 COMMISSIONER Yeah, okay.

12 MR. TRAVES -- and it sets out --

13 COMMISSIONER I think it's just a matter of getting it.
14 Okay, can we pick up where we left off then?

15 MR. TRAVES So we're at the end of April, Dr. Salamon.

16 A. Before we're leaving this subject, at some
17 opportunity, Mr. Commissioner, I would like to come back
18 to this point about the dates in November, December and
19 January. What happened there and what this plan shows to
20 me and what the -- what my interpretation is. Because --

21 MR. TRAVES Mr. Commissioner --

22 A. -- I think it's going back to November it's quite
23 clear that as soon as Mr. Phillips announced this, he
24 started to make steps to, in fact, try it out.

25 COMMISSIONER Mr. Traves -- yes, you --

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1 MR. TRAVES Thank you. I'd just like to suggest that
2 Dr. Salamon has had an opportunity to bring out his views
3 on the development through Mr. Merrick.

4 COMMISSIONER I think that's been addressed.

5 MR. TRAVES I think it's been addressed --

6 COMMISSIONER It's in the record, yeah.

7 MR. TRAVES -- and perhaps if I were to go through in
8 my sequence of questions --

9 COMMISSIONER Yeah, okay.

10 MR. TRAVES -- we could probably move along a little
11 bit.

12 COMMISSIONER If there's -- Doctor, if there's anything
13 that's confusing, then Mr. Merrick would assist you in
14 bringing that out during re-direct. Okay?

15 MR. TRAVES Thank you, Mr. Commissioner. So, Dr.
16 Salamon, I guess that brings us back, now we're at the
17 end of April, if you will. The plan that would be
18 provided to the Department of Natural Resources would
19 show the mine to be in an area which is not approved, is
20 that not correct?

21 A. Yes, I think it would show.

22 Q. Thank you. And if we briefly flip back to page 221,
23 memorandum --

24 COMMISSIONER In what book?

25 MR. TRAVES I'm sorry, Dr. Salamon's Exhibit number

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1 15.

2 COMMISSIONER Okay.

3 MR. TRAVES The same book. I've made an effort to try
4 and stay in Exhibit 15 as much as possible. It may
5 assist if people were to keep it to hand.

6 A. 15?

7 Q. 15. Exhibit 15, page 221. Am I right? Yes.
8 Materials in support of the consultant report prepared by
9 Miklos Salamon. And this is a memorandum dated November
10 22nd, 1991, which you have referred to previously, a memo
11 from Mr. Phelan, the Director of Mines, to Mr. Mullally,
12 the Deputy Minister, regarding Westray Coal's mine plan,
13 correct?

14 A. Correct.

15 Q. And in that memorandum he notes that in his view
16 there in the last sentence, I believe, of his memorandum,
17 Westray, at that time, clearly in violation of the
18 Mineral Resources Act which could lead to the forfeiture
19 of their mining permit, correct?

20 A. Correct.

21 Q. So in fact he's identified forfeiture of lease as a
22 possible consequence of violating the Mineral Resources
23 Act?

24 A. Yes, he did.

25 Q. As of November. So when he receives this layout in

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1 April, he's probably got a good idea of what his recourse
2 is, possible recourse?

3 A. I can't speculate on that.

4 Q. But we realize he's identified it already?

5 A. Yes.

6 Q. Thank you.

7 COMMISSIONER Dr. Salamon, in my own sort of, you know,
8 I'm not very familiar with this plan or the material, and
9 see if I can articulate this properly. Given the fact
10 that the mine development in April of '92 was of
11 something that was not approved, as Mr. Traves has just
12 indicated, and given the fact that an inspector entered
13 that mine, would he, underground, without reference to a
14 plan, have any feeling of this being done other than
15 according to an approved plan? And I'm looking at a
16 person walking down the drives and, you know, could he
17 recognize something that should not have been?

18 A. Well, I can -- obviously can't speak about the
19 specific inspector involved. But talking of a
20 professional inspector, if he's going into a familiar
21 mine which he has been inspecting for some time and
22 especially a small mine like Westray was, he would. I
23 mean, I would expect him to know where he is.

24 On the other hand, if he doesn't, then he would
25 carry a plan the same. Now, you know, a competent

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1 inspector would always make sure that he knows where he
2 is. I mean, that's the number one requirement because if
3 anything he observes, he must record I observed in such-
4 and-such a place that this happened or didn't happen or
5 shouldn't happen. He must be able to identify the
6 location. It's -- I would say -- that's actually what --

7 I'm a little puzzled because I'm used to different
8 jurisdiction where the inspector actually would go down
9 and wouldn't wait for submissions to discover whether it
10 is according to approval or not. That's what really
11 causes me a little concern with the discussion at the
12 moment. It's true that if technically, by not submitting
13 a report, he could get into violation, but is that an
14 excuse that he didn't submit his report. It -- I think
15 the inspector -- and, again, this is perhaps an example
16 where the split responsibility; which inspector, the
17 Department of Natural Resources or Department of Labour
18 should have noticed that this mine is in an area and
19 doing something which is not approved.

20 COMMISSIONER That's providing he had a plan?

21 A. Sorry?

22 COMMISSIONER Providing he had a plan to --

23 A. Well, he --

24 COMMISSIONER -- as a benchmark?

25 A. I mean, they -- you don't go down to a mine as an

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1 inspector without making sure that you know where you
2 are. Either -- I mean, this mine is so simple that, you
3 know, without a --

4 COMMISSIONER Yeah.

5 A. -- plan you can find your way around. But in a, I
6 assume, in a much more complicated mine you would carry a
7 plan with you.

8 COMMISSIONER Well, perhaps we will find the answer to
9 this when we talk to the Department people, Mr. Traves.
10 I'm sorry to have held you up there.

11 MR. TRAVES Actually, that's fine, Mr. Commissioner.
12 It's an area that I intend to pursue today, actually. I
13 have some questions along those lines which we're going
14 to get to. But just before we go on, Mr. Salamon, you
15 just indicated to the Commissioner that in your view the
16 mine inspector should know where, you know, he is any
17 time when he's in the mine. By that, are you -- you're
18 not simply suggesting he knows where he is, but are you --
19 -- is that what it is, simply that he knows physically
20 where he's located in the mine?

21 A. In other words, he should -- what I was really
22 trying to explain that when you go for an inspection,
23 you're looking for problems. And you obviously have to
24 make a written record for your -- either written or
25 record it. I mean, in a coal mine you can't use,

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1 usually, because it's not flameproof, but somehow you
2 have to make a record what you have found, because
3 otherwise it's not very meaningful. And in that you have
4 to be able to record where it was which presupposes you
5 can locate yourself in the mine.

6 Q. You're aware that the inspectors did inspection
7 reports?

8 A. I haven't seen them, no.

9 Q. You haven't seen them. Are you aware at any time
10 that there's any indication that you can refer to that
11 the inspectors were ever lost in that mine?

12 A. No, don't misunderstand me. You know, you are --
13 your questions infer to me that since the mine didn't
14 submit the report or did submit the report, the
15 Department may or may not have been aware of that this --
16 they're doing something which is not approved. What I
17 feel that regardless with the Department, whether the
18 mine submitted the report, the inspector would have seen
19 it and would have said, you know, I -- this is different
20 what has been agreed to.

21 Q. But you've indicated that there is a split
22 responsibility here, and I've simply asked you, in terms
23 of the Department of Natural Resources, and we will get
24 to the mine inspectorate, but in terms of the Department
25 of Natural Resources there was a mechanism by which they

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1 would become aware --

2 A. Well --

3 Q. -- that it was not approved?

4 A. -- I certainly --

5 Q. You agreed with me --

6 A. -- feel that there is a difficulty for me. I'm
7 talking about the inspector, but I didn't specify which
8 inspector because I'm not sure, really, whose
9 responsibility it would have been.

10 Q. And perhaps we can look at that in a little while,
11 but are you aware of any inspectors which are on the
12 staff of the Department of Natural Resources?

13 A. No, I haven't even met the gentleman --

14 Q. So there are --

15 A. -- so I don't think I would like to make comment on
16 their competence or otherwise. You know, my remark
17 wasn't meant to say that they couldn't identify the
18 location. I just say that they would have -- they should
19 have known that this a mining method which is not
20 approved.

21 Q. By "they," are you now referring to the Department
22 of Natural Resources or the Department of Labour
23 inspectors?

24 A. Whoever was responsible for it. I really don't
25 know.

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1 COMMISSIONER I think this gets into the area --

2 MR. TRAVES This --

3 COMMISSIONER -- of overlapping jurisdictions.

4 MR. TRAVES -- the overlap which --

5 COMMISSIONER Yeah.

6 MR. TRAVES -- which we will get to.

7 A. And I'm not sure I'm competent to decide who should
8 have.

9 COMMISSIONER Uh huh, thank you.

10 MR. TRAVES So you agree then with the Commissioner
11 that a layout provided to the inspectorate would provide
12 a benchmark by which they could judge the mine's
13 development versus what they had planned to do, where
14 they had planned to be.

15 A. Well, it isn't -- it's -- that's a black and white
16 or coloured or otherwise record of what is on the
17 property.

18 Q. That's right.

19 A. I perhaps shouldn't say this. We can probably talk
20 about it later.

21 Q. Dr. Salamon, I would like to go on then and just
22 briefly again touch on the proposed five-entry system
23 which we were discussing yesterday and I mentioned a Mr.
24 Clow to you yesterday in terms of these discussions with
25 regard to the five-entry layout. You're aware that Mr.

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1 Clow was the Vice-President and Mine Manager within the
2 Curragh -- an officer of Curragh Resources?

3 A. You're referring to the gentleman who headed the
4 task force?

5 Q. I believe that he was one of the two people actually
6 who headed the task force.

7 A. Clow? Yes.

8 Q. Clow and Mr. Waugh?

9 A. I can't remember the spelling but --

10 Q. And so Mr. Clow and Mr. Waugh and Mr. Mraz and Mr.
11 Phillips are all describing a five-entry layout which you
12 agreed yesterday was not the actual physical Southwest 1
13 panel as driven, but was a five-entry layout?

14 A. Uh huh.

15 Q. Yeah. I'm sorry, I saw you nod.

16 A. Sorry.

17 Q. I'm not sure if that was a -- that is a yes?

18 A. Well, it was -- you mean, what was actually
19 implemented? It was a five-entry layout, yes.

20 Q. Yes, but you agreed with me that it was not the
21 actual physical Southwest 1 panel. And I don't really
22 want to -- the one that they were discussing and that we
23 looked at driven at the end of B and C-1 Roads is not the
24 actual Southwest 1 panel which was eventually driven?

25 A. Well, I mean, if it helps I can say yes, but, quite

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1 frankly, I don't know what they called the five -- well,
2 Southwest 1 panel.

3 Q. Fair enough. We will leave it to the documents to
4 speak for themselves. And it was this -- it was the
5 actual physical Southwest 1 panel as driven which you had
6 in mind when you referred to the possible, and I will try
7 and be close here, the possible undue considerations or
8 time pressures which you attributed to the manager in
9 light of his letter of November 7th? He's indicating
10 he's going to --

11 A. Yes.

12 Q. -- step in there awful quickly.

13 A. Which is the letter or memo wrote to the --

14 Q. Memo to the --

15 A. -- employees.

16 Q. -- the employees. And on that point you said
17 yesterday that your opinion is also supported by this
18 pressure for production as seen in the summary of the
19 production figures, 58, Exhibit 58, tab 2, at page 9 I
20 think you referred to. And I'm not to propose to take
21 you to there but you indicated yesterday that this would
22 indicate that there would be some pressure for
23 production, that there would be -- and it -- the mine
24 manager and I suppose, by inference, the regulating
25 authority would recognize that there would be a delay of

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1 some two months before the start of production, correct?

2 There will be a delay if they develop --

3 A. Oh, you're referring to the --

4 Q. -- the panel --

5 A. -- Wongawilli system?

6 Q. Well, whatever system that they are proposing on the
7 north side of the Southwest district?

8 A. What I was --

9 Q. The plan at the top of the exhibit board.

10 A. Yeah. Just -- what I was referring to, if they
11 would have done this development to start at that end, as
12 the lower plan indicates, roughly -- I'm not saying
13 exactly because I haven't actually had a chance to do the
14 calculation but, as a guess, it's something like two
15 months' delay would -- not a delay because they would be
16 producing some coal for the development, but would be a
17 low level of production --

18 Q. Not nearly the level of production which --

19 A. -- so what --

20 Q. -- which --

21 A. -- they got --

22 Q. -- which --

23 A. -- from Southwest 1.

24 Q. -- which you would get in production. I beg your
25 pardon? The last --

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1 A. Southwest 1 I think remarked that during that
2 February-March months the level of production in fact was
3 quite elevated.

4 Q. But it's not still at the level which would expect
5 to receive in the actual production phase? In February
6 and March of 1992 they were driving those headings in
7 Southwest 1. They were laying out a panel and then begin
8 to depillar, correct?

9 A. Uh huh.

10 Q. And it's at the time of depillaring which is your
11 actual production stage where your --

12 A. Well --

13 Q. -- you would expect a higher production?

14 A. -- you know, when you're driving very small, narrow
15 pillars like this you're -- at that time -- one of the
16 reasons why development loses production because you have
17 manoeuvre machines. And when you have very small pillars
18 and your headings are close, you again can't -- And also
19 they had significant height. So they -- production like
20 that could improve or one could expect to give you an
21 improvement.

22 Q. And, in fact, those pillar sizes are similar to the
23 pillar sizes which were proposed to the Department in
24 December for that Southwest Section on the other side in
25 terms of production? The pillar sizes, I believe that

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1 you indicated in your evidence it was your opinion that
2 they appear, just from looking at the layout, to be quite
3 narrow in the plan. I believe it's Exhibit 70 at the top
4 of the chart there, those up --

5 A. You're talking about these pillars?

6 Q. No, the -- Exhibit 70, on the top, those -- that
7 layout shows --

8 A. Well, I think roughly we measured it off and also
9 there was an interview with one of -- Mr. -- Dr. Jones,
10 and I think he indicated that those pillars are the same
11 width as the Kilborn pillars, if I can use the word, name
12 "Kilborn pillars," which is 12 meters. So these pillars,
13 presumably, were designed to be 12 meters except when you
14 start to mine, then you take half of it out, so it's
15 reduced to 6 meters.

16 Q. You indicate on November 16th that in your view the
17 pillars in the Southwest 1 section were roughly 12 and a
18 half meters --

19 A. Oh --

20 Q. -- 12-meter pillars?

21 A. -- sorry, I misunderstood you. Are you talking
22 about Southwest section, this one?

23 Q. I'm comparing the two, actually. I'm suggesting
24 simply that this -- your opinion as to the time pressure
25 that Mr. Phillips felt himself under is supported by this

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1 pressure for production which you indicated is found by
2 looking at the summary of production figures. And that
3 the mine operator would have been delayed by two months
4 before the start of production is the only point that I
5 was making.

6 A. Uh-huh.

7 Q. But to be fair, you did say this matter was open to
8 some speculation. Dr. Salamon, are you --

9 A. Well --

10 Q. Sorry?

11 A. You know, you mentioned that those pillars are about
12 the same. I conservatively said -- I think I used the
13 word "conservatively" measured it off but Mr. Phillips
14 himself, in his memorandum, he actually said some of them
15 are small -- were as narrow as 6 meters.

16 Q. I'm not looking to hold you to that.

17 A. Uh-huh.

18 Q. That's fair enough. So now this pressure for
19 production, Dr. Salamon, are you aware that in -- sorry,
20 am I taking it from this then that you would be inferring
21 that the regulator, having this plan presented to them,
22 should recognize that there would be a two-month delay in
23 production and that there would be some pressure
24 associated with that?

25 A. I'm not sure whether the regulatory agency's job is

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1 to try to second-guess the economic problems of the mine.
2 I don't think I would infer that. I made that
3 observation, but I really didn't try to imply that the
4 regulatory agency would need to recognize that.

5 Q. Thank you. So it's not one of the issues which they
6 would be concerned with in terms of the safety --

7 A. No, I mean, their --

8 Q. -- of that layout?

9 A. -- responsibility is to ensure that -- well, I'm not
10 talking about the other aspect which the Natural
11 Resources Department has for conserving natural
12 resources. I'm not looking at that issue at all. I'm
13 purely looking at the safety issue. And from the safety
14 point of view, I don't think the Department -- either of
15 the departments would need to worry that it would take an
16 extra two months. That's something which the mine has to
17 be concerned with.

18 Q. Thank you. And I'm going to come back to just what
19 it is in terms of what we should expect the Department to
20 be looking at for safety when we look at the legislation
21 a little bit. I just make the point, I suppose, that in
22 December of 1991 I was wondering were you aware that they
23 were issued a lease for a test sample in the open pit of
24 100,000 tonnes?

25 A. I have seen reference to that, yes.

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1 Q. That would provide them with a fair amount of
2 production?

3 A. In fact, in the table you mentioned I included the
4 production from the open pit.

5 Q. Yeah. Well, I suppose that brings us to just what
6 it was that they were proposing and what they were doing
7 in terms of the time frame between November of 1991 and
8 January of 1992, the end of January, 1992, when they went
9 into this Southwest 1 fingers pillars. And you've
10 indicated, in your view, they were doing tests in terms
11 of the pillar size?

12 A. Before that, yeah.

13 Q. Yeah. And that's --

14 A. In fact, from November, December they were doing
15 testing, in my opinion.

16 Q. And that's based on your -- principally on your
17 review of the developmental --

18 A. the mine plan --

19 Q. -- chronology?

20 A. The chronology and just the size of the pillars as
21 shown by the mine plan.

22 Q. Anything else?

23 A. And, of course, Mr. Phillips in his memorandum to
24 the staff refers to that he's going to carry out trials.
25 So that prompted me to look for it and I did find it.

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1 Q. But, in fact, he said in his memo -- I'll take you
2 back to it. The memo is 15 at 132. And page 3 of that,
3 again that second paragraph, 134 of the exhibit book.
4 This is his reference to the trial basis. And he says
5 that on --

6 A. You referred to page 134.

7 Q. 134, yes.

8 A. In the second paragraph.

9 Q. This is the November 7th --

10 A. Yeah.

11 Q. -- 1991 memo --

12 A. I've got it.

13 Q. -- we're discussing.

14 A. Thanks.

15 Q. He's indicating here that in fact the system, the
16 trial -- it's going to be driven on a trial basis, in the
17 second sentence. "This system will involve driving the
18 two outside roads ahead of the three inner roads."
19 That's five roads, correct?

20 A. Yes.

21 Q. So he's proposing that on a trial basis they will
22 drive five roads, not form a single pillar. Leaving
23 aside what they actually did, his memo proposes that they
24 will drive five roadways on a trial basis, correct?

25 A. Yes.

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1 Q. Thank you.

2 A. And I think that's what he intended to do.

3 Q. Yes. So as we've discussed at some length there is
4 this five-entry system in somebody's mind to some extent
5 and would you not agree with me -- would you agree with
6 that, sorry, that there is --

7 A. Well, you know, if --

8 Q. -- a five -- I --

9 A. -- we interpret the words literally, "five-entry
10 system" is five-entry system, yeah.

11 Q. Right. So --

12 A. Although I think the practical point of the -- not
13 the five is the most important feature of it.

14 Q. And I had this sense from your testimony to date
15 that you would agree that in times of difficulty, you
16 would expect the mine operator to get back to basics
17 rather than going into this, as Mr. Merrick termed it,
18 "adventuresome" -- adventuresome plan, correct?

19 A. Yes.

20 Q. I believe that you agreed with Mr. Merrick, and I
21 quote, "a traditional and more conservative approach
22 would be appropriate"?

23 A. Yes, I think it's usually the right thing to do.

24 Q. So let's see what then was proposed. If I could
25 direct you again in 15 to page 219. This is a letter of

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1 -- I'm sorry, have I got the right -- this is a letter,
2 219, a letter of November 22nd, 1991, to Mr. Phillips
3 from the Department of Natural Resources signed by Mr.
4 Phelan, correct?

5 A. Right.

6 Q. And in there he's acknowledging receipt of a mine
7 plan which I believe is attached, and you've indicated in
8 your evidence is attached as page 247 of the same Exhibit
9 15?

10 A. Page 247?

11 Q. 247.

12 A. This is, in fact, a letter which he actually also
13 copied to the Deputy Minister.

14 Q. I believe --

15 A. You mentioned earlier.

16 Q. I believe he copied it to the Deputy Minister, to
17 Dr. Jones, and to Mr. White at the Department of
18 Labour --

19 A. Right.

20 Q. -- and that would be indicated on the second page of
21 it.

22 A. Yeah.

23 Q. You're correct there.

24 A. 247.

25 Q. It looks like "247" on mine.

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1 COMMISSIONER Yes, it is, with the top of the "7" kind
2 of cut off.

3 MR. TRAVES Ah. You referred to this as the feather
4 plan, I think, in your testimony in November --

5 A. I don't think I used the word, but it has been
6 referred to as that.

7 Q. It has been referred to as a feather plan. And, in
8 fact, it's a layout, it's not a plan. Is that correct?

9 A. A plan, you would expect more information or, as
10 you've said, if you received it from your student, you
11 would send it back?

12 A. Yes, I think.

13 Q. Yeah. So if we look at this layout and if I direct
14 your attention, let's -- I guess we could pick anywhere,
15 into this Southwest area, which appears to be the
16 Southwest area, and it's difficult to tell because it
17 doesn't show the Allan Mine barrier.

18 A. Yeah, I mean it's --

19 Q. No.

20 A. It would fall into the same category as my scathing
21 remark about previously that this is not really a
22 satisfactory --

23 Q. Even more deficient, in fact. Doesn't have the
24 principal stress direction --

25 A. No --

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1 Q. -- doesn't have the faults included on it, doesn't
2 have the Allan Mine barrier included on it, correct?

3 A. Virtually, no -- I mean, they -- it's not really
4 a --

5 Q. I would just like to use it for one purpose, if I
6 could. The entries which are shown in this, what would
7 appear to be the Southwest section --

8 COMMISSIONER Just to make sure we're all on the right
9 track here, Mr. Traves, are you looking at the area that
10 is slightly to the right of that number "6-9?"

11 MR. TRAVES Yes, Mr. Commissioner.

12 COMMISSIONER Okay. And that is -- you're equating that
13 to Southwest -- to this -- yeah, to the -- this area
14 here?

15 MR. TRAVES The north side of the Southwest entries,
16 in fact, on the -- a little bit --

17 COMMISSIONER Over here?

18 MR. TRAVES -- there --

19 COMMISSIONER Okay.

20 MR. TRAVES -- which would be the same area --

21 A. Yeah, it's this whole thing, this whole area.
22 Because there is -- you know, we can identify those two
23 entries.

24 Q. Right. And it shows --

25 COMMISSIONER It's like Star Wars or duelling lasers

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1 here. [Referring to several laser points on exhibit
2 board]. Yeah.

3 MR. TRAVES And, in fact, that's the same area that is
4 in Exhibit 70 at the top of that same chart. It's on the
5 right of the entries going into the Southwest 1 section,
6 correct, Mr. Salamon? Dr. Salamon, sorry?

7 A. Except they're, you know, except --

8 Q. There is the entries?

9 A. -- remarks is missing, yeah.

10 Q. Yeah.

11 COMMISSIONER Okay. Okay. I know where we're talking
12 about now, yeah.

13 MR. TRAVES And if we just take one of those panels
14 and we count across, it's three entries, is it not, Dr.
15 Salamon?

16 A. Yes, they look three entries.

17 Q. Yeah. So in November -- in October, in any event,
18 which we see is the date when this plan was received,
19 they are proposing a three-entry system, it would appear.
20 You know, one thing, if anything, that we could count on
21 that plan is we can count three entries.

22 A. I'm not sure -- Sorry, can you repeat that? I
23 couldn't --

24 Q. You just agreed with me, Dr. Salamon, that we count
25 three entries on this feather plan of October?

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1 A. Yes.

2 Q. So that's the proposal in October of 1991, and it's
3 rejected, is it not? We've got the letter indicating
4 that it's rejected?

5 A. Yes, but at that stage, the mine was not considering
6 the five-entry system yet, October.

7 Q. Fair enough. I'd like to set a benchmark to see how
8 we could go so far off track from what you indicated
9 should be a traditional, conservative approach.

10 A. And of course, the Kilborn system referred to a
11 three-entry system, but not exactly as it's shown here.

12 Q. And a three-entry system is a typical room-and-
13 pillar methodology, you've indicated? I think you've --

14 A. I don't think you -- well, room-and-pillar is so
15 widely used and in so many variations, it would be hard
16 to class this "typical." I would say just leave it as
17 room-and-pillar system, a version of the room-and-pillar
18 system.

19 Q. But you've indicated that Kilborn was planning and
20 had indicated in their study "a highly conventional room-
21 and-pillar mining." Unquote.

22 A. Yeah, now I would just -- I'm saying that I'm maybe
23 being to pedantic. Let's leave it.

24 Q. Okay, and the other difference from that feather
25 plan is the orientation, I think, which is noted in that

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1 letter back to them. They have now changed the
2 orientation in terms of entering the Southwest 1 section,
3 if we compare that with the original proposal in 45 at
4 tab 8. The blue is the mine layout for Kilborn. You've
5 agreed with me on that.

6 A. Tab 8.

7 Q. Tab 8?

8 A. Yeah, yes, they rotated it, yes.

9 Q. So the orientation on the Kilborn layout, the blue
10 panel there shows an entry which would be basically after
11 they take their intake slopes up and they come up quite
12 some way up the North Mains?

13 A. Yes.

14 Q. And then come back to the west.

15 A. That's right.

16 Q. So this plan which is rejected shows a different
17 area for entry. And in fact this is the area that they
18 entered the Southwest 1 section.

19 A. Yes, as far as entry is concerned, I think this is
20 in fact shows what in fact happened. But only as far as
21 the entry is concerned, and maybe a couple of first few
22 meters.

23 Q. Dr. Salamon, I'd like to take you to Mr. Clow's
24 memorandum of November 22, which is, I guess, page 162 of
25 your exhibit book 15.

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1 A. 15, 162.

2 Q. 162.

3 A. Yes.

4 Q. And paragraph 7 under the heading of "Mine
5 Planning," Mr. Clow indicates there, and I read,
6 "Consider ways of mining the extraction panels down dip
7 rather than up dip to get the full advantage of a cave
8 shadow," correct?

9 A. Yes, it does say that.

10 Q. Could you give us some assistance there in terms of
11 what you would understand -- what is a cave shadow?

12 A. I think we talked about it quite considerably with
13 regard to shadow behind excavations. Now if you cave,
14 you actually allow the over -- the immediate roof to
15 break up and fall down, forming a rubble pile there, and
16 as a result effectively preventing -- remember I tried to
17 explain that if you take away the rock or coal, the
18 stress can't any longer travel through that, so it has to
19 bypass it.

20 Now when you actually cave and create this kind of
21 an arch, you have, again, the stress cannot travel
22 through that broken material or the void. It has to
23 bypass it somehow. You know, this is the horizontal
24 stress I'm talking about. A horizontal.

25 Q. So Mr. Clow is talking in terms of this cave shadow

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1 in November. If we go to Mr. Clow's memorandum of
2 December 10, 1981 at page 185, he's indicating in this
3 memorandum that --

4 A. I got the 185.

5 Q. Okay, he's indicating that they've worked on this
6 topic, which is the rock mechanics, for more than 6
7 weeks, correct?

8 A. Yes, first sentence.

9 Q. And during this six weeks, you will agree with me
10 that some numerical studies have been done?

11 A. I think Golder has got it on some numerical studies,
12 if I remember correctly. Maybe even Mr. Mraz got it on
13 some, I think.

14 Q. Yes, I think that was the indication. And that
15 specialist consultants have been approached?

16 A. Yes, several.

17 Q. And your difficulty with the use of the consultants
18 at this time was that you felt there might be a conflict
19 of recommendations and this might be confusing, you
20 indicated yesterday in your testimony?

21 A. Now I think that there was a conflict of
22 recommendations is a matter of fact. I had no problem
23 with the use of consultants. What I said that there is a
24 responsibility on the part of the manager to try to use
25 the consultant with care. And I also indicated the

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1 responsibility of the consultant.

2 Q. Well, let me follow up on that for a second, Dr.
3 Salamon. You say that the confusion was a matter of
4 fact. Just who were the consultants that were involved,
5 to your knowledge? If you want, I prepared a little bit
6 of list and if we just go through them for a second -- I
7 think you indicated that Golder and Associates were
8 involved, Dr. Richard Brummer.

9 A. I think -- and other people from Golder over the
10 years. Like, Golder was probably -- was involved from --
11 almost from the very beginning, and I think the on and
12 off, with change of personnel, the company has been
13 involved, as far as I can see, almost continuously. And
14 it may have even been continuous, I'm not sure.

15 Q. But you indicated in your testimony to date that
16 during this time frame it was Mr. Brummer's letter or
17 memo dealing with the pillar factor strength --

18 A. That's right.

19 Q -- which you took as being a red flag.

20 A. Sorry?

21 Q. Which you took as being a red flag to the mine, that
22 there is a problem with a smaller sized pillar.

23 A. Yes.

24 Q. That's not confusing in and of itself?

25 A. You know, I didn't mean that each of them

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1 individually confusing. What I said that when you read
2 several together, they don't recommend the same thing,
3 and that might be confusing.

4 Q. Okay, he's not recommending a five-entry system in
5 there apparently?

6 A. Not as far as I know.

7 Q. Not as far as you can see. Dames and Moore, Derek
8 Steele, you referred to his letter 15-147. And I'll just
9 quote you. You said "I don't think he refers to the
10 finger pillers or anything of the kind?"

11 A. That's right.

12 Q. He refers to more conventional methods of mining,
13 correct?

14 A. Yes.

15 Q. AMCL, you indicated yesterday you were uncertain as
16 to who AMCL is and what their experience might be in
17 terms of --

18 A. Well, I know the mining consultants and they
19 obviously have been involved in the original -- I'm not
20 sure now -- the Norwest or the next one, which was the --

21 Q. Placer?

22 A. Placer study. So they obviously had a competence in
23 the mining and they feel they had the competence in
24 geotechnical area. What I said yesterday that I'm not
25 sure if they have competence in geophysics and things

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1 like that.

2 Q. You're aware, Dr. Salamon, that the British Coal
3 Board developed a consulting arm, at some point?

4 A. Oh, sure.

5 Q. Known as, I believe, British Mining Consultants
6 Limited?

7 A. That's right.

8 Q. BMCL?

9 A. Uh-huh.

10 Q. And that there is also an international offshoot of
11 that known as IMCL?

12 A. Yes, I do. I'm aware of it, yes.

13 Q. They are competent consultants, I would assume, in
14 rock mechanics, are they not?

15 A. Well, I don't --

16 Q. They're the consulting --

17 A. -- One can presume, although I criticize the
18 conclusion in the Phelan [sic] study, but I can only say
19 that they obviously -- people tend to regard them as
20 competent.

21 Q. The consulting arm of the British Coal Board, and in
22 the United States, I think they go by the name of WEIR
23 International?

24 A. Yes.

25 Q. The U.S. subsidiary. They didn't want to be too

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1 closely tied to the British Coal Board. And in Canada in
2 fact they're called is my understanding is AMCL,
3 Associated Mining Consultants, same initials. So there
4 is in fact some evidence that they may have some
5 experience.

6 A. Yes, there's no doubt about it.

7 Q. And as you said they were involved for a long time
8 with this mine. In fact they were doing monthly
9 inspections for the Band of Nova Scotia? You're aware
10 they were doing --

11 A. I think I -- I don't think I've ever seen much about
12 it, but I've seen reference to it.

13 Q. They were there -- you did not in fact refer to
14 their --

15 A. I think I've seen one report of theirs, if I
16 remember correctly. I can't remember the document, what
17 it contained, but I seem to remember that one of the
18 reports from AMCL which they made -- run through my hand,
19 I have to say this with caution because this --

20 Q. But you didn't note that they raised any red flags
21 as a result of their visit to the mine?

22 A. I would have mentioned it if they did.

23 Q. Yeah, I believe you would have. Jack Parker and
24 Associates, you took some stock in Mr. Parker. He is a
25 qualified mining consultant, well respected in the --

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1 A. Quite a long experience.

2 Q. Well respected in the industry?

3 A. I would say so, yes.

4 Q. Any indication that he's suggesting anything
5 different than five-entries --

6 A. Well, he did raise flag -- various --

7 Q. -- that he's suggesting a five-entry system?

8 A. He didn't. In fact, he raised red flags about it.

9 Q. John T. Boyd did a study in the -- during this time
10 frame they were on site, were they not? In December of
11 1991?

12 A. I must confess that last night this came up and
13 somehow I -- that leaves me with a blank mind. I can't
14 recall reading that document.

15 Q. If you read it, I would assume you would have --

16 A. I would have made a note of it, but --

17 Q. You would have made a note of it.

18 A. But you know, I reached -- I've reached -- it's sad
19 to say an age when -- I'm not quite sure if three months
20 later or three years later whether I did read it, so I
21 wouldn't swear that I didn't read it, but I have no
22 recollection of it.

23 Q. John T. Boyd is well respected in the industry?

24 A. Yes.

25 Q. Qualified coal consultants. I note that they -- in

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1 the Commission's database, there is mention of a binder,
2 and I don't believe it's been filed as an exhibit, and I
3 understand from conversations last night that it's not
4 here. But there was a binder titled "Rock Mechanics
5 Consultants, Parker/Scovazzo, January 6, 1992, Draft
6 Report." And the title of the report is "Roof stability
7 in situ stress at Westray Coal," prepared by John T. Boyd
8 Company. This would have been as a result of their
9 consultation at that time. You're not aware of any
10 problems that arose from that?

11 A. That's what I say. I don't recall the report, so I
12 don't remember. But if I did read it, I'm sure I would
13 have made reference to it, so I can only conclude that I
14 didn't read it. It may have been an oversight in
15 communication between the staff and me that I didn't --
16 somehow -- fallen through the cracks. Perhaps I should
17 read it.

18 Q. It might be fairly significant as to what they were
19 doing?

20 A. Might be because --

21 Q. Might not be.

22 A. Might not be, might be, I don't know.

23 Q. And you're aware of Chris Marks. Chris Marks is a
24 consultant --

25 A. Yes, I know Chris Marks.

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1 Q. -- with the U.S. Bureau of Mines. You know of Mr.
2 Marks?

3 A. I know him, yes.

4 Q. In fact, I think he's from the same area of the
5 States that you are.

6 A. Well, he's coming from the East. He's working in
7 the East anyway.

8 Q. And his comments were noted in Mr. Clow's memorandum
9 which you reviewed. It's in your documents. You didn't
10 make any note that he had raised any concerns or issues
11 arising out of --

12 A. Look, I didn't think -- he was visited; he wasn't on
13 site. I don't think he made a detailed study of the
14 mine. So it was a casual visit as far as he was
15 concerned. I don't think one could really make too much
16 of his remarks.

17 Q. We'll get to his remarks in a second. So I would
18 agree with you that, you know, there was a good number of
19 consultants which were retained or with which the company
20 had conversations with, but I fail to see the basis for
21 this confusion that you've indicated existed.

22 A. You haven't mentioned --

23 Q. No, I'm sorry, I will correct myself. There was Mr.
24 Mraz. One. Now you had indicated in your testimony that
25 there was roughly two camps, half and half, and as a

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1 result confusion existed. But what we've seen at the
2 moment is in fact a camp of one, Mr. Mraz.

3 A. I didn't include all the names you mentioned because
4 I thought some of them were just casual discussions. And
5 I included probably -- that's issue is still open, I
6 think. I included Mr. Waugh in that group. And that's
7 how roughly my two camp and half and half may have been
8 too oversimplification of the actual numbers. I haven't
9 actually counted them. Because I really thought -- and
10 when I made that remark, I was thinking of, essentially,
11 Golder, Steele, and Mraz and one more, and Mr. Waugh.
12 Yeah, AMCL. I included AMCL in the list.

13 Q. And you've indicated and we've discussed it
14 yesterday that your principal reason for including Mr.
15 Waugh as per your testimony of November 16 was on the
16 basis of his plans, the plans you attributed to him,
17 which, if we look at the initials, there's some question
18 as to whether he ever drew them.

19 A. But that's -- you know, there was another factor I
20 thought about it since last night which I didn't think of
21 yesterday. Mr. Mraz's plan is a lot more complicated,
22 you know, if you look at the details, the section of what
23 he proposed, and part of the system on those sketches
24 that we looked at yesterday where there is doubt about
25 the initials -- as a simplified version of that though --

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1 the simplification could have been done by Mr. Mraz
2 himself or could have been done -- and that's what I
3 assumed -- it was done by Mr. Waugh. But, obviously,
4 that's something, a matter of practice can be
5 established, and I understand Mr. Waugh has actually
6 agreed to come and help the Inquiry. So you will be in
7 the position to establish that.

8 Q. Fair enough. So if we look at the consultants then
9 who were actually consulted and we list them up, we have
10 in fact, I would submit, very little confusion.

11 A. Well -- but I mean --

12 Q. I realize what you looked at --

13 A. -- the confusion comes --

14 Q. -- in terms of saying here is the consultants, and
15 you've indicated to the Commission, here are the
16 consultants which I thought were on site at the time and
17 who were being consulted. If we add in, I believe the
18 only one that you didn't mention was John T. Boyd and Mr.
19 Marks. If we look at that, really we have the
20 possibility that Mr. Waugh is on that side based on his
21 plans and perhaps his experience --

22 A. Experience, yeah.

23 Q. -- in the background of potash mining. And you have
24 Mr. Mraz. Everybody else is on the other side.

25 A. But strangely enough, that was the recommendation

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1 which was accepted.

2 Q. Well, you still haven't answered my question though
3 was there confusion in terms of where you have all but
4 Mr. Mraz and possibly Mr. Waugh on one side and you have
5 Mr. -- sorry, you have all the other experts on the
6 other.

7 A. Well, I had five in mind. And my count was three to
8 two. And well, that's not half, I must admit, but I
9 thought it was near enough. And whether the word
10 "confusion" was a good or bad choice of words, what I
11 really meant to imply that there was recommendations made
12 to the manager which differed, going from -- you know,
13 different people emphasized different things. For
14 example, some emphasized the importance of horizontal
15 stress. Mr. Parker raised considerable doubts that
16 horizontal stress actually played a role. So that my
17 remark wasn't just to the finger or this narrow -- this
18 five-entry system issue, but other parts of the
19 recommendations. And if you put them and read them one
20 after the other, I think you will find that if now a
21 person who is unskilled in the specialist knowledge of
22 rock mechanics or rock engineering or geotechnical
23 engineering, whichever word you care to use, he will have
24 difficulty understanding it.

25 Now, for example, a lot of the reasoning Mr. Clow,

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1 shadow business, was motivated by the horizontal stress.
2 Mr. Parker comes along and says well, where do you get
3 this horizontal stress? They're open cracks. That's not
4 the sign of horizontal stress.

5 And that's what I was really meaning, that probably
6 the two fundamental issues which played a role in the
7 choice of mining method allegedly, because I haven't
8 heard the discussions, but just on the basis of the
9 correspondence, is really -- and in fact a primary
10 motivator was probably this horizontal stress. And as a
11 result of focusing on the horizontal stress, attention
12 can somehow -- well, diverted from the fact that the
13 weight of the rock, the vertical stress is still there.
14 That hasn't gone away. And in time, to cope with the
15 horizontal stress, they came up with getting small
16 pillars, trying to get excavations into each of their
17 shadows.

18 Now then comes along Mr. Parker, says that's not
19 really true. So then Mr. Mraz comes along and says, you
20 know, we should do these narrow excavations. It's, to
21 some extent, it's speculation for us to now to be trying
22 to be precise, exactly, because we didn't listen to the
23 discussions which took place. All I did, I read the
24 correspondence.

25 Q. Fair enough, and I think that that's a good point to

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1 jump off from, that it is speculation, so why don't we
2 look at what they did. They filed a short-range plan on
3 December 20 which you were critical of, correct? This is
4 the plan 45, tab 4. It's actually -- I may have misled
5 the Commission in referring to it as Exhibit 70. Exhibit
6 70 is the Southwest Alternative 1. And I apologize for
7 that, Mr. Commissioner. The one on the board is 45, tab
8 4. it's at the back also of Exhibit 45.

9 Mr. Merrick indicated to you on direct that this was
10 the plan submitted to the department at the end of
11 December and you agreed with that. And I've suggested
12 already this morning that in fact it is a layout, and I
13 think you've agreed with me there too. Particularly, it
14 would be deficient in terms of a plan, correct?

15 A. Yes, except in mining we'd refer to the plans as
16 plans and probably it's an unfortunate usage of the word,
17 but it's a common usage.

18 Q. It's confusing, yes.

19 A. It's probably confusing to somebody who is not in
20 mining, but you're right. If you look up the dictionary
21 meaning of "plan," these are purely a map. I think it
22 would be more correct to call these map. And that's a
23 very bad map.

24 Q. Perhaps if I could stick with the word "layout," and
25 I take your point. In fact, you said it was difficult to

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1 tell what the mining system is from that map or layout.
2 By that, I take it you mean the method of mining, whether
3 a continuous miner is going to be used, the sequence by
4 which they would drive --

5 A. And the sequence is really what worried me because,
6 you know, not -- without any indication which way you're
7 going to mine you have -- I mean, it's not specific
8 communication. It's too unspecific to be of use.

9 Q. And you went on to say that it's probably an
10 application of the little finger system, the Southwest 1,
11 and you accepted that because of the time window, you
12 know, where Mr. Waugh had come on in October.

13 A. Yes.

14 Q. You indicated, and then we've covered that Kilborn
15 was a three-entry fairly conventional system. You also
16 indicated that in your view the pillars in that map were
17 approximately 10 to 12 meters wide, correct?

18 A. In fact, if they were according to the Kilborn plan
19 as Dr. Jones suggested, they were 12.

20 Q. Twelve.

21 A. I haven't actually measured them. I just accepted
22 the overlay.

23 Q. And I think another large concern you had with it,
24 and I'll quote you is that you said there's no limit on
25 the panel. It just seems to go on and on. You've got

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1 these fingers which, you know, --

2 A. And there was no indication whether you will leave
3 those pillars in or whether you will start on this left
4 end, on the right end, so I had lots of -- and as you
5 say, there is at the top of that it says "Alternative 1"
6 and it says "Information on Alternative 2" which was not
7 apparently submitted.

8 Q. Apparently not. But it may have been that the
9 information was conveyed in a meeting?

10 A. That's right. Now, of course, when I talked about
11 it in November, I didn't know there was a verbal
12 presentation.

13 A. No, that's correct. And I'd be correct in saying --
14 you indicated as well that in looking at -- and again,
15 you've mentioned Southwest Alternative 1 that you're no
16 longer looking at a five-entry system? Those pillars
17 just keep going on. It was your evidence that this was
18 no longer a five-entry system, correct?

19 A. Yes, in the lack of any explanation, it was not an
20 unreasonable -- in fact, you can probably put a number of
21 interpretation on that map because it's not specific
22 enough.

23 Q. Now would you agree with me then if we look at the
24 Southwest Alternative 1 which is Exhibit 70 -- there's
25 one here somewhere. It's in 45 as well, right. Isn't

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1 there another one somewhere? Mr. Commissioner, now might
2 be a good time for a break, in fact, and we can get into
3 the examination of the layouts and the designs that we've
4 provided after the break.

5 COMMISSIONER That's a good idea. Somebody can get the
6 exhibits up for me then, great. We'll recess for fifteen
7 minutes.

8 INQUIRY RECESSED (TIME 10:59 a.m.)

9 INQUIRY RESUMED (11:06 a.m.)

10 COMMISSIONER Mr. Traves?

11 MR. TRAVES Thank you, Mr. Commissioner. If I could
12 just take a second, Mr. Commissioner. Mr. Roberts raised
13 the point before the break with respect to which plan it
14 is that was filed pursuant to the letter and the mining
15 lease in January and if maybe I could try and clarify
16 that to the best of my ability. I've just received a
17 couple of plans; there's been no opportunity to copy
18 them, from the Department. But I have their letter of
19 September, 1992, to the Commission indicating that they
20 had triple-checked and cross-checked all their maps and
21 documents and that they were all delivered to the
22 Commission.

23 There was a letter dated February 28th, 1992 to Mr.
24 Radcliffe, Registrar of Minerals and Petroleum Titles
25 regarding the mining permit. They attach an annual

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1 report on the mining operations. And there is a letter
2 to Mr. Phelan of January 22nd, 1992, enclosing a 1:5,000
3 scale plan of the mine development at December 31st,
4 1991. And that, I think, in addition there was a plan
5 received, and I don't have a date received stamp on it,
6 but I understand that it was received at the same time,
7 showing current status of the mine plan. And these would
8 be indicative of the development of the mine at that
9 period in January as far as the Department was aware.

10 COMMISSIONER And that would be in compliance with
11 Phelan's letter of December 31st, is it?

12 MR. TRAVES Correct.

13 COMMISSIONER Okay. Now do we have -- Mr. Merrick, do
14 we --

15 MR. MERRICK We got a copy of the plan that I'd
16 referred to earlier, the one that we had received in
17 January that seemed to show the status in January of '92.
18 We had received that plan from Toronto. I gave it to
19 John. Does it correlate with something that you've now
20 received from the Department?

21 MR. TRAVES I don't believe it does, but as --

22 MR. MERRICK I'm not sure we got the documents that he
23 has referred to, but over the lunch hour we can sift that
24 out.

25 COMMISSIONER We'll hold that until after the lunch

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1 hour. Thank you.

2 MR. TRAVES So, Dr. Salamon, then, if we take up where
3 we left off before the break I think I was referring you
4 to the plan or the map, if you will, to use your term,
5 number 70 which is at the back of Exhibit 64, the binder,
6 shows the Southwest Alternative No. 1.

7 A. Yes. I have a copy of it, yes.

8 Q. And if I direct your attention to the finger
9 pillars, if you will, if that's what they are and which
10 we'll get to in a minute, they extend up unto the Allan
11 Mine limits barrier, do they not?

12 A. Yes, I'm not absolutely certain of the legal stages
13 of that barrier but, as I said before, I don't think this
14 would be a prudent thing to do to mine so close to a old
15 closed down mine where you're uncertain of its exact
16 location.

17 Q. And, in fact, you indicated in your testimony in
18 November that they're now -- it shows that they're now
19 within 40 meters rather than the 100-meter barrier which
20 had been set out by the Department of Natural Resources?

21 A. Yes.

22 Q. And, in fact, the feather plan, which we looked at
23 just before the break, which was rejected by the
24 Department, one of the concerns raised was regards to the
25 fact that it too was projected into the Allan Mine

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1 barrier, correct?

2 A. I think so, yes.

3 Q. I think that it would be -- you -- it would be fair
4 that you would agree with me it's not likely that the
5 Department, in light of that letter, is going to accept
6 Southwest Alternative 1 --

7 A. No, I --

8 Q. -- as laid out?

9 A. In fact, that's why I wasn't surprised to hear that
10 it wasn't even submitted.

11 Q. Fair enough. If we look at Exhibit 71 which is the
12 Kilborn layout --

13 A. 71?

14 Q. Which is the --

15 COMMISSIONER 71?

16 MR. TRAVES 71. Seven zero [sic]. "Technical and
17 Cost Review of the Pictou County Coal Project - Kilborn
18 Limited."

19 A. Will you be a little patient with me, I -- oh, yes,
20 I --

21 Q. 7-1.

22 A. 71. I got -- I got 71. And which --

23 COMMISSIONER There's an insert in that too, isn't
24 there?

25 MR. TRAVES Insert?

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1 COMMISSIONER Or did I just stick --

2 MR. TRAVES That's something extra that we don't --

3 COMMISSIONER Yeah. Okay, no, I'll -- that's --
4 heavens, I misfiled.

5 A. If you would indicate where - which page.

6 MR. TRAVES Oh, I'm sorry, the Figure 3.2. The
7 principal mining method that we've looked at previously.
8 It's got a "7" in the corner. It's after page 3-3 and
9 it's a figure entitled "Figure 3.2." I don't think
10 there's any page in between.

11 A. I think I've got it.

12 COMMISSIONER It shows at number 7. Or page 7, Doctor.

13 A. Right, I've got it.

14 COMMISSIONER Up in the right-hand corner, I think.

15 A. Right, I got it.

16 MR. TRAVES And this is the mine method, the layout
17 entitled "Mining Method," which we've copied onto an
18 overlay, a plastic overlay, is it not?

19 A. Yes.

20 Q. It's the same system and I think it's in exhibit
21 book 122.

22 A. I've got an actual overlay.

23 Q. Thank you. All right. And if we look at the
24 overlay for a minute, this shows -- oh, I'm sorry. Mr.
25 Commissioner, you have a plastic overlay?

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1 COMMISSIONER Um-hmm.

2 MR. TRAVES Unfortunately, we weren't able to -- Now
3 on this mining method there's, on the right-hand side
4 it's entitled "Three-entry development sequence of cuts,"
5 correct?

6 A. Yes.

7 Q. Yeah. And that sequence of cuts, would you infer
8 that that refers to the numbered blocks?

9 A. Yes.

10 Q. And that shows, in fact, they were cut. Your
11 understanding would be they cut number one first, two,
12 and so on until they've developed a pillar?

13 A. That's right. That's actually why I said that when
14 you have smaller pillars, you get better productivity
15 because to go from one to two, you -- there is a dead
16 distance, so if you reduce the width of the pillar, you
17 get there quicker so you get better productivity.

18 Q. Right. And the pillar dimensions are shown there,
19 30 meters x 66 meters?

20 A. Right.

21 Q. Right. And then they're showing a stripped pillar
22 between these panels and on the left there is the
23 sequence of depillaring?

24 A. Right.

25 Q. And within there, you've mentioned before, it would

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1 have been more helpful, I suppose, to show how they
2 intended the split. Whether they would to the horizontal
3 or the vertical split of the pillar first, but there is
4 sufficient information to show that they are splitting
5 the pillars --

6 A. Right.

7 Q. -- correct?

8 A. And, in fact, I indicated that normally you wouldn't
9 split all the three pillars at once, they -- you would --
10 but that is not indicated so I -- probably that's what
11 they intend to do.

12 Q. And would it be fair to suggest that, in fact, they
13 would look at splitting the pillars at the far end, away
14 from this direction of the pillar extraction first? It's
15 not likely that they would split starting one, two, three
16 sections back and --

17 A. Well, they would slip --

18 Q. -- and drive all --

19 A. -- split on the top of the page --

20 Q. First?

21 A. Towards the top of the page first, yes.

22 Q. Because otherwise, the area behind them would fail?

23 You've --

24 A. You know, when you --

25 Q. -- altered the pillar --

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1 A. -- depillaring --

2 Q. -- back --

3 A. -- you always have to make sure that your escape
4 routes are protected, so you don't weaken too prematurely
5 your pillars behind you.

6 Q. Right. And when you weaken the pillars, you alter
7 the pillar factor of --

8 A. That's right.

9 Q. -- safety?

10 A. That's right.

11 Q. All right. And, in fact, that's the intention of
12 caving? That you wish to reduce the pillar factor of
13 safety to a point where, to borrow a phrase "the pillar
14 is doomed to fail"?

15 A. Well, I think that's an oversimplification --

16 Q. Perhaps.

17 A. -- because what happens when you start -- for
18 example, he -- if you do what is shown here, and I assume
19 that the splitting, the vertical splitting, is not done
20 on the second and third too soon. But first you have an
21 area which is not large enough to induce caving. At that
22 stage, the pressure on the pillars is actually going to
23 increase, and that process is going to affect -- that's
24 why we don't want to split the pillars too soon. I think
25 this pressure will travel ahead of your retreating

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1 depillaring line, if you want to call it that.

2 Now, eventually, if the area is big -- becomes big
3 enough, there will be a caving and eventually the strata
4 right up to the surface will settle down and will -- you
5 will get a pressure buildup on the gob. Now when that
6 point is reached, you probably no longer are going to
7 increase the weight on the pillars.

8 Now with this layout here, restricting the width of
9 the panels, and that's why earlier I said that this is
10 not a typical room-and-pillar layout. These are --

11 Q. Sorry, which --

12 A. -- these pill --

13 Q. I'm sorry, Dr. Salamon, which layout are you
14 referring to now? You're not --

15 A. The Kilborn layout.

16 Q. You're saying now --

17 COMMISSIONER Three-entry?

18 A. Three-entry development.

19 MR. TRAVES Sorry, Mr. Commissioner.

20 COMMISSIONER The three entry?

21 A. Yeah.

22 COMMISSIONER Yeah.

23 MR. TRAVES The three entry? Are you saying this is
24 not a typical three entry --

25 A. Well, that's why I stopped you earlier on when you

DR. SALAMON, EXAM. BY MR. TRAVES

1 wanted to acknowledge that it's a typical layout. It's
2 one of the many, many possible layouts of room-and-
3 pillar. Now here, I suspect this was designed to try to
4 control subsidence, and that's why restricted width of
5 the tunnels because they probably had a restriction on
6 what -- how much subsidence they can cause on the
7 surface.

8 COMMISSIONER Just for clarification here, Doctor, if I
9 might. The way that this looks to me, if you go to the
10 top of that page under the three-entry development
11 depillaring, sequence of depillaring, am I correct in
12 assuming that they're going to depillar -- they're going
13 to collapse everything as they move -- as they retreat?

14 A. No. In fact, the strip pillars will remain, The 30-
15 meter strip pillars. Now in --

16 COMMISSIONER Where -- let me see where those are now.

17 A. It's easiest if I -- [Witness indicates to the
18 Commissioner] These will remain.

19 COMMISSIONER Okay. But everything in here goes?

20 A. Everything -- so.

21 COMMISSIONER That's what I mean, okay.

22 A. Now in the Phelan study, they're actually even
23 cutting into these, but in the Kilborn study that has
24 been left out. So I take it that it was not going to be
25 done. But in the -- if you look at the -- this plan is

DR. SALAMON, EXAM. BY MR. TRAVES

1 exactly the same which is shown in the Phelan study, but
2 there there is an additional plan which shows that
3 depillaring, it actually takes off a strip from these 30-
4 meter strip pillars, which is not shown in the Kilborn
5 study so I just -- and not mentioned either, so I just
6 assumed that they were not intending to do that.

7 MR. TRAVES Fair enough.

8 A. But the main point is that once you have these 30-
9 meter pillars unextracted, left behind, I suspect that
10 this was designed to control subsidence. And that's why
11 this is a subversion of the many versions of possible
12 pillar mining. Normally, when you don't have subsidence
13 restrictions, you may not even have these strip pillars
14 at all or if you have them, they tend to be further
15 apart. So you have more than two pillars which you start
16 with and cut up and take out.

17 So that's, you know, this is the difficulty. One
18 tries to simplify things, but there comes a point when if
19 one accepts those simplifications, you might be
20 misleading the Inquiry.

21 Q. But I -- in fact, my question wasn't directed to the
22 strip pillars between the panels, but it's to the layout
23 as shown. In terms of laying out the room -- the rooms,
24 which is a three-entry system and then the splitting of
25 the pillars. And would it be fair -- or would it be

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1 possible that in terms of a method of splitting these
2 pillars that they might be split -- if I were to look at
3 the pillar on the right that I would take my continuous
4 miner, split the pillar directly in the same direction as
5 the pillar extraction long-wise first? It's possible?
6 There's no indication.

7 A. Yeah, I'm not --

8 Q. It's possible from -- if we were to compare the two
9 sides of the diagram, on the right-hand side we've got a
10 30 x 66 meter pillar; on our left we show a dotted line
11 showing -- and it's marked "split" --

12 A. Yeah.

13 Q. -- and I'm saying is it possible that they would
14 take their continuer [sic] miner and split that pillar
15 long-wise?

16 A. The other direction?

17 Q. I beg your pardon? Split it long-wise going with
18 the 66.

19 A. Yes, I expect it's possible.

20 Q. And then there would be a -- and then they would
21 come, possibly, and split it horizontally. Where they
22 would go across. Which would leave them with the top end
23 which would be these pillars at the heading with the --
24 where they would show the winging-it sections; they'd
25 wing out the coal then from --

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. In other words -- these little lines here, slightly
2 inclined lines, they're actually the cuts the machine is
3 taking and taking --

4 Q. That's right.

5 A. -- off the pillar, yeah.

6 Q. Okay, fair enough. The highly conventional room-
7 and-pillar mining method you indicated. Would you agree
8 with me, Dr. Salamon, that a goal of the depillaring
9 operation is to ensure safe caving?

10 A. Obviously.

11 Q. Obviously.

12 A. As I several times emphasized that this is the --
13 depillaring is the most dangerous part of the coal mine -
14 - underground coal mining operation.

15 Q. And if remnant pillars are left, then, I mean, it's
16 pretty safe to say that they're almost always going to
17 adversely affect roof conditions in the vicinity?

18 A. Yes.

19 Q. Correct.

20 A. But unfortunately, in the real world, very often
21 conditions get so bad that you can't altogether -- you
22 know, some of these pillars, corners and so forth are
23 left behind because it's too dangerous to take them out.

24 Q. But the --

25 A. And it's not a good practice but, you know,

DR. SALAMON, EXAM. BY MR. TRAVES

1 conditions just --

2 Q. But in normal conditions, if you have approached
3 your depillaring properly, those little pieces that are
4 left behind will have such a low factor of pillar
5 safety --

6 A. That's right.

7 Q. -- that they will crush out?

8 A. Yeah.

9 Q. Which is this crushing out --

10 A. Yeah.

11 Q. -- so that, in fact, you have a safe caving because
12 it will cave, notwithstanding that you haven't been able
13 to get every bit of coal?

14 A. That's right.

15 Q. All right. So you've lost some --

16 A. So the major danger when you leave a largest
17 remnant, that can cause a problem because it can hold up
18 whole -- the caving process and --

19 Q. Correct.

20 A. -- that can almost -- as you put it, almost always
21 cause difficulties.

22 Q. The distance of the panel -- sorry. The entryways
23 that are on this layout, they're noted at the bottom as
24 being 6 meters wide, correct?

25 A. Yes.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. And if we were to total it up, the heading where
2 we're splitting out the pillars, if we want to use that
3 one, it shows, including the strip pillar, which is 30
4 meters wide, that we have 108 meters width across the end
5 of that pillar?

6 A. In fact, that's the width which is shown -- it's
7 actually marked on the map.

8 Q. Correct.

9 A. By the way, those pillars, before you split them,
10 they are 30 x 30.

11 Q. Yes. After they've been split they're 30 x 30 --

12 A. Yeah.

13 Q. -- I believe, yeah. And if we were just to turn
14 this overlay to the side, we can see that's confirmed;
15 they're the same, they're square. So you're going to
16 have -- if I turn it sideways, I have the same distance
17 across these blocks, correct?

18 A. Well, I mean, it's obvious because they were
19 originally 60 -- 30 x 66. So if you cut it across, take
20 out 6 meters, it leaves 60 and half of it, that's 30. So
21 it's 30 x 30.

22 Q. That's pretty much square, in my books.

23 A. It is. It is square.

24 Q. All right. So if we were look at the Southwest
25 Alternative 2, which is Exhibit 70, I believe I have

DR. SALAMON, EXAM. BY MR. TRAVES

1 marked here and I may be wrong on that.

2 MS. MACDONALD Which one?

3 MR. TRAVES Alternative 2.

4 MS. MACDONALD Is tab, is --

5 MR. TRAVES 60 --

6 MS. MACDONALD -- 45, tab 4.

7 MR. TRAVES 44, okay.

8 MR. MACDONALD 45.

9 MR. TRAVES All right.

10 COMMISSIONER It's not Exhibit 70? No.

11 MR. TRAVES It's not. It's 45, tab 4. I stand
12 corrected. Now you've indicated, Dr. Salamon, that you
13 would need more evidence to determine exactly what they
14 were proposing, and I just ask you to work with me a bit
15 on this. And if I put some points to you from the
16 evidence that we have, perhaps we can use your experience
17 to see if what they proposed was reasonable or not.

18 And to assist in my explanation, I had the
19 Department prepare a panel which has dropped out, as you
20 indicate, the -- all but two of these last entries at the
21 end. And that's just behind that coloured development
22 chronology.

23 A. Is this the one?

24 Q. Yeah, and that's just for illustrative purposes
25 only.

DR. SALAMON, EXAM. BY MR. TRAVES

1 COMMISSIONER Do we have that?

2 MR. MERRICK Yes, we do. That's Exhibit --

3 MS. MACDONALD This is --

4 MR. TRAVES 122.

5 MS. MACDONALD -- Exhibit 122, tab 2. Mr. Commissioner,
6 you have a full copy and there's one on the board, and
7 the rest are being copied and will be provided to the
8 parties.

9 MR. TRAVES So if we were to look up to the left on
10 this diagram, we note that the headings, the new
11 headings, or the development headings in this case would
12 be 2 North B and 2 North A, correct?

13 A. Yes.

14 Q. Great. Okay. If I could get you then -- if we
15 leave that open for a few minutes, if I could get you to
16 refer to the memorandum of the planning meeting at --
17 which was held as a result of their work and the
18 consultants' reports and everything in December. It's at
19 page 185 of your book of documents, number 15.

20 MS. MACDONALD 187.

21 MR. TRAVES I87, I stand corrected. Thank you.

22 COMMISSIONER December 10th, 1991, memorandum?

23 MR. TRAVES December 10th, 1991, Mr. Commissioner.

24 COMMISSIONER Okay.

25 A. Yes?

DR. SALAMON, EXAM. BY MR. TRAVES

1 COMMISSIONER Thank you.

2 MR. TRAVES And it sets out, "Their priorities for
3 work will be as follows..." and paragraph (a) refers
4 there to 3 North B. And if we look, 3 North B would be
5 the, and 3 North A, would be the development headings
6 which would be used if they were to use Alternative
7 number -- Southwest Alternative number 1 which, in fact,
8 they did not, correct? This -- we've just looked at this
9 before. It's -- they are referring to 3 North B here
10 which would equate to the Southwest. If we want, we can
11 go back to Southwest Alternative 1 --

12 MS. MACDONALD Exhibit 70.

13 MR. TRAVES -- Exhibit 70.

14 A. I'm sorry, I got -- I lost it.

15 MS. MACDONALD It's in the back of Binder 64.

16 A. What?

17 MS. MACDONALD It's the big blue binder --

18 A. Oh.

19 MS. MACDONALD And it's the last page.

20 COMMISSIONER So that Exhibit 70 is like this only with
21 a few more squiggles on it?

22 MR. TRAVES Yes, I think that would be a fair
23 summation.

24 COMMISSIONER Is that a good geological term, Doctor?

25 MR. TRAVES "Squiggles." And you will see the

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1 development entries which we'll look at in a second to
2 see if they are, in fact, development entries, would be 3
3 North A and 3 North B.

4 A. 3 North A. "B" I can't really read but I assume
5 that those are --

6 Q. Well, if we count them up, I think we come to --

7 A. Yeah, that's --

8 Q. -- 3 North B and 3 North A.

9 A. Yeah, you can see it on the other one more clearly.

10 Q. And we just discussed a minute ago that it's not any
11 likelihood that the Department is going to approve that.
12 So if you work with me a little on this, if we go back to
13 the minutes of the meeting, December 10th, and if we read
14 2 North B there; so, let's look at this -- look at the
15 priorities --

16 A. They're probably referring to --

17 Q. Yes.

18 A. -- those little --

19 Q. Yeah. That if they were to drive a development
20 heading as per Southwest Alternative --

21 A. It would run into then --

22 Q. -- 1, they would be up there. And you've already
23 agreed that the Department is not going to let them do
24 that. So, if you will, perhaps we could -- you would
25 agree with me to impose 2 North B where they've written 3

DR. SALAMON, EXAM. BY MR. TRAVES

1 North B? If you will assume for a minute that, if you
2 will, that the information here we can take to this other
3 alternative panel and we will have a look at it.

4 A. But later on they do refer to 2 North B and 2 North
5 A so --

6 Q. Yes. Yes, but in alternative -- Southwest
7 Alternative number 1 --

8 A. They would --

9 Q. -- they would be not using 2 North B and 2 North
10 A --

11 A. That will be --

12 Q. -- as the development headings, right? Now I'm
13 suggesting that let's read this in the context of having
14 the development headings as per Southwest Alternative
15 number 2 --

16 A. Okay.

17 Q. -- which would be 2 North B.

18 A. Okay.

19 Q. Okay? So they're setting out there in the first
20 paragraph, "beginning with the center line of C-1 Road
21 headings will be turned off to the north." And a north
22 direction from C Road is into this area which is the
23 Southwest alternative panel?

24 A. I just want to have a chance to look at something
25 while we're looking at this one.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Well, Dr. Salamon, maybe if we can just allow me to
2 lead us through this and you could answer the questions
3 as I sort of lead them --

4 A. Uh huh.

5 Q. -- along, we can -- we will get there.

6 A. You question and say your questions. So what you're
7 suggesting that on this memorandum, page 187, there Item
8 A which says 3-NB should be read 2-NB?

9 Q. I'm just asking you, for the moment, for the
10 purposes of this --

11 A. Okay.

12 Q. -- exercise that if we were to read 2 North B and 2
13 North A in paragraph (b) there. So if then we look at
14 the first paragraph of that Section A, it begins,
15 "Beginning with the center line of C-1 Road..." which we
16 see on this illustrative diagram I have had prepared
17 which is the Southwest alternative, the one in the
18 middle, 122, tab 4. Okay? "Beginning with the center
19 line of C-1 Road, headings will be turned off to the
20 north." And I stopped there and I asked you that in fact
21 that by doing that they are, in effect, turning up into
22 this area under discussion, correct? If we start from
23 the center line of C-1 Road --

24 A. That's what I'm trying to find, the C-1 Road.

25 Q. Perhaps we could look then at the plan of

DR. SALAMON, EXAM. BY MR. TRAVES

1 development directly below that, 45, tab 9. C-1 Road is
2 marked on there.

3 A. Oh, right.

4 Q. Right?

5 A. I've got you.

6 Q. And if we look at that now --

7 A. I found it, this one.

8 Q. -- the large development chronology.

9 A. This one, yeah.

10 Q. Right.

11 COMMISSIONER Okay, okay.

12 MR. TRAVES That's C-1 Road. And "Beginning with the
13 center line of C-1 Road, headings will be turned off to
14 the north," so if I put my finger on C-1 Road and I go
15 north, I'm into --

16 A. Yeah.

17 Q. -- the section we're discussing, correct?

18 A. Right.

19 Q. Right. On 18-meter centers which, you will grant
20 me, is roughly and would be what the center of these --
21 of the headings?

22 A. Uh huh.

23 Q. Okay. 5.5-meter room and 12.5-meter pillar, do you
24 understand that? You're with me so far, Dr. Salamon?

25 A. Yes.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Yeah.

2 A. Yes --

3 Q. Okay.

4 A. -- I'm reading on the --

5 Q. And now we're saying that we're going to continue
6 down dip which you indicated in your evidence before was
7 one of the issues or one of the problems with this is it
8 just kept getting deeper and in more problems but that's
9 where they're going, correct?

10 A. Yeah.

11 Q. Okay. "The headings will be driven consecutively
12 with no abutment pillars between them." And does that
13 not -- is that not reflective of the illustrative diagram
14 that I've prepared?

15 A. Yes, they seem to be.

16 Q. Great. And they talk now in the next paragraph,
17 "drive..." and we're reading 2 North B, "...down dip well
18 in advance of the new headings to allow the stress shadow
19 to form." They've been concerned with the stress shadow.
20 We've discussed it previously, correct?

21 A. Yes.

22 Q. So they are planning this development entry to deal
23 with that in mind. And they go on to say, "This layout
24 is based on the successful test of narrower pillars
25 conducted in C-Road between 5 and 6 Crosscut. Correct?"

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. Right. This is what I was referring to earlier
2 with --

3 Q. But you were referring to that in terms of -- as a
4 test of pillars for the Southwest 1 alternative panel --

5 A. No, I was referring to them --

6 Q. -- or Southwest 1 panel.

7 A. -- as the narrow pillars.

8 Q. I beg your pardon?

9 A. The narrow pillars.

10 Q. The narrow pillars.

11 A. Uh huh.

12 Q. And you -- well, fair enough. So the narrow
13 pillars. So they've done a test on this pillar and they
14 go on and they say, "...conducted in C-Road where ground
15 conditions continue to be excellent." So they're
16 monitoring, it would appear? There's an indication there
17 that they appear to be excellent, correct?

18 A. Yes.

19 Q. Yeah, so --

20 A. I said so myself.

21 Q. Yeah. And they say then in the conclusion of that:
22 "It remains an objective to test the narrower pillars as
23 confidence is gained in the 12.5-meter pillars on a
24 larger scale." So they're cognizant of the concern that
25 you raised, that it's not perhaps appropriate to simply

DR. SALAMON, EXAM. BY MR. TRAVES

1 rely on a single pillar, correct?

2 A. I would hope so, yes.

3 Q. In fact, they indicate that as a result -- this is
4 the minutes now of their planning meeting. This is the
5 result of their task force.

6 A. The intention, but they didn't -- this is not what
7 they did.

8 Q. Well, I'm going to come to what they did, but this
9 is what they're indicating and if they indicated this
10 sort of procedure to the Department, the Department would
11 have no concerns at this point. I mean, we haven't seen
12 anything which has raised any large red flags?

13 A. Well, we're reading December -- dated December 10th
14 document which is a record of a meeting they had in the
15 company. It was in the company. This is not written to
16 the Department, is it?

17 A. No, I'm suggesting to you though that if the
18 information and the layout has described at the results
19 of their ground mechanics task force committee is
20 conveyed to the Department in the same sort of format
21 that, to date anyway, in our travel though this
22 explanation we haven't come across a problem. And it
23 will be up to the individuals to whom this was explained
24 to make that link. Correct? Dr. Jones has given some
25 evidence to the Inquiry already --

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. Yeah.

2 Q. -- sorry, to the Commission counsel.

3 A. Look, now what is missing from here, from the
4 precaution which is expressed here, is the realization
5 that the 12 1/2-meter pillars cannot be carried out to an
6 indiscriminate length. So they had said they had been
7 successful, but they tested single pillars and they will
8 -- you know, what, to me, should have been said here that
9 these pillars are really below-size pillars. And they
10 will only work if you limit the span on which they work
11 when you use them. That's what is missing from this.

12 Q. But, Dr. Salamon, I'm at the present stage only, you
13 know, as far as the development. And, you know, a lot of
14 your discussion and even just now is with the length of
15 the pillars and that they went on for an extraordinary
16 length of time. That's not at the development stage,
17 correct? You were referring there to where they've
18 driven off from these development headings and gone up
19 towards the Allan Mine barrier. I beg your pardon?

20 A. Yes.

21 Q. Yes.

22 A. Yes.

23 Q. All right. So let's just stay with this.

24 A. You know, I'm just -- what I was concerned is that
25 you are drawing a conclusion from this couple of

DR. SALAMON, EXAM. BY MR. TRAVES

1 sentences here which I don't think is justified.

2 Q. Now actually, Dr. Salamon, I'm just asking questions
3 based on this information of you to see what conclusions
4 we can come to. And my point is quite simple and I'm
5 going to -- I'll set it out to you, that I'm going to go
6 through this exercise and suggest to you that they, in
7 fact, were proposing a traditional and a conservative
8 approach to mining this panel. And you may or may not
9 agree with me, and we will come to that when we get to
10 it, if you work with me a little on this.

11 A. Okay.

12 Q. Okay? So the 12.5 -- they go on to this -- now
13 we're down to the fourth paragraph, "The 12.5-meter
14 pillars will allow pillaring to take place on both sides
15 of the development heading." And I think that's probably
16 -- just a second, if we go down these development
17 headings to the end, we get to an area which, for
18 illustrative purposes only, we've marked as a depillared
19 area. And that's a good point to leave that. If we now
20 take our travel into this area back to the Southwest
21 Alternative 2 plan, the one which was submitted -- it is,
22 Ena?

23 MS. MACDONALD 45, tab 4.

24 MR. TRAVES -- 45, tab 4.

25 A. That's the one, the lower one --

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. This is the upper one.

2 A. Two up.

3 Q. The one on the top.

4 A. Uh huh.

5 Q. All right? 45, tab 4. You will see at the end of
6 the development headings, farthest down dip, those two
7 development headings proceed, apparently, straight
8 forward and then there is a sort of a winged diagram on
9 the edge there. Correct?

10 A. Are you referring to this here?

11 Q. Yes, at the very end there.

12 A. Yeah.

13 Q. All right. And if I were to suggest to you that --
14 if I were to suggest to you that from that development
15 headings it would be possible to take a continuous miner
16 and wing out coal, they could in fact safely cave an
17 area, working back from the farthest extent of the
18 development headings and develop a caved area?

19 A. You're talking of these two.

20 Q. Yes, those two.

21 COMMISSIONER Those are the two horizontal ones?

22 MR. TRAVES The two at the very end of the development
23 headings.

24 COMMISSIONER Yeah.

25 MR. TRAVES Yes, Mr. Commissioner. I think 2 North B

DR. SALAMON, EXAM. BY MR. TRAVES

1 and 2 North A, if we travel right down to the very end of
2 them at the farthest extent, the right-hand side of this
3 layout.

4 COMMISSIONER Yeah.

5 MR. TRAVES I would suggest to you, Dr. Salamon, that
6 it would be possible and --

7 A. That I think would be okay. I'm not sure whether it
8 would cave though because it's relatively small area,
9 but --

10 Q. But they could start creating --

11 A. They could start, yes. You have -- in fact, that
12 would be very similar to what Boyd -- or not Boyd,
13 Kilborn suggested. You know, these -- if you forget
14 about everything else, just look at these two --

15 Q. Yes.

16 A. -- it's very similar to what Kilborn says.

17 Q. And Kilborn was the original plan which the
18 Department had used for approval, correct?

19 A. Yeah.

20 Q. All right. And that had all of the information in
21 it, if you will. So we -- in fact, we haven't had a
22 change to the mine plan itself. We're still working --

23 A. Oh, no, no.

24 Q. No, no. No, in terms --

25 A. You jump to conclusions.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. -- in terms of that end --

2 A. -- yeah.

3 Q. -- of the depillaring --

4 A. That is actually very similar to what --

5 Q. Exactly. Thank you. Now what next, in our -- in
6 the minutes of the mine plan meeting then, the --

7 A. Page what?

8 Q. This is still at page 187.

9 A. Right.

10 Q. And we're still working through paragraph 4 in (a).
11 And we have now gotten as far as the 12 1/2-meter
12 pillars, allow pillaring to take place on both sides of
13 the development heading. And we now go on, "The
14 pillaring will commence in the new headings as soon as
15 possible to allow the development of a gob-type stress
16 shadow for the down dip headings." That's reflective of
17 the situation as I've set it out to you?

18 A. As far as those two cuttings are concerned --

19 Q. As far as those two headings --

20 A. -- at the very end.

21 Q. -- go. All right. Fair enough. Now --

22 COMMISSIONER Does that mean depillaring?

23 MR. TRAVES Yes, I'm afraid it does, Mr. Commissioner,
24 as far as I would read it. Would you agree with that,
25 Mr. Salamon?

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. Yes. I mean, there are different terms I use for
2 depillaring. I find it actually very difficult to use
3 that term because I'm used to "pillar extraction," but --

4 COMMISSIONER You're --

5 A. What I normally call it is "pillar extraction."

6 COMMISSIONER Okay. Okay, I'm --

7 A. But the --

8 COMMISSIONER "Pillaring," to me, means you're setting
9 up the pillar; "depillaring" means you're taking it out?

10 A. Yes, but --

11 COMMISSIONER Yeah, or extracting.

12 A. -- you know, we miners, we're often guilty of
13 unspecific terminology.

14 COMMISSIONER Welcome to the club.

15 A. And I'm afraid "depillaring" is probably -- I don't
16 like the word, but it at least tells you what it is. But
17 "pillaring" is totally --

18 COMMISSIONER That's all I ask --

19 A. -- misleading.

20 COMMISSIONER -- tell me what it is.

21 A. It's misleading, I'm afraid. But --

22 MR. TRAVES So, Dr. Salamon, you would -- if someone
23 were to use the word "pillaring" or "depillaring" and you
24 were to come across it, you would -- you should be
25 cautious as to what, in fact, they mean. They may mean

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1 this -- what we lawyers, if you will, view as being
2 depillaring per the plan in Kilborn.

3 A. You know, but that's why I like to use pillar
4 extraction so there is no question about what you mean.

5 Q. But throughout some -- I think, and, of course, off
6 the top of my head I can't refer to any offhand, but
7 they're used the terms "pillaring" and "depillaring"
8 interchangeably at times.

9 A. Yeah, unfortunately.

10 Q. Unfortunately, yeah.

11 A. Well, it often happens. I mean, the whole
12 profession is guilty of that, I think, to some extent.

13 Q. All right.

14 COMMISSIONER Mr. Traves, you said that that paragraph
15 there, the 12.5 meter pillars were allow -- and I'm
16 saying "depillaring," pillar extraction to take place on
17 both sides of the development heading. The development
18 heading in this context is North A, North B, the two
19 drives coming down right to the end of there? [Witness
20 pointing to exhibit]. Okay. So --

21 MR. TRAVES Yes.

22 COMMISSIONER -- they get out there with their drives
23 and then what you're saying or what this memo is saying
24 that at that point the 12.5 pillars will permit safe
25 depillaring in a retreat mode back out the drives. Is it

DR. SALAMON, EXAM. BY MR. TRAVES

1 -- am I understanding that correctly?

2 A. Yes, I think so.

3 COMMISSIONER Okay.

4 A. Although the text doesn't specifically talk about
5 this area only.

6 COMMISSIONER Of course, they knew what they were
7 talking about.

8 A. And that's where the problem is; I'm not sure they
9 did in fact.

10 COMMISSIONER Oh.

11 MR. TRAVES I think that's where we're going. Let's
12 see. And you've agreed that the pillaring will commence
13 -- that this, the next sentence after the one the
14 Commissioner was referring to, "pillaring will commence
15 in the new headings as soon as possible to allow the
16 development of the gob-type stress shadow for the down
17 dip headings." You've gone with me as far as to say that
18 would refer to the development headings, and now I
19 want --

20 A. In other words, I don't see any problem doing that
21 end bit.

22 Q. And if --

23 A. This area here.

24 Q. And if I were to develop headings now going up in
25 towards the Allan Mine barrier and then -- and read that

DR. SALAMON, EXAM. BY MR. TRAVES

1 sentence in that context, would that not also fit?

2 Commence -- "Pillaring will commence in the new headings
3 as soon as possible to allow the development of a gob-
4 type stress shadow for the down dipped headings." If it
5 was possible with a sufficient factor of safety to
6 depillar a room extending up from those development
7 headings, would you not create a gob-type stress shadow
8 down dip below you? You would agree with me there?

9 A. If it would -- it would be possible.

10 Q. It would be possible?

11 A. If it would be possible.

12 Q. But that's a big assumption?

13 A. It is a big assumption.

14 Q. And my assumption is on the factors of safety of the
15 width of the pillar?

16 A. Yeah, I don't think it is possible.

17 Q. And I think you referred to that as a "fender"
18 yesterday?

19 A. The Australians use the word "fender" for these
20 narrow strip pillars which is used in the Wongawilli.

21 Q. In the Wongawilli.

22 A. Uh huh.

23 Q. Correct. Okay, let's --

24 A. They use it generally when they want to refer to a
25 narrow longish pillar, they call it a "fender."

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Right. Okay. If we could take that overlay, the --
2 continue -- the one which was created from the Kilborn
3 Report in Exhibit 71, and if we were to take that over --
4 that layout onto the illustrative diagram which I have
5 used of the Southwest panel -- of course, I better write
6 the exhibit number on here when I come back to it. Now
7 this is my illustrative 1- --

8 MS. MACDONALD 122, tab 2.

9 MR. TRAVES -- 122, tab?

10 MS. MACDONALD 2.

11 MR. TRAVES 2. Okay.

12 A. Could somebody help us how to do the overlay?

13 MR. TRAVES Yeah, I'm just going to come to that in a
14 second. Maybe if I could get you to use the right-hand
15 side of the three-entry development. One of the panels,
16 there's a 30 --

17 A. You mean up here? I don't want to, you know --

18 COMMISSIONER Let's not keep this to yourself. [All
19 proceed to board].

20 MR. TRAVES Exactly. I will see if I can -- those
21 pillars, the length of those pillars is about how long,
22 if you were to compare that to what was proposed in the
23 Kilborn plan, Dr. Salamon? It's the same, the same
24 length as the pillar?

25 A. Yes.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Correct?

2 A. Yes.

3 Q. Okay. And, in fact, and I'm going to get to this.
4 In fact, I will take it up to the Southwest Alternative
5 1, the plan which was received --

6 A. But I don't think you will be able to fit that side
7 there. You have to fit the other side where the pillars
8 are split.

9 Q. I just -- I would just like to start here for a
10 second. If I view these as my headings which is coming
11 upon here in between the dotted lines and I have another
12 one on this side, just sort of line it up, going up in
13 the center of the -- it's off to one side, I then have an
14 area on either side of that, of those headings. I've got
15 two headings going up in that development panel as per
16 the Kilborn section, correct?

17 A. Well, not really because there -- in this side,
18 that's why I said you should really superimpose that
19 side --

20 Q. All right.

21 A. I think that would maybe help you -- more helpful to
22 you. That's right. That's right, that's it. That's it,
23 I think.

24 Q. Yeah.

25 A. That's more --

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. So I have -- I have a room going up here --

2 A. Uh huh.

3 Q. -- through what's marked as a split on Kilborn?

4 A. Yeah.

5 Q. I have another one going up which would be the
6 center of your normal room --

7 A. Uh huh.

8 Q. -- which is, in fact, the next one. The following
9 one would be going up the next split?

10 A. Uh huh.

11 Q. And the next one would be going up on the other side
12 of the room?

13 A. Right.

14 Q. The three-entry panel, correct?

15 A. Right.

16 Q. But the overall length is the same? Up to the edge
17 of the barrier there it is the same as was projected in
18 the Kilborn plan, correct?

19 A. Now let's just put it back again. Now the
20 fundamental difference between this and the Kilborn, that
21 there is this pillar on these two sides so you restrict
22 the width of overall of section to this, while here you
23 keep on mining more and more.

24 Q. Would you agree with me that the length going from
25 this development heading up to the Allan Mine barrier --

DR. SALAMON, EXAM. BY MR. TRAVES

1 and, look, we can lay it right on there, that length of
2 66 meters is the same --

3 A. Yeah.

4 Q. -- from there to there?

5 A. Except I'm not sure what the relevance of it is.

6 Q. Well, I just would like to get there to start with.

7 A. Uh huh.

8 Q. All right? And --

9 A. Well, see --

10 Q. And while we're still here, while I'm -- save
11 myself --

12 A. You're not wired up so you better talk to the
13 microphone.

14 Q. Sorry. That pretty much is the same length as we
15 come up from these areas. The only time where from these
16 little roadways driven off the development headings is
17 this last one at the top where it's a little bit longer,
18 correct?

19 A. Yeah, I --

20 Q. I'm just looking at the --

21 A. sure, I mean --

22 Q. -- just looking at the length.

23 A. -- that's -- that's correct. I mean, we can all see
24 that. But I'm not sure about the relevance. You will
25 have to establish what you really signify by saying that.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. So just so that we've got this on the record, as I'm
2 not sure if the microphone picked it up, that length that
3 we said from the Kilborn -- in principal mining method,
4 the length of the rooms was 66 meters and that, when we
5 lay the overlay on as a schedule or as a guide, shows us
6 the same length of rooms going all the way up except for
7 the very last one I believe I pointed out, correct?

8 A. Yes.

9 Q. Yes, all right. So -- and that's 66 meters,
10 correct? I'm sorry, I've already --

11 A. Well, in the --

12 Q. -- asked that. Yeah.

13 A. -- Kilborn study it was 66, yes.

14 Q. Okay. And you agreed with me a moment ago that, in
15 your view, there was no limit on the panel, that these
16 pillar developments went on and on. They just -- in
17 fact, your words were "they just seemed to go on." And
18 that's not entirely correct if we actually lay this on;
19 there is the Allan Mine barrier which define the length
20 or can be seen to define the length.

21 A. Yeah. But I mean -- what I really meant -- you
22 asked me -- you went and showed it, you retreat, I don't
23 know how -- I haven't counted how many entries you drive
24 altogether there.

25 Q. And the entries are the same size as for the Kilborn

DR. SALAMON, EXAM. BY MR. TRAVES

1 plan? They lined up? They were 6 meters wide when we
2 were --

3 A. Yeah.

4 Q. -- looking at the plan?

5 A. I'm just waiting for the opportunity when I can say
6 the difference.

7 Q. We'll get there. And when we laid that left-hand
8 sequence of depillaring on the plan, if we were to take
9 two of those of those headings, they're about -- they're
10 the same width as the pillar planned as well, 30 meters?

11 A. The headings or?

12 Q. When we laid the left-hand side showing the pillar
13 after the split, all right, in effect, if you would,
14 allow me to refer to that then as a new roadway --

15 A. You're talking about the original Kilborn?

16 Q. Yes, the orig -- from the original Kilborn. If we
17 look at the --

18 A. Once you split those the pillars on either side of
19 the split will be 12 meters wide.

20 Q. Which is the same as the width of the pillars in
21 the --

22 A. Yes.

23 Q. -- Southwest Alternative 1?

24 A. I would have -- quite happy to grant you that in the
25 first place.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. I may have approached it from the wrong direction,
2 but I'm glad we got there, in any event. And they've
3 indicated in that planning meeting that the 12 and a half
4 meter pillars are intended to allow pillaring to take
5 place on both sides of the development heading. And if
6 you will grant me that perhaps they intended to do that
7 in this Southwest Alternative 1 section as well, okay; if
8 we could use that as an assumption. And that would be, I
9 think, the first assumption that we --

10 A. So you want to leave this Alternative 1 at the
11 moment --

12 Q. I'm --

13 A. -- because I certainly want to say something about
14 it.

15 Q. No, I'm going on. I'm just folding up my
16 illustrative drawing because it's taking up too much
17 space. So there doesn't appear, though, to be any rooms
18 in this Southwest Alternative 1, the plan that we've been
19 looking at at the top of the chart. In other words,
20 they've just driven the entry all the way up; they
21 haven't formed any crosscuts, they haven't -- Southwest
22 Alternative 2, sorry. Yes. Thank you.

23 A. Let's put it back again. Now you're referring to
24 the actual --

25 Q. No.

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. -- implementation?

2 Q. The Southwest Alternative 2 plan --

3 A. Right.

4 COMMISSIONER We're here?

5 MR. TRAVES -- we're still -- yes.

6 A. Yeah.

7 COMMISSIONER Okay.

8 MR. TRAVES They haven't cut any crosscuts --

9 A. Yes.

10 Q. -- or project --

11 COMMISSIONER [Inaudible]

12 MR. TRAVES -- there doesn't appear to be any
13 crosscuts. Sorry, Mr. Commissioner?

14 COMMISSIONER It just shows the headings.

15 MR. TRAVES Just shows the entryways.

16 COMMISSIONER The entry -- yeah.

17 MR. TRAVES And you would agree with me that generally
18 speaking that the rooms define the pillars, the actual
19 pillar strength? You can then physically see them on a
20 layout where the crosscuts go across.

21 A. Well, shorter width of the two. If you have a
22 rectangular pillar, the shorter width is dominantly
23 determinant in the strength of the pillar.

24 Q. Fair enough. Dr. Salamon, working with the same --
25 this same plan, Southwest Alternative 2, 45, tab 4, could

DR. SALAMON, EXAM. BY MR. TRAVES

1 I get you to agree that the major pressure stress
2 direction is shown on this plan? It is, in fact,
3 indicated in a number of places.

4 A. Yes, I --

5 Q. And perhaps we could point them out to the
6 Commissioner. There's one --

7 A. [Witness indicating on map] There.

8 Q. One up above on the other side of the --

9 A. And -- oh sorry.

10 Q. -- entries --

11 A. Sure, yeah.

12 Q. -- correct?

13 COMMISSIONER And those are?

14 A. Presumably, the major direction of stress in the
15 ground which -- as it was measured by Golder, I think.

16 MR. TRAVES I believe that's correct. And you can --

17 COMMISSIONER That would be the direction of stress even
18 before anything was mined --

19 A. Yes.

20 COMMISSIONER -- in there?

21 A. Yes.

22 COMMISSIONER Yes.

23 A. Yes.

24 MR. TRAVES And this was one of the concerns which the
25 consultants, at least some of the consultants, had

DR. SALAMON, EXAM. BY MR. TRAVES

1 identified and which you have indicated from your review
2 of the consultants' reports had become an issue within
3 the mine that the period leading up to the submission of
4 this plan?

5 A. It might have -- in fact, it might be a genuine
6 issue. I didn't doubt that it just said that it over-
7 empha -- they over-emphasized it at the price of
8 neglecting perhaps the vertical component.

9 Q. I'm not suggesting that, you know, that that wasn't
10 the case. I'm just indicating that they are located on
11 there and, in fact, it was a concern.

12 COMMISSIONER So we accept -- or is it accepted that
13 those arrows are taken from the Golder --

14 A. The Golder study.

15 COMMISSIONER -- the Golder studies.

16 A. Not the Golder study. I think they subsequently
17 measured it in the -- during the --

18 COMMISSIONER And they --

19 A. -- during --

20 COMMISSIONER Yeah. My point is is they indicate that
21 there is ver -- horizontal stress --

22 A. Which is --

23 COMMISSIONER -- in words --

24 A. -- pushing --

25 COMMISSIONER Yeah, okay.

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. -- this way.

2 COMMISSIONER Yeah, that's what I -- yeah. That's --
3 yeah.

4 A. There is horizontal stress there perpendicular to it
5 but smaller. So there is some stress in the other
6 direction as well. Mustn't assume that --

7 COMMISSIONER But this is major, this --

8 A. But this is what -- why we call it a "major," it's
9 the bigger --

10 COMMISSIONER Okay.

11 A. -- or bigger of the two.

12 COMMISSIONER Yeah.

13 A. You know, of the two direction, this is the major
14 one.

15 MR. TRAVES And while you're there, if we look at
16 those development headings once again, we can see that
17 they intend to turn off those headings at 90 degree
18 angles, roughly? If we're coming down the 2 North B Road
19 we see that they --

20 A. You mean this?

21 Q. -- start off farther up towards the Southwest
22 entries, if we're coming down --

23 A. This one?

24 Q. -- no, on the development entries themselves. 2
25 North B.

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. Yeah.

2 Q. Follow 2 North B. First -- if we look at the first
3 one, that's roughly 90 degrees. That entry would be
4 turned --

5 A. Yes.

6 Q. -- off. And they go down all the way along turning
7 off 90 degrees before they then make another alteration
8 it would appear with their entry to drive up towards the
9 Allan Mine barrier. So first they turn 90 degrees, they
10 travel about, well, it's hard to gauge on this plan, but
11 they would travel a little bit of distance to get away
12 from the development heading, I would suggest, before
13 turning their entries?

14 A. Yes.

15 COMMISSIONER Where are you looking at there now,
16 Doctor? Right up here?

17 A. Well, that -- you know, these turnoffs are almost
18 perpendicular to these directions and then they go in a
19 few meters and then turn it a little bit --

20 COMMISSIONER And then they hook further --

21 A. -- further -- yeah.

22 COMMISSIONER -- hook further to the north, yeah.

23 MR. TRAVES And --

24 A. So they have two factors to worry about, one is the
25 dip of the seam and the other is the pressure. So they

DR. SALAMON, EXAM. BY MR. TRAVES

1 try to compromise between the two, I suspect.

2 Q. They also had a problem with their intersections.

3 They --

4 A. Yes.

5 Q. -- had been experiencing failure in their
6 intersections where there were these roofs caving. And
7 would you not agree that by turning off at a roughly 90-
8 degree intersection that this would be more beneficial to
9 aid and maintain the roof integrity at these
10 intersections than if they went out at a smaller or a
11 larger angle?

12 A. Yes, but, you know, that -- I don't want to raise
13 another issue.

14 Q. Thank God.

15 COMMISSIONER So you say the reason for them going out
16 on a 90 degree angle from the drives was to stab -- was
17 an attempt to stabilize the crosscut, or the intersection
18 and then when they got a little bit out then they took
19 the turn to the north for --

20 MR. TRAVES I was --

21 COMMISSIONER -- if north is -- if that's correct?

22 MR. TRAVES I think my question, yes, was if Mr.
23 Salamon -- or Dr. Salamon would agree that that would
24 assist in -- we know that they had an intersection
25 problem --

DR. SALAMON, EXAM. BY MR. TRAVES

1 COMMISSIONER Yeah, okay.

2 MR. TRAVES -- and if they did this that that would
3 assist in dealing with that problem.

4 A. Yeah, because in the -- in these areas the
5 intersections were all non-90 degrees, they were --

6 COMMISSIONER Yeah.

7 A. -- at different angles.

8 MR. TRAVES Not bad planning so far? Just in terms of
9 those intersections?

10 A. Um-hmm.

11 Q. Okay.

12 A. Yes.

13 COMMISSIONER What I'm confused about is all of this is
14 fine but how does it relate to what they did?

15 MR. TRAVES Well, let's --

16 COMMISSIONER Everything there is non-90 degree angle,
17 isn't it?

18 MR. TRAVES In terms the Southwest 1 --

19 COMMISSIONER Yeah.

20 MR. TRAVES -- the Southwest Panel? I think that the
21 regulators would be -- would have the same question
22 because this is what was proposed to them and this is
23 what they approved.

24 COMMISSIONER Well --

25 MR. TRAVES The Southwest Alternative 1.

DR. SALAMON, EXAM. BY MR. TRAVES

1 COMMISSIONER I'm just trying to determine where we're
2 going, you know. That's my point.

3 MR. TRAVES My point, Mr. Commissioner, was that I
4 think that when we've come through this that we'll see
5 that in fact this was a traditional and conservative
6 approach and one which the regulators would not hesitate
7 to approve and, in fact, they did approve this approach.

8 Mr. -- or Dr. Salamon was quite critical, in fact,
9 he said I believe that this is a plan which, if submitted
10 by a student of mine, I would send it back to them and
11 say, you know, come back when you've got a real plan.
12 And that --

13 A. And I will still be critical --

14 Q. -- raises -- I beg your pardon, sir?

15 A. I will still be critical.

16 Q. And that raises the issue that, in fact, the
17 regulators in this instance approved this plan. So --

18 COMMISSIONER But the operators --

19 MR. TRAVES Operators apparently --

20 COMMISSIONER -- went on a different tack?

21 MR. TRAVES Oh, I agree with that.

22 COMMISSIONER Okay, well, that's --

23 MR. TRAVES Yeah.

24 COMMISSIONER This -- I'm just trying to get a trend to
25 your argument so I'll be able to follow it.

DR. SALAMON, EXAM. BY MR. TRAVES

1 MR. TRAVES Yeah. My point is simply -- it has to do
2 whether or not the regulator should have approved this
3 plan as submitted and explained to them.

4 COMMISSIONER Okay, okay.

5 MR. TRAVES Thank you. All right, so we're turning
6 off the pillars.

7 If I could get you, Dr. Salamon, to look at Mr.
8 Clow's memo. Within Mr. Clow's memo at 15, 166, still --
9 we'll still keep this Southwest Alternative 2 plan open.
10 56.

11 A. But -- oh, I know the Department didn't see these
12 memos, so --

13 Q. No, but I'm -- you've indicated that there would be
14 more evidence needed to determine whether or not they
15 were appropriate in approving this plan, and I'm
16 suggesting that the evidence will show that the
17 information as set out in these minutes is essentially
18 information which they received and that this evidence --
19 it's here, it's in the materials which have been
20 provided. Okay? It just may not have been --

21 A. I'm not nodding.

22 Q. -- strung together properly.

23 A. I'm not nodding.

24 Q. Without having perhaps, Doctor -- the benefit of Dr.
25 Jones' leading us through this and linking it all up,

DR. SALAMON, EXAM. BY MR. TRAVES

1 it's difficult to see how these pieces of information
2 which the task force put together came up with the
3 Southwest Alternative 2 plan. And all I'm trying to do
4 is just to go through this to avoid having to suggest
5 that this is something which, you know, that has been
6 made evidence or has not been made evidence, I'm just
7 working with the information that we have as a guide, if
8 you will. And the Department officials will have to set
9 out exactly what was brought forth. But I'll suggest to
10 you that this is roughly it, as best as I can explain it
11 anyway, or lead us through it.

12 Doctor -- sorry, Mr. Clow, in his memo of November
13 of -- I'm sorry, have I got the right one here? Yes,
14 November 2nd -- 22nd, 1991 to Mr. Phillips discussed his
15 visits to the U.S. coal mines. It's at page 162. It
16 begins at page 162 and I'd like to draw your attention to
17 the material he's taken from, apparently, Christopher
18 Mark who is US -- we've mentioned him before the break,
19 U.S. Bureau of Mines in Pittsburgh at page 166. And if
20 we then turn to his comments at page 167, it starts out:
21 "Mark had the following comments: (1) draw the important
22 entries parallel to the major stress." And if we take
23 that and we've just discussed --

24 A. Sorry, I -- you're talking on page hundred and
25 sixty --

DR. SALAMON, EXAM. BY MR. TRAVES

1 COMMISSIONER 167.

2 MR. TRAVES 167.

3 A. Oh, I'm -- that's why I couldn't find it. Yes,
4 okay, I got you.

5 Q. If we look at our Southwest Alternative 2 plan, 45,
6 tab 2, with that in mind and we've just looked at the
7 major stress pressure direction figures, that they have,
8 it would appear, and I think you might grant me some
9 leeway, they've attempted to turn off these angles to
10 come further up towards that stress direction?

11 COMMISSIONER Are you -- are we looking at folio 4 --
12 tab 4 now?

13 MR. TRAVES 45, tab 4. It's the Alternative 2 --

14 COMMISSIONER Yeah, okay. Yeah.

15 MR. TRAVES -- Southwest plan. The one which I think
16 we'll be working with for a bit now. And "drive the
17 important entries parallel to the major stress" is his
18 suggestion, correct?

19 A. Yes, I just consider it -- well --

20 Q. He says "Get a cave going as soon as possible to
21 improve the shadowing effects," does he not?

22 A. He says so, yes.

23 Q. Yes. And would you agree with me that by starting
24 out with the creation of the cave at the end of the
25 development headings, that's getting a cave going as soon

DR. SALAMON, EXAM. BY MR. TRAVES

1 as possible?

2 A. Well, you would in -- try to initiate it. I don't
3 think it would cave when you mined that out; it is too
4 small area.

5 Q. And --

6 COMMISSIONER What was that again?

7 MR. TRAVES I'm sorry.

8 COMMISSIONER Let's relate this to our plan there.

9 We're at --

10 A. This area when they --

11 COMMISSIONER Okay.

12 A. -- took --

13 COMMISSIONER We're over there now, yeah.

14 A. -- pillar extracted here. And just -- I'm talking
15 about this restricted area, would be an attempt to try
16 to, what we call the cave going --

17 COMMISSIONER Okay.

18 A. -- and I'm just remarking this is, I suspect, is too
19 small to really have a -- to achieve that.

20 COMMISSIONER Okay.

21 A. But you can -- make your start. You have to make a
22 start, so this is --

23 COMMISSIONER Okay. Okay.

24 MR. TRAVES And I'll come back to that in half a
25 second. His next two points are that you ensure

DR. SALAMON, EXAM. BY MR. TRAVES

1 pillaring is done in a stress shadow. You would agree
2 with that as being his comments?

3 A. That's right.

4 Q. And then that they're going to work down dip. Do
5 you -- just -- do you know -- you've indicated that you
6 know Dr. Marks --

7 A. Yes.

8 Q. -- and you understand him to be a rock mechanics
9 engineer?

10 A. That's right.

11 Q. And, in addition, are you aware that he's a methane
12 control engineer? Methane control engineer for his
13 business -- as per his business card? If --

14 A. I didn't -- oh, sorry. The department where he
15 works is called "Ground and Methane Control Department"
16 but he's not in the methane side of the business.

17 Q. All right, but his department --

18 COMMISSIONER It's called what?

19 A. The department, I can check it, I can't remember all
20 the exact words, but it -- strangely enough, they have a
21 section there which is -- or department which is called
22 "Ground and Methane Control."

23 COMMISSIONER Oh I see, so he's --

24 A. Methane and ground control.

25 COMMISSIONER So he's on one side?

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. That's right.

2 COMMISSIONER Okay, okay.

3 MR. TRAVES All right, then, let's talk about getting
4 this cave going. We've said that if we turn the Kilborn
5 layout which was provided -- comes from 71, it is this
6 overlay, 122, tab 2. Can't draw on this one. You said
7 that they're square. The distance across the face of
8 your area which is being depillared is the same as the
9 length of the pillar, 66 meters. Correct, Dr. Salamon?

10 A. I'm not quite sure what -- you're referring to the -
11 - perhaps you would have just -- mind showing it to me?

12 Q. I think I'll come up. [Mr. Traves goes to the board]

13 A. Yeah.

14 Q. If I turn my area of the pillar across and
15 superimpose my depillaring area onto the plan that we
16 have developed. So I've just simply put my blocks onto
17 the areas and if I can line up the splits, if they will
18 show. There's one. All right. The distance, the face,
19 of this area to be depillared is the same width as what
20 was planned for in the Kilborn 1, correct, Dr. Salamon?

21 MR. MERRICK If I can indicate on the record that if
22 you turn the overlay now 90 degrees so that the left-hand
23 side of the overlay is now to the upper portion and is
24 toward the Allan Mine workings. Okay.

25 MR. TRAVES Thank you, Mr. Merrick. So my distance

DR. SALAMON, EXAM. BY MR. TRAVES

1 across, in terms of the area which would be depillared if
2 I were to start and do a direction of pillar extraction
3 as per the Kilborn, back in this direction, is the same
4 distance? As I retreat back --

5 A. Um-hmm.

6 Q. -- that --

7 A. Yes.

8 Q. -- pillar width is the same?

9 A. Yes.

10 Q. Then you've indicated that one of the dangers in
11 proceeding with your depillaring is where you might lose
12 a factor of safety behind you by splitting these pillars
13 too soon?

14 A. Yes.

15 Q. So if I were to drive the two entries first, up
16 here, and I commenced depillaring in that area, right?
17 I've simply split my pillar horizontally, I now have one
18 on this side, I have an entry here and I have an entry
19 there. I have a pillar which is 12 and a half meters in
20 the center, which is this pillar here.

21 A. Now can you -- can I ask you a few questions now?

22 Q. Well, if I just get you to here -- and I will -- we
23 will come forward and see if you don't agree with me, but
24 12 and a half meter pillar here, it's the same width.

25 I've now driven an entry and a second entry. All right?

DR. SALAMON, EXAM. BY MR. TRAVES

1 And if I were to stop there, I could run tests on the
2 pillar factors of safety in terms of the compressive
3 strength of the coal at this depth, could I not? If I
4 were to take a sample of this coal.

5 If I were to suggest that the company indicated that
6 they would sample the coal at this depth to determine
7 whether or not Mr. Brummer's calculations, where he
8 indicated that they had small samples, in his memorandum
9 to the mine manger, they had small samples and you
10 shouldn't rely on the figures which were developed, I
11 think, by Golder in terms of the compressive strength of
12 that coal but you should take bulk samples, if I were to
13 take a sample at this point, I would be able to more
14 carefully calculate the compressive strength of the coal
15 at this depth, correct?

16 MR. MERRICK Just -- Dr. Salamon has asked if he could
17 have some further explanation by way of asking questions.
18 I think that's a fair thing for him to --

19 MR. TRAVES Fair enough, Dr. Salamon.

20 A. What I was -- just for clarification at this stage,
21 if you'd just take that overlay off. So is the intention
22 to drive that heading and that heading?

23 Q. Two headings only.

24 A. Two heading okay. So you do drive those heading --
25 and now what the intention is?

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Test. Test. Test my coal. I can see how the roof
2 is proceeding, correct? If I then commence --

3 A. Well --

4 Q. -- depillaring by winging out coal from this pillar
5 to the center, I'm in effect -- all I've done is I've
6 split it this way rather than splitting it this way.
7 There's no difference, in terms of the safety, of
8 depillaring that section than what was proposed in the
9 Kilborn plan.

10 A. How many continuous miners are you using in that
11 section?

12 Q. If -- how many continuous miners would be used in
13 depillaring a section --

14 A. One.

15 Q. -- like this, Dr. Salamon?

16 A. One.

17 Q. If I were to use one continuous miner in that
18 section then could I not drive my two entries --

19 A. No.

20 Q. -- I have three entries --

21 A. No.

22 Q. -- in fact, after I split my pillar, I have one,
23 two, three, four, five entries on this Kilborn plan.

24 A. Well, the difference --

25 Q. If I have only two entries and I've driven them up

DR. SALAMON, EXAM. BY MR. TRAVES

1 through the center and I now take out my coal from here,
2 I can retreat developing a gob behind me with a solid
3 pillar to provide a factor of safety behind me --

4 A. I'm sorry --

5 Q. -- all the way back.

6 A. No, the point I was making yesterday, you know, you
7 just said that they were having one continuous miner, so
8 you -- to drive these two or drive these two, come to the
9 end, now you have one machine so you have to -- you have
10 two choices: (a) they depillar like this, coming back
11 this way or every time you cut like this you go around
12 and cut like that, which would kill you in productivity.

13 Q. All right.

14 COMMISSIONER Would you just let him go, I'm --

15 MR. TRAVES Sure.

16 COMMISSIONER -- kind of interested --

17 MR. TRAVES Yeah. Sure.

18 COMMISSIONER -- in this.

19 A. So the logical thing would be to cut -- one cut from
20 there, a cut from there, a cut in there, cut from there
21 and gradually retreat, that would leave you with a pillar
22 here which is only 6 meter wide and that was my problem.

23 MR. TRAVES And that would be a fender and you
24 would --

25 A. That would be a fender.

DR. SALAMON, EXAM. BY MR. TRAVES

1 MR. TRAVES -- and that would be a problem. What if I
2 were to suggest to you --

3 COMMISSIONER It would be an "offender."

4 A. Yeah.

5 MR. TRAVES It would be an offender. What if I were
6 to suggest to you -- could you not safely depillar this
7 side of this entry without going any further? I've
8 simply put in an entry --

9 A. Well --

10 Q. -- here. I've got 12 meters beside it, I've got a
11 large area behind me, I've got an area here, could I
12 depillar this face?

13 A. Well, in fact, the safe thing would be that you
14 drive only one and depillar around only one side of it.
15 And then drive the second one and depillar only one side
16 of it. Then you minimize the time when you have 6 meter
17 width fender, but then this second one would have to be
18 closer because 12 meter is too much for a fender.

19 Q. But if I were to remove some coal on the other side,
20 not all of it, but some coal to reduce that, start
21 depillaring as --

22 A. Yeah.

23 Q. -- I'm coming back here, I would be able to safely
24 take out that 12 meter pillar?

25 A. Well --

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. It would not be left behind.

2 A. -- it's a little bit less safe than working only on
3 one side, but it is, I think it probably will still be
4 possible to do. We would have -- you know, the mine with
5 a good roof conditions I'm pretty sure could do it, and
6 I'm sure it has been done. But I wouldn't drive the
7 second one in advance because then you letting that 6-
8 meter wide or whatever, but -- something like 6 meters,
9 six, seven meters, standing there too long. That really
10 was my point. And if you do that, then it's more or less
11 the conventional Wongawilli.

12 Q. But if I refer you back to the Kilborn overlay, I've
13 split my pillar longitudinally. Let's -- actually, let's
14 put it this way, if you will. If you'll allow me. If I
15 split, and you said you agreed with me that I could split
16 this pillar longitudinally first and that it was not
17 unsafe --

18 A. It wouldn't be very sensible, but I said it could be
19 done.

20 Q. -- it could be done, it could be done safely, I
21 think you agreed with me. If I have then split this
22 pillar, and I start to extract from the side coming back
23 with a solid barrier on this end and with a solid barrier
24 behind me, is it not safe to depillar? I have the same
25 open area as I would have in my normal depillaring

DR. SALAMON, EXAM. BY MR. TRAVES

1 section, I'm simply -- I'm not looking to leave any
2 fenders. I want to wing out as much coal as possible, in
3 the same way as a conventional room-and-pillar method.
4 I'm simply depillaring without going through the concerns
5 of developing a room. The dangers of having to develop a
6 room. I'm taking my pillar and I'm splitting off the end
7 and I'm carving the coal out.

8 A. Well, I mean, it's not by chance that they did it
9 the other way around in the Kilborn study. Oh sorry. If
10 you do it this way, we finish up with the same problem
11 here. If you do it this way and wing it off like this,
12 you finish up with a long, narrow pillar here and you
13 have the same problem. That's why they did it coming
14 this way so I had a -- only at the very end they still
15 have a problem. And that's what makes one of the
16 weakness in pillar section is always when you get to the
17 intersection.

18 But by doing it this way you would create lots of
19 weaknesses because every time you wing it you finish up
20 with a long, narrow pillar and now you have to come in
21 here and then do it both side and then suddenly this
22 might cave for you now too.

23 Q. This is in a sequence coming back as set out in --
24 on a longitudinal basis as set out in Kilborn?

25 A. My point --

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. But that's the same narrow pillar that would be left
2 if I were to come back in this direction.

3 A. Yeah, but nobody suggested in the Kilborn study to
4 do it that way. They did it this way because it's a
5 degree safer. So the common sense, to whoever drawn the
6 Kilborn study, they did it this way. By turning it on
7 the edge, we're introducing additional weakness in the
8 plan.

9 Q. But if I have -- I'm just going to take this and
10 just for illustrative, start back here.

11 MR. MERRICK John, can you be more explicit for the
12 record?

13 MR. TRAVES All right, I've just turned the principal
14 mining method plan upside down. [Mr. Traves at board]
15 I'm going to suggest that we reverse --

16 COMMISSIONER That's not all you've turned upside down.

17 MR. TRAVES -- the direction of pillar extraction.
18 I've turned myself upside down. I have a block across
19 here. And in terms of creating my pillars, there is a
20 factor of safety which is calculated by the length and
21 the width of the pillar, correct?

22 A. Um-hmm.

23 Q. When I split that pillar, I've reduced the factor of
24 safety --

25 A. Um-hmm.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. -- correct? And, in fact, I've begun in this
2 sequence by splitting it, my depillaring sequence. I wish
3 to have a safe method of caving the mine as I retreat
4 away from --

5 A. Um-hmm.

6 Q. -- a gob area. In this sequence, what I end up with
7 is if I were to take a full size pillar, I'd end up with
8 two blocks, correct?

9 A. [No audible response]

10 Q. I have two blocks if I've turned them sideways or
11 long-wise, doesn't matter; I have --

12 A. That is correct.

13 Q. -- two blocks. It's comprised of two blocks.

14 A. Not as squares, yeah.

15 Q. All right. And I'm then looking to split those by
16 driving an entry, let's say rather than up the center, if
17 I were to come in from the side, which is where I am in
18 my development heading, if I were to drive my entry
19 across here in the center, I have not reduced my pillar
20 factor of safety any more than I would by any other means
21 of depillaring this section --

22 A. Um-hmm.

23 Q. -- correct?

24 A. Uh-huh, you're right.

25 Q. Because I intend to reduce that pillar factor of

DR. SALAMON, EXAM. BY MR. TRAVES

1 safety to a point where I ensure that I cave that area so
2 that I don't leave a fender which is not able to be
3 crushed. So I've split the pillar. If I then retreat
4 back this way --

5 A. Except that if --

6 Q. No, but --

7 A. -- you split the pillar this way, then you would
8 start mining it from this --

9 Q. But if I were to start mining it from this side, I
10 would be advancing out under unprotected ground, would I
11 not, as I have depillared this area? If I come back from
12 here, I am under supported ground. In the same way that
13 I retreat back in a normal method as I'm between these
14 two pillars, I'm under supported ground. If I have come
15 through on a horizontal plane from the side, I am under
16 supported ground, I can depillar however size. I would
17 have to test this point. I would -- and, in fact, that
18 would be critical to ensure that if I were to take some
19 of this on the bottom side here, that I have enough that
20 I have still supported ground and that I would be able to
21 strip out the entire part without leaving a fender.

22 A. Now the problem --

23 Q. Is that not possible to do?

24 A. The problem is if this is 30 by 30 meters --

25 Q. Uh huh.

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. -- if you take out -- they split it, you finish off
2 with a 12 meter here. 30 by -- minus 6, that's 24,
3 divided by two is 12.

4 Q. Right.

5 A. So it give -- finish with a 12 meter width, that's
6 too much.

7 Q. Okay.

8 A. So you would have to --

9 A. And -- but that pillar is the -- that one you've
10 just described, 12 1/2-meter pillar is the same pillar.
11 All we've done is change the orientation. It's exactly
12 the same pillar --

13 A. Yeah, it is.

14 Q. -- as --

15 A. Except --

16 Q. -- as you would want to have in depillaring?

17 A. Yeah, except you are moving, you know, the -- when
18 you're here, excavate and drawn it, when you're here, you
19 still have at least a 12 by 12 pillar there, at least,
20 say, half -- is a 12 by 12, 12 by 12, 12 by so forth, 12
21 by 12 on that. And if you split it this way, you know,
22 the way you said it, then you finish up and having to --

23 Q. Just a second. If we go back to where I've started
24 from at the top on the horizontal, I realize the record
25 won't show this, Mr. Commissioner, but I'm sure that by

DR. SALAMON, EXAM. BY MR. TRAVES

1 the time we're done with this we will remember it. We've
2 split this pillar and, as you say, you have these areas
3 behind. In fact, if we do it according to only having
4 two entries, this is all solid coal now behind me. I've
5 only got these two 12 by 5; whereas if I do it in this
6 method, I have one, two, three, four, five, six, seven,
7 eight, possibly, areas which have been split and which
8 are now ready --

9 A. Well, I wouldn't --

10 Q. -- to start to be caved.

11 A. -- because I said there I wouldn't split them --

12 Q. Okay.

13 A. -- in advance.

14 Q. But then if we did it -- if we had four pillars, we
15 will take it back. That's the same -- if I had come in
16 from the side, I still only have the same amount of area.
17 In fact, I have a little bit more because I haven't taken
18 out this roadway if I've simply driven right through.

19 A. But, you know -- I'm sorry. The point I'm making
20 that, you know, we're not doing this, we're doing this --

21 Q. And you're point to Southwest Alternative 1.

22 A. Yeah, we're doing this in the South Alternative 2.
23 And here this method, as I said, you can either do it,
24 and the sensible thing would be take -- mine this out and
25 now you finish up with something like 80-meter long

DR. SALAMON, EXAM. BY MR. TRAVES

- 1 rib --
- 2 Q. I think --
- 3 A. -- which is --
- 4 Q. Sir, we looked at that. It's 60, 60 meters --
- 5 A. Okay, 60-meter rib --
- 6 Q. -- the same size.
- 7 A. -- and 6 meter wide.
- 8 Q. 6-meter wide entries, correct.
- 9 A. Now --
- 10 Q. And a pillar which you said was 12 1/2 meters which
- 11 is --
- 12 A. No, no. No, no, but you're taking half of it out.
- 13 So you're only left with 6 now.
- 14 Q. Well, but let's -- if we take it one step at a time,
- 15 if this is a depillaring sequence now, not looking at
- 16 developing entries. I'm not concerned with a pillar
- 17 factor of safety which is going to ensure that it stays
- 18 up; I want it to come down. If I take out a section on
- 19 this side and I then start to depillar, I want to
- 20 depillar both sides of that 12-meter pillar the same way
- 21 that you would be depillaring in Kilborn.
- 22 A. Well, you know, the -- then you misled me because I
- 23 asked you how many continuous miners you would be
- 24 operating there; you said one. Now depillaring both
- 25 sides, you can only do -- not that I think it will be a

DR. SALAMON, EXAM. BY MR. TRAVES

1 good idea in the mine, but they could only do either by
2 flipping[?] "flipping" is when you move the machine.

3 Q. Uh huh.

4 A. -- you have to keep on moving the machine there and
5 back, there and back.

6 COMMISSIONER Am I to assume from your comments, Doctor,
7 then that the safest depillaring in this particular
8 scenario would be with two continuous miners working in
9 opposition?

10 A. No, I don't necessarily say so, but I've just drawn
11 -- you know, I want to get something --

12 COMMISSIONER Okay.

13 A. -- solid so we can --

14 COMMISSIONER I want to get something solid too so we
15 will recess until quarter to 2:00.

16 MR. TRAVES Thank you.

17 A. Okay.

18 INQUIRY RECESSED (TIME: 12:45 p.m.)

19 INQUIRY RESUMED (TIME: 1:47 p.m.)

20 COMMISSIONER Thank you. Mr. Traves --

21 MR. TRAVES Thank you, Mr. Commissioner.

22 COMMISSIONER Mr. Traves, the ball is still in your
23 court.

24 MR. TRAVES So I see. Dr. Salamon, we still have this
25 -- the layout from the Kilborn study, 122, tab 2, if you

DR. SALAMON, EXAM. BY MR. TRAVES

1 will. This is the overlay that came out of the Kilborn
2 study. And, if I could, we've looked at some of the
3 similarities in terms of the panel width and the panel
4 length. And perhaps I could get you just to indicate so
5 that we can get on from this, in terms of these entries,
6 what the difference would be between this and the
7 Southwest 1 Alternative 2 on the top of the chart? 45,
8 tab 4.

9 COMMISSIONER I'm sorry to interrupt you but there seems
10 to be some interference up here in the speakers or
11 something, like --

12 [Adjustments made to sound]

13 COMMISSIONER Okay. Mr. Traves, sorry for the
14 interruption there.

15 MR. TRAVES The difference, Dr. Salamon, between the
16 Southwest Alternative 2 which is at 45, tab 4, and the
17 sequence of depillaring is shown with the splits on the
18 left-hand side of 122, tab 2. Okay, perhaps if you could
19 just assist us here and point out what you --

20 A. What I think are the differences?

21 Q. Yeah, what you saw as being the differences?

22 A. It would be difficult to sketch it to match the
23 scales but, essentially, I tried to make a sketch here
24 but I didn't succeed to make it quite appropriate scales.
25 In the Kilborn study they have a panel something like

DR. SALAMON, EXAM. BY MR. TRAVES

1 this. And they have the pillars --

2 MR. MERRICK Doctor, I wonder if you could stand right
3 around to the side, if you can do that, without falling
4 off the -- there, that's it.

5 A. Okay.

6 MR. MERRICK Thanks.

7 A. I didn't succeed getting it quite to scale, but if
8 you wouldn't mind using your imagination and assume that
9 it is two square pillars which were on, originally, 30 by
10 30 and then they were cut like this. And let's assume
11 that they have started extracting this and that's what's
12 left of them. Now what -- and here too. I'm sorry that
13 they don't quite match in size. So here we have a little
14 remnant pillars, one side of which is 12 meters, and this
15 side is, of course, depends how much has been extracted.
16 And you have -- but let's say, to make it more specific,
17 let's say that out of 30, 10 meters has been already
18 mined out. So then this would be 30, minus 10, so this
19 would be 20. And they will all be the same. So what --
20 here -- and this is the mined-out area or the gob. I'm
21 not sure whether it's a different colour. Yeah. So
22 let's assume that this is supposed to be the gob and
23 these are the areas where the pillars have been
24 extracted. Apart from my inadequacy of scale, would you
25 agree that that's what Kilborn plan is essentially trying

DR. SALAMON, EXAM. BY MR. TRAVES

1 to say?

2 Q. I think your drawing skills are quite good.

3 A. Pardon?

4 Q. I think, compared to 122, tab 2, your drawing skills
5 are quite excellent.

6 A. Well --

7 COMMISSIONER You're evading the question. Did you
8 agree with it?

9 A. No, because if you don't, we might as well stop.

10 MR. TRAVES No, I'm satisfied that's, you know,
11 reflective of --

12 A. Let me -- unfortunately, I couldn't put them side by
13 side, but what we have here, a situation where I put it
14 sideways. So that seam -- that's -- no, I'm sorry. I
15 missed out one heading, so let me cancel that.

16 COMMISSIONER Tear that one out, Doctor --

17 MR. TRAVES Yeah.

18 COMMISSIONER -- so we won't get confused.

19 MR. TRAVES And perhaps, Dr. Salamon, if I could ask
20 you perhaps to orientate your pillars in the same sort of
21 direction as the first diagram, similar to the Southwest
22 Alternative 2 panel where the ends of them are at the top
23 part of the diagram, if that's possible and not too
24 much --

25 A. I will try to do that.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Thank you.

2 A. So as I was saying, that's the one heading. I
3 better draw it first dotted so I get it right. And the
4 second heading. That's the end of the -- in other words,
5 this line down here is equivalent to that line.

6 Q. The development entry which would --

7 A. Develop --

8 Q. -- be 2 North B, I believe, that you're point to?

9 A. That's right. And at top, I'll just straightened
10 this out, and it refers to the boundary for the old mine.
11 So that's the old Allan Mine.

12 Q. And that would be roughly 60 meters, I think,
13 that --

14 A. That's right. Now what we have here is the mining -
15 - this -- and I'm trying to sketch in an intermediate
16 stage. So let me write it in, this is "seam." This is
17 "pillar." This is "pillar." And I tried to indicate
18 with red, as I did before, the area which is -- now has
19 been abandoned, extracted. Now this can go on some
20 distance. It depends where we imagine ourselves along
21 this area.

22 Q. But on that, if I could just -- the Southwest
23 Alternative 2, at the end of that -- along that first
24 pillar that you've drawn, in fact, is the edge of the
25 Allan Mine barrier again. It comes down along that, sort

DR. SALAMON, EXAM. BY MR. TRAVES

1 of on an angle, 45 degrees, and in fact that diagram
2 doesn't show that that's -- it shows --

3 A. Well, I will just --

4 Q. -- it as a solid area.

5 A. I will just --

6 Q. I'm thinking to the far end of the -- of that first
7 -- on the right-hand side of the very first entry, if you
8 will.

9 A. Not really. I'm trying to draw some --

10 Q. Oh, I see, in the center.

11 A. -- somewhere in between.

12 Q. Fair enough.

13 A. So some pillars have been already mined out on the
14 right-hand side, that's why I left this uncut off.

15 MR. MERRICK Doctor, could I just ask for
16 clarification. You've got -- as you work from the left,
17 you've got your seam, you've got a heading, you've got a
18 pillar. That should be a heading in there, shouldn't it?

19 A. Yeah.

20 MR. MERRICK And then where you've got it mined out,
21 that should be a pillar?

22 A. And that should be a pillar. Sorry.

23 MR. MERRICK All right, thank you.

24 A. Thanks.

25 COMMISSIONER Yes, it clarifies my --

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. Yeah, sorry. My skills of drawing is not exactly --
2 so that's -- I'm just going to put that "H" for heading
3 and that's the pillar. And so to make it clear, I'm
4 going to use the red again to show which has in fact been
5 crosswise, hatched, which has been extracted. Now the
6 point I was making that this bit here is ± 6 meters.
7 This bit here, this pillar here is ± 6 meter, while here
8 this is ± 12 meters. So while in the previous diagram we
9 had pillars which, until the very end, until you actually
10 come down here, you have a stiffer, a stronger pillar on
11 the edge of the extraction than here. Because when we
12 pull it out, I mean, it's obviously off scale because
13 this is 60 and that's 12, so that should be five times as
14 much as this. When you do it -- show it in scale, the 6
15 meter little pillars are pretty vulnerable. So one would
16 be worried whether this gob will not just crush it and
17 advance right up to here.

18 Q. But it would be likely to be safe in the area
19 between the 12 -- the roughly 12 meter pillars in the
20 same way as in the first in the Kilborn?

21 A. Well, you see, that's -- on that side -- on that
22 side is a 6-meter pillar, on that side is 12. Here it is
23 --

24 Q. In that particular heading then.

25 A. Yeah.

DR. SALAMON, EXAM. BY MR. TRAVES

1 Q. Okay.

2 A. Now you might argue, and quite rightly so, that this
3 particular layout also run into difficulty when you're
4 getting towards the final stages of extracting these four
5 pillars. When you're coming to the stage that you now
6 extracted that -- just that much left. Because if I draw
7 in now the other pillars, then you have here a big pillar
8 and these little remnants of pillars.

9 Q. And that roadway --

10 A. So that's the critical point of --

11 Q. And the roadway between the ends of those headings
12 and the little remnant pillars is about 6 meters -- 6
13 meters wide.

14 A. Yeah.

15 Q. So your machine would, in order to stay behind under
16 protected roof, you would have 6 meters of unprotected
17 roof before you could get to the remnant pillars? So you
18 would have to be careful in dealing with those remnant
19 pillars? Caving is a tricky endeavour?

20 A. This is a tricky --

21 Q. Yes.

22 A. -- tricky part. And all I'm saying that this trick
23 is --

24 COMMISSIONER Excuse me, wouldn't the road be protected
25 though?

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. Well, they would be supported, of course.

2 COMMISSIONER Yeah. Yeah, so what's your problem?

3 MR. TRAVES No, I --

4 A. Well, but, you know, that support is never -- not as
5 good as the coal itself, sir.

6 COMMISSIONER As a collar -- as a pillar?

7 A. Yeah.

8 COMMISSIONER Yeah, okay. But it's -- but it's not --
9 it's not -- technically, it's not an unsupported roof?

10 MR. TRAVES I think you're right, Mr. Commissioner.

11 COMMISSIONER Yeah.

12 A. Yeah. Now I may, when I mentioned -- when I talked
13 about the Wongawilli, that because of this difficulty of
14 having these narrow pillars, the Australians usually, I'm
15 not saying never, usually don't cut on both sides, but
16 just take it off from that side and they use this self-
17 advancing hydraulic support to protect themselves against
18 an overrun of roof.

19 MR. TRAVES Dr. Salamon, then and you've raised this
20 Wongawilli, what would you say would be the average
21 length of a pillar in the Wongawilli method then?

22 A. Oh, about 60 - 80 meters, maybe onward a hundred.

23 Q. Maybe alongwards of 100?

24 A. I don't think I've seen even as much as 100.

25 Q. And the long --

DR. SALAMON, EXAM. BY MR. TRAVES

1 A. 80 is probably would be a fairly common --

2 Q. And the longer that pillar, the --

3 A. The more vulnerable you are.

4 Q. -- the more vulnerable, the less of the safety
5 factor there is.

6 A. Yeah, sure.

7 Q. That's one of the dimensions?

8 A. Yeah, sure. You know, one thing which -- for
9 example, when we calculate safety factor, the time factor
10 we don't take into account. So that's why I say a long
11 pillar, when it has a less than one safety factor
12 because all these pillars are less than one. You have to
13 ask it to stand for a long time, it has less chance of
14 success than to date for a short time.

15 Q. Yes. And would that not -- the length of time that
16 it stands as a 12-meter pillar now, where you are using
17 the first example on the flip chart which is the
18 depillaring sequence from Kilborn, those -- the length of
19 time is a factor of the length of that piece that's being
20 cut, the 30-meter square?

21 A. Yeah, that's why they did it this way, and I think
22 most people do it in a similar fashion. Although, as I
23 tried to emphasize, room-and-pillar mining and especially
24 the depillaring part of room-and-pillar mining is done
25 in, oh, 50 different variations. So there are -- I can

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1 show you reports where page after page, how many -- you
2 could be amazed how many variations is possible in a
3 simple -- what is appear to be a very simple thing.

4 Q. And another difference between the two that we are
5 just discussing would be that in this instance you are
6 retreating from the top, in this case which we're looking
7 at as your second diagram, if you will, based on the
8 Southwest Alternative 2, that you're retreating and you
9 have a gob being created on your shoulder on the right-
10 hand side, whereas in the Kilborn you're retreating with
11 a gob being created directly in front of you. There's a
12 -- that's another difference between the two of them.

13 I'm just -- the gob that you've drawn on this diagram is
14 on the right-hand side, parallel -- well, actually
15 "parallel" isn't the right word, but it is on the right-
16 hand side of your pillar headings, whereas in Kilborn, at
17 22, tab 1, as you've drawn it in the previous diagram,
18 your gob is being created in front of you. You're
19 retreating away from the gob rather than drawing a gob
20 along your side with you. Is that not correct?

21 A. I'm not quite sure I see the significance.

22 Q. Well, the facts --

23 A. Well, factually, you're correct.

24 Q. Yes.

25 A. But I mean, you're using different words just to

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1 describe the same thing.

2 Q. All right. So if I could get you to turn to 122,
3 tab 2, we've provided, for illustrative purposes only,
4 this article "Mine Metals and Fuels" article. And I
5 would just like you to -- I'd ask you, have you had a
6 chance to review this article?

7 A. Yes, I had a quick look at it. Yes.

8 MR. MERRICK Just for the record, can I ask if this was
9 the article presented as part of the presentation to the
10 Department by Westray?

11 MR. TRAVES Not to my knowledge.

12 MR. MERRICK All right, thank you.

13 MR. TRAVES I'm just using it for illustrative
14 purposes --

15 MR. MERRICK All right.

16 MR. TRAVES And this diagram here, if we -- on the
17 top-hand side of page 4 of the article is illustrative of
18 this Wongawilli system of mining, correct?

19 A. Yes, it's headed so.

20 Q. And there's some comparison or I suppose there's
21 some similarities between this and your diagram with
22 respect to your understanding of Southwest Alternative 1
23 and a way of coming back?

24 A. Yeah, I said, crudely speaking, it is the same
25 thing.

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1 Q. I beg your pardon?

2 A. Apart from my inadequacies as a draftsman, it's the
3 same thing.

4 Q. It's the same thing. Yeah. And as you've
5 indicated, the -- this particular system of mining has
6 been in existence for over 30 years. The difficulty with
7 it is that -- is with the size of the fender pillar?

8 A. That's right.

9 Q. Correct?

10 A. That's what I was emphasizing also.

11 Q. And I think that's fair. And you've emphasized that
12 again today in your drawing of this system, that you're
13 left with a pillar which could be in the vicinity of 6
14 meters, more or less, as you're retreating?

15 A. I think somewhere in this article it mentions a
16 figure --

17 COMMISSIONER Where is the fender pillar on that diagram
18 on page 4 of the -- oh, on this one.

19 A. The little -- little fellow, little thing there.

20 COMMISSIONER Okay, this second line?

21 A. No, that's the entry. That's what you're reading
22 now.

23 COMMISSIONER This one?

24 A. No.

25 COMMISSIONER Oops.

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1 A. This one.

2 COMMISSIONER Oh, in between. Okay.

3 A. Yeah.

4 COMMISSIONER Yeah. Yeah, okay. Thank you. That's --
5 did you want to see where he marked there?

6 A. You know, that diagram is a little confusing because
7 in the dotted line he actually shows the previous entry.
8 So it appears to have actually two entries while it, in
9 fact, it has only one entry.

10 MR. TRAVES So that's a difference between this
11 drawing that you've -- that we've now looked at where
12 there's two entries?

13 A. Yeah. Here I tried to put forward interpretation of
14 Alternative 2.

15 Q. Yeah. And --

16 A. Yesterday I drawn in the Wongawilli which was trying
17 to be the same as this.

18 Q. Yes, and I appreciate that. The article in the
19 paragraph -- let's see, it appears to be the second
20 paragraph under the heading "Wongawilli System" begins,
21 "In the Wongawilli system..."

22 A. Yes.

23 Q. They're indicating there that the place is driven
24 for about 80 meters from the development roadways --

25 A. Right.

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1 Q. -- in the system? " A neighbouring place was driven
2 parallel with the first"?

3 A. Right.

4 Q. That would be two entries?

5 A. Yeah, but just keep on reading.

6 Q. "And separated from it by a fender of coal about
7 five to ten meters wide."

8 A. Right. This is what I was saying that, it's a
9 critical dimension, that.

10 Q. And it would require some degree of testing?

11 A. That's right.

12 Q. And monitoring.

13 A. In fact, I would put limits what I have been just
14 late -- you know, a few weeks ago, in fact, less than a
15 month ago informed. I would put the limits on five --
16 narrow the limits. I would put it probably 6 to eight.

17 Q. So we've got a 6-meter pillar here, and we're saying
18 between five and ten meters wide. No intersections were
19 made and the Southwest Alternative 2 doesn't show any
20 intersections in those drivages, is that not correct?

21 A. Right.

22 Q. "This fender could then be extracted by retreat
23 slicing." Now as I understand it, your diagram there, in
24 terms of if you were to -- just for a minute, if you
25 will, leave aside the retreat slicing in the 12 meter

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1 pillar, that would, in essence, if you will just look at
2 your diagram there, that pillar, the 6 meters, you're
3 taking out the slices as you come back. You're under
4 protected roof because you have a fender on one side and
5 you have the pillar remaining on the other side. A
6 pillar which should be designed to be of sufficient
7 strength.

8 A. Don't forget, the 12 meter pillar is already too
9 small.

10 Q. Well, before the break, Dr. Salamon, we discussed
11 splitting these pillars in Kilborn study longitudinally.
12 And you indicated that, in your view, it would be safe to
13 split that longitudinally.

14 A. That's the danger of misinterpreting one -- you
15 forced me to say that you can do it. I said
16 theoretically you can do it. But I didn't say it was
17 safe or wise.

18 Q. I guess we'll have to check, but as I understood it,
19 and I'm not asking whether it's wise now, but in terms of
20 a depillaring sequence as shown in Kilborn, they're
21 proposing to split this pillar and remaining then with
22 four or two pillars of 12 and a half meters on either
23 side which they would wing out at that point. Is that
24 not correct?

25 A. Yes, I think in pillar extraction, you always go

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1 through this period when your pillar is undersized, the
2 same with Wongawilli. Those fenders are undersized so
3 they are not really strong enough. They have a less than
4 one safety factor. And that's why these are critical and
5 difficult operations.

6 Q. But people --

7 A. And that's why I kept emphasizing several times that
8 I wouldn't put the splits through all those three pillars
9 same time because when you put the split through, you've
10 sufficiently weakened that pillar that is no longer
11 really full strength pillar.

12 Q. And in this instance, we have, as you've drawn it, a
13 fender pillar of 6 meters and then a pillar of twelve
14 meters, which would be roughly equivalent to one of these
15 depillaring sections and then your roadway, and then
16 you've got your pillar, your solid pillar remaining to
17 the left, is that not correct? So it's not three of
18 these 12 meter sections.

19 A. No, but if you read this article you just put me
20 through --

21 Q. Well, we'll just continue, but you would agree with
22 me that we've got, by your drawing here, we've got a 12
23 meter pillar, a 6 meter fender and then above that you've
24 got your solid pillar which we are in the process of
25 retreating --

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1 A. Well, we have a 12 meter pillar, part of which is 6
2 meters wide.

3 Q. This --

4 A. You have 12 meters and part of it is only 6 meters
5 wide. And you have a 6 meter fender.

6 Q. And -- all right, and how would you then create the
7 6 meter pillar to move up to the next section if you
8 didn't already take some of that area out as you
9 retreated out in your first heading?

10 A. The way this gentleman shows in his illustration is
11 that you actually drive the second heading a shorter
12 distance, not 12 meters, but less.

13 Q. A narrower pillar?

14 A. Narrower pillar.

15 Q. And that's not quite as safe? It lowers the factor
16 of safety.

17 A. Well, there is, as I said, you can't get away that
18 for a part of the time you will have a narrower pillar.

19 Q. But in this case, a 12 meter pillar -- could I
20 suggest to you that by retreat slicing coming back I
21 could rob my 6 meter fender, which you've drawn on the
22 left, and yet still create a new fender on the left, and
23 that would in fact be a relatively safe means of caving
24 that area, as safe as caving can be.

25 A. I think the only way I can answer this is trying to

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1 put in some kind of safety categories. And under good
2 conditions, it is possible that you could achieve it.
3 But the problem with doing the slicing both ways, that
4 you -- when you do it, you have a 6 meter here, 6 meter
5 here, and a 6 meter here. You advance your cut line by
6 18 meters in one step. If you slice only one side, you
7 only do it 12 meters. So you have a situation where this
8 is -- using only one side is a lesser of the -- how shall
9 I say that I'll make myself clear? All I'm saying that
10 essentially by slicing both sides and having this on top
11 of it already there, we making the hazard a little more
12 or somewhat more, I don't know, little or -- somewhat
13 more.

14 Q. But as you've indicated, it's the pillar which is
15 the area of difficulty in this method of mining, the
16 Wongawilli method, and --

17 A. You know, these two --

18 Q. And if -- sorry, if I've driven it, if I've created
19 a 12-meter pillar in the center, similar to these ones
20 created in Kilborn, I would want to then shape my
21 remaining fender pillar very carefully. I would want to
22 come up with something which is going to cave but which
23 will still provide me with my fender on the other side.
24 And it is possible, would you not agree, that I could
25 create that while still working under protected ground,

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1 by stripping out a portion of the 12-meter pillar from
2 below?

3 A. As I said, under extremely good conditions which,
4 first, they didn't have, you probably could get away with
5 it.

6 Q. But Westray's conditions that they didn't have were
7 up in the Southwest section, and we've followed now down
8 dip. This is relatively deep mining, is it not?

9 A. Which wouldn't make it any easier.

10 Q. And if we look at the fault lines which are included
11 on the Southwest Alternative 2, on the top of the chart,
12 they indicate that the two major fault lines are drawn
13 sort of across the center of the page there at the very
14 top of this panel. They're coming from the top of the
15 page down. It shows a line which is marked "faults" and
16 down and below that it says "45 percent ash line" and
17 then a second fault line down right there, it runs -- it
18 defines almost the edge of that panel, does it not?

19 A. Well, certainly I -- probably these will never be
20 able -- it will never be done here.

21 Q. And below that, if I could, while you're there --

22 A. There's a fault here too.

23 Q. There's another fault line?

24 A. Yeah.

25 Q. -- which runs pretty much parallel to the end of the

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1 development driveways, does it not?

2 A. Well, I'm sure that's was their intention of turning
3 those to get -- not get into that fault. I suspect
4 that's probably was the reason. I'm not sure. I
5 shouldn't say that.

6 Q. Because Westray was aware that they had poor roof
7 conditions.

8 A. Yeah.

9 Q. All right, so we've said that the fender could be
10 then extracted by retreat slicing. This is the pillar
11 that you've drawn and that the miner would extract it in
12 the same method that they would extract any other pillar.
13 They would wing out the pieces so that they would ensure
14 that they'd take as much coal as they possibly could so
15 that the fender would collapse. Is that not correct?

16 A. Well, you are taking out the fender, so it would
17 collapse. I mean, it wouldn't be there to collapse.

18 Q. It wouldn't be there to collapse.

19 A. The only little remnants of it would be left there,
20 so there would be no problem there. That wouldn't stay
21 alive. But I still have to say that by putting in the
22 second [road?] in advance, even if it is 12 meters away,
23 and by cutting them both ways, you're actually
24 diminishing -- you're making it more difficult.

25 Q. In fact, you just indicated a minute ago that you

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1 run the risk that that top part of what you've drawn at
2 the heading of that 12-meter pillar, which is now 6
3 meters wide because you've taken some below it, could in
4 fact fail?

5 A. That's right.

6 Q. Right, and at that point then basically what has
7 happened, I would put it to you is that you're not able
8 to mine that or to strip that part out. You would only
9 be able to advance along that heading as far as there was
10 a fender on your side, correct?

11 A. Well, the problem is once you lose part of the
12 fender, what we are saying that (a) there -- saying, for
13 example, this might fail, so suddenly the caving progress
14 is forward to that wall here or that "H". Then at the
15 same time this might fail also, and then you're
16 endangering the people who might be working there.

17 Q. Well, let's take one step at a time because if the
18 first part fails there, the 6 meter you've got marked at
19 the top of the 12 meter on your diagram, if that fails,
20 in essence, we've got it even closer to the type of
21 retreat depillaring in the Kilborn sequence. We're
22 coming back now; we have a 12-meter pillar --

23 A. Yeah, well, we know it because we had the 6 meter
24 wide fender. We can't wish it away. And when you have -
25 - you know, when a caving like that occurs, I don't know

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1 whether you experienced it -- I have -- it's quite a
2 significant noise, movement -- thousands and thousands of
3 rocks move. And it is possible that that might occur.
4 I'm not saying it will, but it is a possibility. So why
5 make that -- why not have that wall solid here? I mean,
6 there's nowhere but nowhere you can explain to me that if
7 I leave this solid here and this is all solid, that's not
8 safer than what I've got here. It's nowhere you can
9 explain that.

10 Q. But it is possible to depillar that area and allow
11 it to cave by cutting a 12-meter wide pillar the same way
12 as Kilborn does and then retreating out, creating a
13 fender. And if the fender fails, which it is intended to
14 either be robbed or to fail, I would then drive new
15 entries.

16 A. Now the fender is not intended to fail. It's
17 intended to be taken out because that's the mining
18 system. If it fails prematurely, you're actually lost.
19 You might lose a machine or people.

20 Q. That's a poor choice of words, but if it fails, that
21 could happen at any time in the depillaring sequence.
22 That's part of the risk of caving. That is the issue
23 that is going to happen.

24 A. I said it many times and I have to repeat it again
25 that this pillar extraction inherently hazardous

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1 operation, that there are hazards. But what I'm really
2 saying or pleading for, don't magnify the hazards by
3 taking that weakness, creating that weakness here and
4 leave me having that already there. If I have this --
5 let me just put it in red so you know what I mean -- that
6 if you have that solid like this and have that like this,
7 it is hazardous, but nowhere near as hazardous as this
8 one. And I think I can't really say anything more,
9 Mr. --

10 Q. I'm just going to finish this point that in that
11 same paragraph, "During this operation, the machine and
12 its operator were protected by a solid mass of coal on
13 one side (and this is in the Willawongi [sic] method) and
14 a residual fender on the other. And you had pointed out
15 that there is a difference, that in this case there is a
16 12-meter pillar, which is similar to a 12-meter pillar
17 which would be on your side as you retreat in the Kilborn
18 three-entry. And that it might be safer in caving that
19 if it was a solid pillar. But this is another method of
20 approaching it similar to the three-entry system,
21 correct? Perhaps I've got too many points in there.

22 A. I'm not quite sure what your question is.

23 Q. In the Willawongi [sic] how do they pronounce it,
24 Wongawilli, "During the operation of retreat slicing, the
25 machine and its operator were protected by a solid mass

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1 of coal on one side and a residual fender on the other."

2 Correct?

3 A. And if you meant to say, I can add that in this case
4 you don't have that because you removed the solid side --
5 solid coal.

6 Q. That's right, you have a 12-meter section which is
7 to be --

8 A. Plus a heading.

9 Q. -- which is to be narrowed to 6 meters, in essence,
10 to create a new fender, or perhaps to create a new
11 fender, if you will.

12 Dr. Salamon, I'm going to move on from this section
13 that was presented to the department, and we'll leave it
14 to Dr. Jones, I suppose, who it was presented to, to
15 finish off with, I mean, his view, obviously, which may
16 differ with yours in terms of the relative safety. You
17 have indicated that it could be mined in this fashion.

18 I would like to ask you, have you -- when you
19 prepared your report, this morning you indicated that you
20 felt you had not, to the best of your recollection, you
21 had not read the John T. Boyd Company --

22 A. Since that time I have received a copy of it, so I
23 had a quick -- had a chance to quickly peruse it.

24 COMMISSIONER Is this the Boyd report that was prepared
25 jointly by the Province -- for the Province and the Feds?

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1 MR. TRAVES No, Mr. Commissioner. This is a report
2 which, I only have a draft, which was provided by
3 Commission staff this morning.

4 COMMISSIONER So it's not the --

5 MR. TRAVES No, and I don't know if we have an exhibit
6 number for it.

7 MS. MACDONALD It will be Exhibit 122, tab 6.

8 COMMISSIONER 6?

9 MS. MACDONALD It's not provided to the parties yet.

10 MR. TRAVES And I just wanted to briefly touch on
11 this. It's a report dated -- draft, sorry, January 6,
12 1992, and it's entitled "Roof Stability and in situ
13 stress at Westray Coal, New Glasgow, Pictou County." And
14 you've indicated that you did not review this at the time
15 that you prepared your report.

16 It deals with a number of issues. I might just
17 briefly point out what they are: horizontal stress, I
18 think -- sorry, let me back up. The headings, page 2 is
19 mine inspection. It indicates that they visited the
20 mine, is that not correct?

21 A. Yes.

22 Q. They have an area dealing with horizontal stress
23 where they've set out their views with regards to
24 horizontal stress?

25 A. Yes.

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1 Q. They address other roof instability factors?

2 A. Page 4.

3 Q. Page 4. And they're referring in there to Golder's
4 reports and the tests that they've run on the original
5 volume of shale and mudstones. They've indicated that
6 they have reviewed or looked at other similar operations,
7 on page 5?

8 A. Yes.

9 Q. Page 6 they look at Westray's roof control
10 procedures.

11 A. Yes.

12 Q. And I note there that they indicate in the second
13 paragraph Westray has also experimented with leaving roof
14 coal. This has met with limited success.

15 A. If you read on.

16 Q. Yes.

17 A. "This success is likely due in part to the coal
18 protecting the shales and mudstones from minor humidity
19 changes. The coals in this deposit are less susceptible
20 to humidity changes, judging from the report, the
21 [stake?] durable tests" et cetera and so forth.

22 Q. It's a well reasoned report, it sounds.

23 A. That's what one would expect. In fact, several
24 other consultants suggested to leave coal in the roof, to
25 protect it. Don't expose that shale, in other words.

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1 That's very fine, vulnerable, friable shale.

2 Q. They deal with this issue of controlling horizontal
3 stress. They mention yield pillars which you discussed
4 in your report? In the middle there, it says "This
5 apparent paradox can be solved by a yield pillar"?

6 A. Yes, I see it, yes.

7 Q. They say that the support system used is also of
8 importance.

9 A. Right.

10 Q. And that the design approach to the existing support
11 system requires knowledge of the rock strength and
12 behaviour obtained from laboratory and in situ rock
13 testing.

14 A. Yes.

15 Q. They review different approaches, Australian, the
16 beam and the arch?

17 A. Yes.

18 Q. And they go on with recommendations and they discuss
19 the advancing into the reserve.

20 A. Where are you?

21 Q. I'm now, sorry, on page 11.

22 A. Right.

23 Q. And we understand from the Kilborn report that the
24 reserve is the Southwest, is the location in the
25 Southwest area. That and other evidence?

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1 COMMISSIONER What was that again?

2 MR. TRAVES They're talking in John T. Boyd, on page
3 11, of this advancing into the reserve. And perhaps, and
4 I'll ask Dr. Salamon, is it your understanding then from
5 Kilborn and the other documentation that the reserve was
6 in fact this area that they had gone into in the
7 Southwest area?

8 A. That the reserve?

9 Q. That the reserve being referred to by John T. Boyd,
10 where do you understand that to be?

11 A. I must confess I'm not sure from this sentence where
12 they're referring to. But ultimately it must be the
13 mine's property. In other words, if there is nothing
14 specific to say where, then they probably refer to the
15 mine's claim.

16 Q. On the claim. And they say on the first sentence
17 there, to control horizontal stress as the mine advances
18 into the reserve, it's best to advance several entries
19 using small or yielding pillars.

20 And I just bring that forward because I thought it
21 would --

22 A. I would like to make a comment since you raised this
23 about this report. But when you're finished.

24 Q. No, my reason for bringing the report forward is
25 because it wasn't mentioned in your report and it seems

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1 that John T. Boyd is a company which you've agreed is,
2 you know, one with significant experience and which, this
3 may be fairly significant in terms of the recommendations
4 which they're putting forward. And it may have some
5 impact, perhaps, on what the company knew or what they
6 were doing at the time. The company, if you'll see on
7 the front page, purchased this, did they not? I mean,
8 this doesn't come cheap.

9 A. I don't know; I must confess.

10 Q. You don't know what the price is and that's fair,
11 but in general terms, they've actually gone out and hired
12 John T. Boyd under a purchase order No. 4040, which I see
13 referred to on the front page, and began authorization on
14 December 14, 1991.

15 A. Yeah, perhaps if I may comment on it since I haven't
16 commented on this report before. May I?

17 Q. Yes, certainly.

18 A. First of all, I just want to put it on record that
19 now we have, you know, of the list of consultants which I
20 really counted, this would be the sixth. At the time I
21 didn't see it. And now this puts balance to fifty/fifty
22 percent. I have to put that on record, because T. Boyd
23 also recommends small pillars.

24 Now if you turn to page 6, they actually talk about
25 -- top, first paragraph, it's the second sentence. Yeah,

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1 in fact, second sentence, "Of particular success is the
2 use of small pillars and sliding -- sling supports,"
3 sorry. So in December and January -- their visit took
4 place in December and the report was apparently dated in
5 January. They already are aware of the success of tests
6 or make observation about using small pillars. And they
7 put forward the argument for the use of small pillars.
8 In fact, the first paragraph is in support of the small
9 pillars.

10 And on page 7, the first paragraph again, under the
11 heading "Controlling Horizontal Stress," there, one, two,
12 three, fourth sentence is "This apparent paradox can be
13 solved by yield pillars." And when the yield pillar does
14 yield, the effective opening is the span of the two
15 original opening plus the yield pillar widths." And "The
16 yield pillar supports this large opening by acting as a
17 crib."

18 And somewhere else again they put forward that the
19 yield pillar should be used. So one point I would like
20 to make that this adds to the confusion, that there are
21 several people, some say this and others say that. But
22 that's not the more important issue. I think the more
23 important issue that -- and I don't like to do this, I
24 must confess, because it's a critical comment on a
25 colleague. But in my quick glance through the report, I

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1 don't see anywhere that they put up the caution that this
2 can only be done with a limited span because if you
3 use --

4 Q. I'm sorry, Dr. Salamon, "can only be done with a
5 limited --"

6 A. Span.

7 Q. Span?

8 A. In other words, over the widths of your excavation
9 from the -- two or three entries.

10 Q. The width of the panel?

11 A. Width of the panel. And that's what the problem has
12 been with the Westray 1 panel, that they did it too wide.
13 Because the yield pillar, by definition, as I explained
14 in November, is a pillar which, as it yields, it loses
15 its load-bearing capacity. So if you have a span which
16 is too big, these pillars will yield but at the same time
17 the overall roof will be called upon to bridge more and
18 more and, of course, there is a limit how much that roof
19 can bridge.

20 So if I'm correct and if I overlooked it somewhere,
21 I apologize, because I haven't had the chance to read it
22 carefully enough and perhaps I should. But I felt that
23 it need to be said that one of the things which is
24 missing from their advice is a caution.

25 Q. So it would appear that from this possible confusion

1 they've now gone to in January the Southwest 1 District
2 which was not approved by the Department of Natural
3 Resources?

4 A. No, to my knowledge it hasn't.

5 Q. Okay. You --

6 COMMISSIONER Doctor, with respect to the Boyd report
7 now, I would just like to say on that, you have some
8 hesitation about making a comment on it because --

9 A. Well, you know --

10 COMMISSIONER Just let me finish. Because of your
11 unfamiliarity with it. What --

12 A. Well, there are two reason, one is, you know, one
13 professional to another; one is not easily criticizing a
14 colleague's report.

15 COMMISSIONER But what I'm going to suggest to you, if
16 you, you know, sometime in the next few weeks, if you
17 have reviewed the report and have further comments, if
18 you would reduce them to writing I would see that they're
19 circulated to all parties.

20 A. I would appreciate that.

21 COMMISSIONER Okay. Well, we'll do that.

22 MR. TRAVES And perhaps just following on that, Mr.
23 Commissioner, there may be some benefit, wouldn't you
24 agree, Dr. Salamon, to having an opportunity to see Mr.
25 Waugh's evidence with respect to perhaps any discussions

1 that they may have had with John T. Boyd, because in
2 addition to the written report, there may have been some
3 more information?

4 A. Yeah, I think -- Mr. Waugh, you were referring to?
5 David Waugh. He actually might have, in fact, quite a
6 number of information which would help in removing some
7 of the speculations we've been exercising here.

8 Q. And we have been exercising some speculation?

9 A. Mmm.

10 Q. Yes. I'm just going to -- a couple of points, Dr.
11 Salamon. You indicated yesterday that in terms of the
12 planning of this mine, Placer rejected the
13 longwall/shortwall without carrying out any further study
14 in a geotechnical sense and that this occurred?

15 A. At least I haven't seen what they have done.

16 Q. John T. Boyd did another study, I believe, in 1994.
17 A joint study, I think, that the Commissioner referred to
18 and it is in Exhibit 26. Could I just ask you to have a
19 quick look at that?

20 A. Ninety -- in 1994?

21 MR. TRAVES 1994, yes.

22 COMMISSIONER Mr. Merrick, would Dr. Salamon have had
23 that?

24 MR. MERRICK He's just getting it.

25 COMMISSIONER No, but I mean would he have had it?

1 MR. MERRICK Yes.

2 COMMISSIONER Oh okay. Yeah, thank you.

3 MR. TRAVES You've seen this report, Dr. Salamon?

4 A. I'm not sure whether I would have been asked to see
5 it because it's post -- have I been asked to see it?

6 MS. MACDONALD No.

7 A. It's a post-accident report so I don't think I've --
8 could have been asked to see it.

9 Q. Well, perhaps then, if I --

10 COMMISSIONER That's what I was asking.

11 MR. TRAVES I did give notice to Commission counsel
12 last week that this was one of the documents. I believe
13 it was at the end of last week. But, in any event,
14 perhaps if -- I'm only going to make one or two very
15 quick points in this, Mr. Commissioner. It's indicative,
16 certainly, Dr. Salamon, that there was another study done
17 of this mine post-explosion?

18 A. Well, this presumably is the outcome of that study.

19 Q. Right. And the general statement at page 1.1 sets
20 out the tasks undertaken during the study? If I could
21 get you to just turn to that briefly. The third last one
22 from the bottom indicates "John T. Boyd is to develop a
23 mine plan with supporting production, capital and
24 operating costs..."

25 A. That's right.

1 Q. "...at this time"?

2 A. Yes.

3 Q. Based on all the experience and knowledge which
4 would have been obtained to that date, we assume?

5 A. It's the very first of that list you mention says
6 "Assemble. The following tests were undertaken during
7 our study, assembled and reviewed reports previously
8 completed on Westray." I quoted here; it doesn't quite
9 make sense, but I'll quote it. "Interview..." oh okay.
10 That this is what they had carried out. They assembled
11 and reviewed reports and interviewed people familiar.

12 Q. Right.

13 A. So they haven't actually carried out any original
14 work but made use of the knowledge gained earlier.
15 That's what you infer.

16 Q. In your view and with your knowledge of John T.
17 Boyd, do you think that they would develop a mine plan
18 with supporting production and capital and operating
19 costs --

20 A. Well, depends on --

21 Q. -- unless they were comfortable with the information
22 that they had?

23 A. Well, it depends what was asked of them. And they
24 stated up front what they did, so presumably the owners
25 didn't provide the money to carry out anything original,

1 they only provided the money to carry out a review of
2 what was -- had already been done.

3 Q. Well --

4 A. You know, it depends what terms of reference given
5 to the consultant is. If you are told you get X thousand
6 to carry out a review, well, that's what you do.

7 Q. Dr. Salamon, on the cover page, I just point out,
8 that this plan -- or sorry, this report was prepared for
9 Industry Canada. Federal Government of Canada. Okay.
10 It was not prepared for the mine owners per se.

11 A. Well, sorry. I mean --

12 Q. Just to clarify.

13 A. -- whoever is the client. I should have said
14 "client."

15 Q. And I don't believe that I got an answer to my
16 question that in your view, knowing what you know of John
17 T. Boyd and their reputation, do you believe that they
18 would prepare a mine plan, and put forward a mine plan,
19 without having all of the information which they felt
20 necessary?

21 A. I would have read the terms of reference which they
22 un -- they took -- they were asked to do. You know,
23 to --

24 Q. Well --

25 A. It's a legitimate request by the client, a

1 government or a company to say that there is little work
2 that has been about this, see what you can do on the
3 basis -- assemble what previous people have done and try
4 to see what you can do with it.

5 Q. If --

6 A. Or you can say do a study and throw out the plan and
7 get the information which is necessary. The costs will
8 be very, very different.

9 Q. Could then I approach it just and say that if John
10 T. Boyd were under these restraints, it's likely that
11 they would indicate that as being one of the factors?
12 Similar to some of the other reports we've said that have
13 had time constraints or whatever?

14 A. Well, in my view they do because they list where the
15 informa -- what was the source of the information.

16 Q. Well, in fact, they say at the heading "The
17 following tasks were undertaken," and they say,
18 "developed a mine plan with supporting production,
19 capital and operating costs." There's no qualification
20 that you're aware of --

21 A. Well, there is a qualification --

22 Q. -- in this report?

23 A. -- in the beginning. If you read from the
24 beginning. "Assembled and reviewed reports previously
25 completed on Westray. Interviewed individuals familiar

1 with the geology, technical, managerial, et cetera.
2 Visited the mine surface facilities. Met with the Union
3 representative. Met with NSP." Nowhere here mentions
4 that they carried out anything and I can only presume
5 that this is exactly what they asked to do.

6 Q. Okay, so they're asked to develop a mine plan and on
7 page 6.2 they set out a mine method. And I put it to you
8 that they set out the following:

9 "Production forecasts for continuous miner units
10 using the room-and-pillar method of mining assumed
11 prudent and proven practices typical for mines operating
12 in thick coal reserves. Room-and-pillar methods offer
13 flexibility to cross faults and adjust to other varying
14 ground conditions."

15 And they go on: "Boyd does not consider longwall
16 mining to be a viable alternative for Westray." That's
17 their view?

18 A. And I agree with them. In fact, when I teach the
19 choice of mining method, I always make the warning that
20 only in exceptional situations should really a mine
21 prepare only for longwalling because it has to be very
22 undisturbed geologically to be able to do all its mining
23 with using longwalls. Usually what you have to do is a
24 combination because some part of the reserve will not be
25 accessible by longwalls.

1 Q. Because I had understand [sic] your evidence to be
2 that you felt that perhaps the more appropriate method of
3 mining at Westray would have been a longwall system,
4 perhaps in a shorter panel?

5 A. No, I think you --

6 Q. Am I --

7 A. -- must have misunderstood. What I --

8 Q. I must have.

9 A. -- just simply said that the original study sponsors
10 or all the original studies contemplated longwall and
11 then when they left that longwall and shortwall idea,
12 they did not redo the study. I wasn't commenting on the
13 -- at least as far as I recall, I wasn't commenting -- I
14 wasn't saying that that was a wrong thing to do. I just
15 said if you do make a change in the mining method, then
16 you have to re-evaluate and possibly carry out additional
17 geological study.

18 COMMISSIONER Doctor, would you have agreed with Boyd if
19 he had said there that he did not consider shortwall
20 mining to be a viable alternative?

21 A. It's a difficult thing to answer, but in practice we
22 talked about shortwalls for a long, long time but very,
23 very few people actually do it. So I can understand why
24 people, in a case like that don't recommend it. Because
25 one always will -- why is it not successful? So

1 something must be wrong with it. It hasn't really been
2 tried. The British Coal, the British people, have sure
3 done it. And, quite frankly, often the rest of us felt
4 that they can afford it because they're a nationalized
5 industry, but --

6 COMMISSIONER It looks very cumbersome.

7 A. It is, yeah. Because you have all that equipment
8 and relatively small take of coal.

9 COMMISSIONER Yeah. Okay. Sorry.

10 MR. TRAVES So John T. Boyd is confirming Placer's
11 decision and they're not suggesting that they require any
12 further study, in the geotechnical sense?

13 A. Well --

14 Q. You're --

15 A. But there was no point for them to suggest. If they
16 were asked to do it on the basis of available
17 information, that's all they're -- you know, there is a
18 fundamental difference that if you want to do this as an
19 original study, you have to get a much bigger budget --

20 Q. You don't --

21 A. -- because --

22 Q. -- know their budget?

23 A. -- this way they probably only had to pay for the
24 time of their consultants. While if you want to do a
25 proper -- well, obviously, we know that that word, a more

1 full or original study, you have to do some original
2 drilling and so forth or seismo -- geophysical work, all
3 of which would be much, much more expensive. So I --
4 having not seen the actual commissioning of this, I would
5 be very surprised that they were not restricted to a very
6 fairly limited amount of money.

7 Q. I just -- on page 1.2, if I could read to you, the
8 fi -- the penultimate paragraph which was -- at the
9 bottom of the letter, signed by the president of the
10 company, "The findings and conclusions of this report are
11 considered reasonable and prepared following accepted
12 engineering practices. Reliability of the estimates and
13 projections are subject to the accuracy of the underlying
14 source data."

15 A. Well, there is -- this is where your caveat is.

16 Q. But there's nothing there saying that they feel
17 uncertain that they need to go any further?

18 A. Well, they --

19 Q. I'm sorry?

20 A. What would you read into when somebody says it's
21 obvio -- it's an obvious statement: it cannot be better
22 than the data they had. So they essentially confirm what
23 I said that they used the data what was available, and if
24 that's not good, then that's not -- this is not good.

25 Q. Dr. Salamon, you indicated yesterday that you had

1 reached some conclusions and views on whether the seam is
2 economically viable using a room-and-pillar method. And
3 the issues that you set out, I'm not going to review them
4 again. We've heard them several times and they're in
5 your report, I think. And they start with the depth of
6 the seam and the thickness of the seam and those sorts of
7 issues.

8 I notice that -- or I just ask you: surely, that to
9 do a full review on whether it is actually economically
10 viable, you would at least need to know the price of
11 coal? That would be one of the variables.

12 A. Look, I emphasized it in a competitive -- remember,
13 when I made the statement that I'm referring to the
14 competitive market. And by saying that, what I was
15 implying without explaining there, I didn't explain it
16 properly, what I was implying that you have to compete by
17 commercially active companies and not -- I remember
18 saying that you're not -- I was not assuming a protected
19 market which would be if you have a long-term contract
20 with a power plant, for example. Now if you want to sell
21 into a competitive market, you have to be better than the
22 next guy. Or at least as good as the next guy. Or not
23 too much worse than the next guy. And that's really what
24 I used -- and it was a very qualitative statement. It
25 wasn't --

1 Q. And it's not the market that, in fact, Westray had?

2 A. Sorry?

3 Q. It's not, in fact, the market that Westray had?

4 A. Well, that's why I emphasized that I was referring
5 to the competitive open market.

6 Q. Dr. Salamon, you indicated that in your view the
7 testing that was done with respect to training
8 qualifications of the miners at Westray was done in a
9 "loosey and goosey fashion" was your phraseology, I
10 believe. Or it could have been Mr. Merrick's --

11 COMMISSIONER It was --

12 MR. TRAVES -- and you adopted.

13 COMMISSIONER -- Mr. Merrick's which --

14 MR. TRAVES Which was adopted.

15 COMMISSIONER -- the Doctor agreed to. I can't really
16 picture him using that expression.

17 MR. TRAVES I didn't think so, but I had failed to
18 note exactly whether it was adopted or actually stated.
19 Would you agree with that?

20 A. I can't really say that's -- if I agreed to it, I
21 was a bit tired maybe. But -- because I really don't
22 know. That's the truth of it. It might have been
23 excellent; it might have been terrible. But in the
24 course of my involvement, I don't recall. I really -- I
25 may have even seen some document, but I certainly didn't

1 focus on it at all.

2 Q. And -- but you did say that certificates have got to
3 be seriously considered by the regulatory body? That --

4 A. That I feel very strongly about. In other words --
5 my implication was, because I've seen it recently, that
6 people are given certificates for really trivial things.
7 And as a result the whole system is being undermined
8 because, you know, you are -- I'm really -- something
9 silly and that's really what I was inferring. I didn't
10 say that this happened in Westray --

11 Q. No.

12 A. -- I just said that --

13 Q. And that's my point.

14 A. -- as a general comment.

15 Q. That's my point. You haven't reviewed the Board of
16 Examiners' records or the --

17 A. No.

18 Q. -- procedures or any of those things?

19 A. Dr. Salamon, I'd like to just sort of finish by
20 taking a few minutes to raise an issue with you which is
21 of some interest to the Province, obviously, and that was
22 your involvement with the Commission in South Africa.
23 And, in particular, you indicated yesterday that the
24 Commission recommended health and safety legislation on a
25 three-level basis, that you would have an overriding Act,

1 which I think is an enabling Act --

2 A. Yeah.

3 Q. -- in your terminology. And this would deal with
4 the duties of the main participants in the industry and
5 their respective fields of responsibility?

6 A. And various other things. But they're really
7 dealing with the basic principles of the whole problem.

8 COMMISSIONER Mr. Traves, may I make a point with you --

9 MR. TRAVES Yes.

10 COMMISSIONER -- at this time? The Inquiry has in its
11 possession a copy of the South African report upon which
12 the proposed legislation is being based. I'd certainly
13 be prepared to provide a copy of that to you at any time.

14 MR. TRAVES I -- actually, I believe, Mr.
15 Commissioner, that we provided the copies originally, but
16 I --

17 COMMISSIONER Oh, I don't think.

18 MR. TRAVES The South --

19 MS. MACDONALD Justice Richard [Inaudible]

20 MR. TRAVES Oh, I apologize.

21 COMMISSIONER I got them directly, yeah.

22 MR. TRAVES We have offered that --

23 COMMISSIONER Oh, I see.

24 MR. TRAVES -- I think, to the Commission that we have
25 it as well.

1 MS. MACDONALD And you did provide it.

2 MR. TRAVES And we did provide it. Thank you. Dr.
3 Salamon, yesterday I asked if you would review the
4 Occupational Health and Safety Act --

5 A. And last night I did so and I was -- well, one of
6 the impressions which I gained reading this that it's
7 amazing how the world is developing together. That -- I
8 don't recall we had any information from Nova Scotia, I
9 must confess, but we certainly had the information from
10 Canada. And I'm sure that our report was influenced
11 significantly by Canadian and other countries' work in
12 this area. So it's a system which I think it works quite
13 well, that countries do learn from each other and take
14 advantage of --

15 Q. So in your view, the system which is being proposed
16 in South Africa now is very similar to the system which
17 is set out --

18 A. In many ways it's very similar. What actually
19 occurred to me and it's not for me to ask questions, but
20 it seems to me that this Act puts all safety and health
21 into -- under one umbrella, isn't it?

22 Q. Yes. Occupational Health and Safety.

23 A. So, in other words, mine safety as well?

24 Q. Yes.

25 A. So there -- will this Act in fact illuminate this

1 problem I referred to of split responsibilities and --

2 Q. Well, if I could just turn you to Section 50 -- no,
3 let's see --

4 COMMISSIONER The short answer is no, isn't it, Mr.
5 Traves?

6 MR. TRAVES Actually, if I could -- I'd like you to
7 have a look at 122, tab 4, it sets out -- this is the
8 report, the [McKeough?] Commission report, special
9 committee on Occupational Health and Safety which
10 established this legislation in 1984. And that's at 122,
11 tab 4.

12 And if I just get you to turn to page 2 and see the
13 recommendations. "It is recommended the Department of
14 Labour and Manpower be the lead agency in the
15 administration and enforcement of occupational health and
16 safety..."

17 A. I read this report. And that's why -- I assumed but
18 I must say I didn't read the Act totally enough. Because
19 we had this debate, and we went somewhat to the contrary
20 of your decision for a simple reason that is part
21 historical and a factual difference that the mining
22 industry is so important to South Africa that our
23 recommendation was to keep the mine safety health out of
24 the general umbrella of safety and health legislation.
25 And it seems that's what the South African government is

1 going to implement. That there will be a OHSA-type --
2 like the American OHSA for --

3 Q. Like in Nova Scotia?

4 A. Pardon?

5 Q. Like in Nova Scotia.

6 A. And is it what you have done also? Well, like --
7 that's right, like Nova Scotia. And then there would be
8 a mining --

9 Q. And this particular legislation is a decade old now
10 in Nova Scotia. Yes. And if I could, in answer to the
11 Commissioner's point, that Section 48, I think, sets out
12 that any regulation order or direction made under Chapter
13 52 or 141 of revised statutes of metalliferous mines or
14 the Mineral Resources Act or any other Act related to
15 occupational health and safety may be enforced as a
16 regulation."

17 And further there's a substituted references section
18 on the second subparagraph of that. "Any reference in
19 any Act of the legislature or in any rule, order,
20 regulation, bylaw, ordinance or any document whatsoever
21 to the Occupational Safety Division of the Department of
22 Labour, the Occupational Health Division of the
23 Department of Health, the Mine Safety Division of the
24 Department of Mines and Energy..." which would at that
25 time encompass the Labour inspectors which were

1 transferred, and so on, "...is held and construed..." if
2 I go -- skip to the bottom, "...to be referenced to the
3 division as defined in this Act."

4 So there is some movement to consolidate the
5 occupational health and safety Labour inspectors under
6 this particular Act, and it then makes reference to other
7 Acts or Regulations to incorporate those, such as the
8 Coal Mines Regulation Act.

9 A. Mmm. Yeah, I think that would be a very welcome
10 step to try to remove the -- you know, when you asked me
11 the question "which inspector," I couldn't, with all
12 honesty, reply to which department should be responsible.

13 Q. And so from reviewing this Act now and last evening,
14 it's fair to say that your comment that there's two Acts
15 and two provincial departments involved in ensuring mine
16 safety did not take this into account?

17 A. No.

18 Q. Yeah.

19 A. I was aware of it, but I must confess I didn't
20 actually read this third Act.

21 Q. And occupational health and safety is the
22 responsibility of the Department of Labour?

23 A. Yes. I've seen it in the Act, yeah.

24 Q. All right. That's all I have, Mr. Commissioner.

25 COMMISSIONER Thank you, Mr. Traves. We'll take 10

1 minutes.

2 INQUIRY RECESSED (TIME - 3:06 p.m.)

3 INQUIRY RESUMED (TIME: 3:20 p.m.)

4 COMMISSIONER Now, Dr. Salamon, I mentioned earlier that
5 I would give you the opportunity to review the January
6 6th memo of John T. Boyd, Exhibit 122, tab 6. I would
7 extend that invitation further to include in that review
8 any relevant portions of the Exhibit 26 which is the Boyd
9 Report commissioned for the Federal Government.

10 A. Thank you.

11 COMMISSIONER And I say "relevant portions" because I
12 would ask you to limit your considerations to any points
13 in that report that are concerned with ground control or
14 strata control. And since you were -- made some comment
15 about the cost of preparing a report like this, let me
16 say that you will only get paid for the part -- your
17 study on the strata control. Okay?

18 A. I'll do it.

19 COMMISSIONER Mr. Merrick?

20 EXAMINATION BY MR. MERRICK

21 MR. MERRICK Thank you, Mr. Commissioner. Just on that
22 last point, Doctor, I've been asked to forward through me
23 to you a question on the John Boyd report. This is the
24 1994 one, that you had glanced at just briefly in your
25 responses to the Province.

DR. SALAMON, EXAM. BY MR. MERRICK

1 A. 26?

2 Q. It's Exhibit 26, that's right. What method of
3 mining was Mr. Boyd considering there?

4 A. Well, as we established earlier, it was room-and-
5 pillar mining. And what I've seen of it is -- looks
6 pretty conventional.

7 Q. All right. And there was no -- "pretty
8 conventional."

9 A. Uh huh.

10 Q. There was no suggestion of a Wongawilli or anything
11 like that?

12 A. I haven't seen it.

13 Q. All right.

14 A. But I must confess I haven't read the full report
15 yet. But I will look out for it in terms of what the
16 Commissioner just said.

17 Q. All right. One other question that I will pass on
18 to you. In the Wongawilli method of mining, what
19 precautions are taken for roof support? Is it equivalent
20 to room-and-pillars, you know, bolt -- roof bolting, for
21 example?

22 A. Because of the -- obviously, they do roof bolting
23 and one of the problems why the fender width is limited,
24 we discussed the rock mechanics side of it but there's
25 simply a human safety side that you can't roof bolt there

DR. SALAMON, EXAM. BY MR. MERRICK

1 so you can't send people there. It has to be restricted
2 in that sense. In recent years, and I would hesitate now
3 to guess exactly when, but the Austrian firm started it,
4 developing these support system which I mentioned
5 earlier, the self-advanced -- well, self-propelled is
6 probably, in this case, a better -- because they
7 literally have tracks. And those can be set against the
8 roof and cause significant protection compared to what
9 you would just achieve by a either a roof bolt and timber
10 props.

11 Q. But as you formed your intersections on the
12 Wongawilli, why type of roof support might you see in the
13 intersections?

14 A. Well, usually the conventional intersection is roof
15 bolting. Then at the edge where you are actually
16 cutting, removing the fender, you have these -- in most
17 instances, I can't guarantee that all of them will, have
18 these self-advancing, self-propelled hydraulic supports.

19 Q. All right. Let me come in a little more detail to
20 that Alternative 2 proposal that we've spent a great deal
21 of time on today in going through. It seems to me that
22 when we look at that proposal that was developed at the
23 end of December and submitted to the Department and
24 apparently explained to the Department, it really comes
25 down to two key points that are of relevancy to this

DR. SALAMON, EXAM. BY MR. MERRICK

1 Inquiry. And it only comes down to two because that
2 wasn't the method they used and, therefore, that wasn't
3 directly related to the explosion as such. But it seems
4 to me that it does relate in two ways.

5 First, does it indicate anything about the level of
6 competence of Westray and how they were able to manage
7 the problems they were having; and, secondly, does it
8 indicate anything about the level of review being
9 exercised by the regulatory authorities?

10 Now let me deal with each of those points in
11 sequence, first dealing with how Westray itself handled
12 it. Mr. Traves was very concerned -- seemed to be very
13 concerned about the question of timing and the that the
14 five-entry system originally proposed by either Mr. Waugh
15 or Mr. Mraz was not immediately implemented.

16 Can I get you to turn to Exhibit 15, page 141. That
17 is the five-entry system that was proposed early in
18 November and was the basis, I believe, of your comments
19 or criticisms of mine management that they had begun to
20 implement this proposal very quickly without taking --

21 A. Yes.

22 Q. -- time to consider? Can you also turn to Exhibit
23 45, tab 9, which is the colour-coded progression.

24 A. I've got it.

25 Q. Now as I recall, the proposal with this five-entry

DR. SALAMON, EXAM. BY MR. MERRICK

1 system, and I think it was described in the memorandum
2 that's found at page -- the memorandum from Mr. Phillips
3 to all employees found at page 132 of Exhibit 15. I want
4 to see if, in fact, there's evidence from what Westray
5 actually did, whether they actually began to implement
6 the five-entry system. And as I look at Mr. Mraz's plan,
7 I assume that the five-entry system that they were to
8 immediately start to go to would be the extension of the
9 C-1 and B Roads that come off the main entries. In other
10 words --

11 A. Yes, I think --

12 Q. -- going straight up?

13 A. I think this sketch and the plan in Exhibit 45 you
14 mentioned, tab 9, identifies them as such, yes.

15 Q. All right. So that if we look at the Mraz plan at
16 page 141, the proposal was to commence that five-entry
17 system that is coming straight off of the mains, and if
18 we look now at the colour-coded plan under tab 9, and as
19 we come off the mains on the C-1 and B Road and we go up
20 through the black and into the brown, which they did in
21 August, we then have the green in September. We then
22 have bits of blue in October. And then we come to brown.
23 And that was done in November.

24 A. That's right.

25 Q. It strikes me that what they did in the brown seems

DR. SALAMON, EXAM. BY MR. MERRICK

1 to be following exactly Mr. Mraz's plan. If you look on
2 Mr. Mraz's plan, you come in to the first crosscut.
3 That's the first one that we see driven in July on the
4 colour-coding, the first -- to the first crosscut.

5 A. Yes.

6 Q. On the colour-coding then we have in August, I guess
7 it is, they drive to another crosscut which would be the
8 third one up on the Mraz. He shows a narrow one being
9 driven in between. We then get into the green, and it
10 appears to me that once you get up past the green and
11 it's up in Southwest 1 -- let me get a blow-up so I can
12 get exact crosscut number.

13 COMMISSIONER Southwest Mains 2 and Southwest Mains 1, I
14 think, Mr. Merrick. The greens.

15 MR. MERRICK Well, I'm looking -- let me just pick it
16 up here for a second. It would be Southwest 1, 3
17 Crosscut that I'm looking at. I'm sorry, Southwest 1, 5
18 Crosscut. It would be up to where just the brown starts.
19 You will see where they go through the green, into the
20 blue, and then the crosscut is made up of work that they
21 did in both October and November because it's partly
22 brown. Do you see that?

23 A. Yes.

24 Q. It's just inbye where in February they swung off to
25 do their finger pillars?

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1 A. Right. But that's not 5, as far as I can make out.

2 Q. Well, you can get numbers -- if you turn to tab 11,
3 there's a blow-up of the Southwest district in the
4 ventilation section of the map. And we may have to work
5 with three of them.

6 A. I see what you mean.

7 Q. If you look at Tab 11 at the ventilation map for the
8 Southwest district, so you can see the -- in fact, that's
9 a good idea, I will use the laser.

10 A. Yeah. Because here it's visible.

11 Q. Okay. What I'm talking --

12 A. But it has to be --

13 Q. -- about is the crosscut right there.

14 A. Yeah, that's Southwest 1, 5 Crosscut.

15 Q. Okay, that's Southwest 5 Crosscut, right?

16 A. That's right. This one.

17 Q. Okay. Now if you look at the Mraz diagram and just
18 outbye of that No. 5 Crosscut we see the entry to the
19 finger pillars?

20 A. Right.

21 Q. Okay. If we can use that as our terms of reference,
22 look at the Mraz plan --

23 A. And, you know, the Mraz plan seem to indicate that
24 this and this -- so one, two, three, four, five would
25 have been --

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1 Q. That's right. Now what I'm going to suggest --

2 A. This one --

3 Q. -- to you --

4 A. -- this one --

5 Q. -- is that if we compare the development that took
6 place just outbye of 5 Crosscut that I'm marking with the
7 laser. It would be 5 Crosscut up to 6 Crosscut, et
8 cetera. If we look at that development that they cut in
9 November, it is consistent with the Mraz five-entry
10 system that was proposed early in November --

11 A. That's right.

12 Q. -- to the right-hand side. Can I direct you to
13 Mraz? If we come up the B Road off the mains which is
14 that first entry going into the Southwest district that
15 goes straight up, if you go up that B Road, it was the B
16 Road, to where Mraz shows a heading off to the left that
17 would support -- look on Mraz now, I'm not looking on the
18 exact plan, on the actual plan. If you come up the B
19 Road to where Mraz shows a heading off to the left, it
20 would --

21 MR. TRAVES Southwest 1, 4 Crosscut, John?

22 MR. MERRICK In reality, I think it probably turned out
23 to be Southwest 1, 4 Crosscut, that's right.

24 A. That's right.

25 MR. MERRICK I'm --

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1 MR. TRAVES February, '92.

2 MR. MERRICK I'm suggesting -- that's right. I'm
3 suggesting that Southwest 1, 4 Crosscut that's shown here
4 is shown on the Mraz plan as the first heading to the
5 left of that entry. And that if you then look at it that
6 way, you will see where they began to develop the right-
7 hand side of Mraz, that's right.

8 A. Yes, there is the 5 and this is the 4.

9 Q. Yes. You follow me?

10 A. Yes.

11 Q. So that if that's so, then in reality they did begin
12 to implement at least in that immediate area, the right-
13 hand side of that five-entry system as displayed in that
14 area that's coloured brown in November?

15 A. And that's really what I was inferring that they
16 did, in fact, start. I think I said that they did, in
17 fact, start. And one of the things they had to do first,
18 I would imagine, is to try to check on this effect of
19 leaving narrow pillars.

20 Q. Yes.

21 A. And if you will look at the actual geotechnical
22 plan, they created narrow pillars first here and then,
23 subsequently, they actually done others as well. Because
24 that was driven fairly close so that is a narrow pillar.
25 That's a narrow pillar there. And then later in January

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1 they created two more.

2 Q. All right. But in particular --

3 A. And in December they continued to do these
4 developments.

5 Q. But in particular what I'm concerned about is that
6 in November they did a very narrow pillar parallel to --

7 A. That's right. These --

8 Q. B Road.

9 A. B Road, yes.

10 Q. It's not numbered on any of the plans I see, but it
11 goes up through 6 Crosscut and Southwest 1, 7 Crosscut.

12 A. That's right.

13 Q. They also drove the extension of the C-1 Road that's
14 coloured brown and that is completely consistent with
15 Mraz, Mr-az, rather.

16 A. Right, yes.

17 Q. Just a second. This bulletin just in. [Reading a
18 note]. Okay, just give me a second here. In fact, one
19 other very minor -- corroborating factor, if we look at
20 the junction of C-1 Road, if I can hold my hand steady
21 enough, and No. 5 Crosscut, you will see that it takes a
22 small jog to the right --

23 A. Yeah.

24 Q. -- and then continues. And if you look on the Mraz
25 plan, it also shows an angle to the right in order to

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1 widen that pillar out, I guess?

2 A. Yes.

3 Q. All right. If that is so, then I suggest to you
4 that that supports your contention that Westray
5 immediately began implementation of that idea?

6 A. Yes, that's right. That was my interpretation of
7 it. And, in fact, we have several collaboration later
8 on. We have seen that -- I forget now the reference, but
9 we discussed at length the minutes of the -- record of
10 the meeting which the mine had where Mr. Phillips' name
11 was crossed off but the others were present.

12 Q. Okay.

13 A. And also we seen now -- just seen it, in the T. Boyd
14 Report, where T. Boyd makes reference to the fact that
15 the favourable observations with regard to small pillars,
16 that conditions in fact improved. So I think there was a
17 deliberate attempt made to -- and the point we need to
18 remember that it's not a five-entry or finger pillars,
19 but really the fact that you have narrow pillars close --
20 in other words, entries are close together because they
21 do, you know, for this shadow business we talked about.
22 And that implies a yielding pillar which will have small
23 roof pressure. So you would expect conditions to improve
24 in that respect as well.

25 Now how many of these put -- you put side by side

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1 then it becomes a one, two, three or five or six or
2 seven-entry panel. But, really, not five is the magic
3 number. The key to it is the use of entries close to
4 each other which has a number of advantages. But if you
5 put too many of them side by side, you run into
6 difficulty, very, very serious difficulties.

7 Q. All right. The next point that concerns me is in
8 Exhibit 15, you will just flip back from the Mraz diagram
9 to page 134 --

10 A. Yes.

11 Q. -- that's page 3 of Mr. Phillips' memo dated
12 November the 7th, '91, to employees in which he describes
13 what they're going to do. And on that page that's
14 stamped "134," in the second paragraph you will see his
15 statement: "In order to provide better stress relief, we
16 intend to adopt a five-entry system on a trial basis in
17 the strike headings of the Southwest Section. This
18 system will involve driving the two outside roads ahead
19 of the three inner roads. The outside entries will
20 provide the stress relief."

21 Under that concept, of the five-entry system, how
22 important is it to drive those two outside roads ahead of
23 your inside headings?

24 A. Well, it's pretty crucial, pretty key to the whole
25 concept because if you -- say you do the opposite and

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1 then drive the center road forward then that's not going
2 to be in the shadow at all -- not going to be protected.
3 So you have to turn it around and do it this way rather
4 than this way.

5 Q. In this case if we're right in our assumptions that
6 what's coloured brown on that diagram was the beginning
7 implementation of the five-entry plan the one of the
8 outside entries was obviously supposed to be, let me find
9 it again, the extension of C-1 Road. The other entry was
10 supposed to be off to the left somewhere in the finger
11 pillars.

12 A. Which is probably this one.

13 Q. That would have been one of the outside roads, the
14 other one would have been to the left.

15 A. That's right. This one. One, two, three, four,
16 five.

17 Q. But they didn't do that?

18 A. They didn't do that, yeah.

19 Q. So they began -- it appears that they began to
20 implement this idea without driving the two outside roads
21 first?

22 A. That's right and -- which I think -- is that -- I
23 mean, it's very difficult to know exactly what was going
24 on in peoples' mind because they keep on talking about
25 the various effects that some people talk -- emphasize.

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1 The yield pillar effect, which is the vertical direction,
2 and other people emphasize the shadow effect.

3 Q. All right.

4 A. So it's -- depends which one you emphasize -- the
5 differences -- the -- for example, if you're thinking of
6 yield pillar, it's not so important to have the pillars
7 so very close together. While in the case of the
8 shadows, it is.

9 Q. Then what I'm going to suggest the evidence shows us
10 is that after spending November driving the headings that
11 we see in brown, at least when they're in the Southwest
12 District, in December, they now go into the pink
13 colouring which is in the areas I'm noting with the
14 laser, and then in January they go into the blue. None
15 of that is shown on Mr. Mraz's plan and would appear to
16 be a deviation from it.

17 A. They're still making here a small pillar, but I'm
18 not quite sure what scheme is that part of it now as --

19 Q. They're no longer working off of Mraz's layout?

20 A. I -- look, from experience, when you see this kind
21 of things, fingers, left in there unfinished, it's very
22 likely that they ran into serious geological
23 difficulties. And if you look at the geotechnical map,
24 the number of falls interrupted there, the faults were
25 there, so the -- let's just perhaps --

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1 MS. MACDONALD Tab 15.

2 A. 11?

3 MS. MACDONALD 45, tab 15.

4 A. 15. Yeah, I got it right here. No, I don't. And
5 this is a small scale one but, you know, you can probably
6 -- if you turn to that reference, tab 15, you can see why
7 those things got left and disturbed. They have presence
8 of couple of serious drives and a number of falls
9 occurred there.

10 MR. MERRICK All right.

11 A. So that obviously upset the original concept.

12 Q. They then go to the Department in December with the
13 plan that we've seen under tab 45 -- Exhibit 45, tab 4,
14 which is the top plan on the board up there. The -- what
15 at first I thought was a variance of Wongawilli but maybe
16 is only a variance of a room-and-pillar; we'll come to
17 that in a minute. But they never do implement that one?

18 A. Yeah. For the same reason.

19 Q. And then they go somewhere else to do something
20 else.

21 A. And I -- you know, it's very likely that they didn't
22 implement that either because those faults it would have
23 -- they would have had to penetrate those faults first
24 and at that stage they were in a hurry.

25 Q. Well, Doctor, the point I'm just wondering about is

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1 is that if you see this happening to a mining company,
2 where within a space within approximately two months,
3 three months, they purport to adopt one plan; they begin
4 to implement it but do not implement it thoroughly; they
5 then appear to branch out into various other experiments
6 which they do not finish off on. They then come up with
7 a detailed explanation for a whole different approach and
8 then do not implement it at all, what does that tell you
9 as to the circumstances under which they're operating?

10 A. I'm not quite sure what the word just this side of
11 desperation. Some -- somebody who is really trying to
12 meet -- is more -- feels more and more cornered in.
13 Because, I mean, this project was -- had so many un --
14 bad luck, that it's unbelievable; you know, these -- the
15 geological disturbance was so much more than what they
16 anticipated, I suspect. Now whether the whole area is so
17 badly disturbed one doesn't know, but they certainly, in
18 this area, they had that.

19 And wherever they tried to establish a higher
20 productivity section, something drives them away from it.
21 And they don't really know how to cope with the falls and
22 now this Wongawilli-type of -- whatever that is, is no --
23 it's an outgrowth of that probably, was somebody's -- we
24 haven't had the source for that; I'm not sure where that
25 idea came from. Out of -- it seemed to be out of the

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1 blue either in late November or early December. Mid --
2 because by mid-December they had this Alternative 1 and
3 then Alternative 2.

4 And then before implementing that at all, they --
5 because the drivage doesn't indicate that they actually
6 worked there at all.

7 Q. No, there's no indication they started that at all.

8 A. There is no indication at all, so they so abandoned
9 it before even starting it. We don't know why; our
10 records are vacant on that.

11 Then -- but one thing seems to be coming through and
12 I think reading the Steve Boyd report today, this
13 morning, they -- somebody called attention again to the
14 fact that they have got this favourable experience,
15 apparent favourable experiences with the small pillars.
16 And it seems that the suggestion earlier by Mraz and then
17 now probably enforced by T. Boyd in December -- January.
18 In fact, the report was submitted in January, and that
19 kind of ties in because during January they have decided
20 to move back to the small pillar idea because they then
21 really get switched on and February they did quite well.
22 It's probably February, March were their best month.

23 Q. In a sense, looking at that Southwest 1, with the
24 explanations you have given us allows just the layout of
25 Southwest 1 to tell quite a story. Each of those areas

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1 in Southwest 1 reflects an approach, an idea --

2 A. In fact, today we have more -- now the first time it
3 beginning to fall really in place what the sequence of
4 event is likely to have been. We still don't know how --
5 whether this Wongawilli was just a red herring or really
6 what happened, but they must have at some stage thought
7 seriously about it if they took the trouble to actually
8 ask for permission to do it. Well, they didn't go as far
9 as actually preparing it properly.

10 Q. See, the surprising thing that I -- and I'll ask you
11 if you have an answer for me and maybe you do and maybe
12 you don't. They go to the Department late in December
13 with the Wongawilli, which is up in here. [Indicating on
14 exhibit with laser pointer.]

15 A. That's right.

16 Q. In what, I take it, is -- was a very detailed
17 proposal and yet they finish this in December and
18 immediately do this in January, the blue --

19 A. Yeah.

20 Q. -- which has got no relationship to it at all. Do
21 you have a -- no explanation?

22 A. No explanation.

23 Q. All right. Let me ask you this, on the explanations
24 that counsel for the Province gave you today as to that
25 plan that's Exhibit 45, tab 4, is that Wongawilli or is

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1 that room-and-pillar?

2 A. Well, it is a version of a pillar mining.

3 Q. All right.

4 A. It's not Wongawilli as I know it or this paper which
5 they also -- the Province provided by Mr. Hamm or Han
6 describes. I mean, if you take that as a written record
7 of Wongawilli's intent and the general practice, this
8 certainly doesn't tie in with that.

9 Q. Well, I can see where it tends, at the outbye end of
10 it to look a bit like Wongawilli, but what's confusing me
11 is that the justification for it is based on the room-
12 and-pillar layout of Kilborn and the transparency.

13 A. But -- Mr. Merrick, you know, I said it before, when
14 you submit something like this which is open to at least
15 half a doz -- I mean, I gave a totally different
16 interpretation of it in November, and if you give me --
17 lock me in a room for half an hour I'll probably come up
18 with four or other different interpretation of the same
19 plan. So this doesn't communicate what they intended to
20 do. There is no record what they actually intended to
21 do. And I emphasize -- there is no record of it.

22 Now we heard, or you heard, a possible explanation
23 which was put to me earlier today. But, really, I'm not
24 sure how -- what the origin of that explanation is.

25 Q. Let me ask this, the room-and-pillar layout of

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1 Kilborn was put on a transparency, and as I understood
2 the Province's explanation, by aligning that transparency
3 in various ways on the Exhibit 45, tab 4, there was a
4 justification advanced for the size of the pillars, the
5 length of the pillars, the depillaring process of the
6 pillars, et cetera. As a lay person, I can't evaluate
7 whether that's a legitimate way to rationalize Exhibit
8 45, tab 4. How did it strike you as a mining --

9 A. Well --

10 Q. -- person?

11 A. -- you probably noticed I wasn't very plea -- or
12 convinced by the argument and that's why I tried to
13 sketch it myself to try to point out that there is a
14 fundamental difference -- there are fundamental
15 differences --

16 Q. Now --

17 A. -- between the Wongawilli, the original Kilborn or,
18 in fact, other than Kilborn, the Phelan -- what was the -
19 - Placer Study and the scheme which is shown in this
20 diagram. Which we -- really, this diagram does not -- I
21 cannot deduce this diagram from that diagram without the
22 explanation in between. That diagram doesn't tell me
23 that this is what they intended to do.

24 Q. Let me ask you the more difficult question: When we
25 come to look at the Department's handling of this

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1 particular proposal, you've told us about your criticisms
2 that there is no written record that they granted an
3 approval, but with nothing to record the basis on which
4 they had granted the approval, no record of the
5 presentation, no record of the reasons advanced. If a
6 company were to come into a regulatory agency seeking
7 approval for Exhibit 45, 4, and do a verbal presentation
8 which was based on taking the Kilborn room-and-pillar
9 dimensions and applying them to that, should that be an
10 adequate explanation for a regulatory review?

11 In other words, if you were a regulator, would you
12 be comfortable with that?

13 A. No. I mean -- well, you can't -- I've never been a
14 regulator so I can only surmise here, but I've worked
15 with regulators quite often during my career, and I can't
16 imagine how can I give a permission for something which
17 is not reflected by the submission. Now how do I
18 subsequently know what did I permit? So I think that --

19 I mean, it's really fundamental, elementary question
20 that if you have a regime where you need to submit
21 everything for -- substantial changes for approval, which
22 is a different issue, but if you have a scheme or a
23 system, you work according to that system. Then you have
24 to lay down what is the minimum information you need in
25 order to fix, communicate to you in the first place and

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1 subsequently later when there is a dispute or an accident
2 or disaster even, like -- although this was never
3 implemented so it just doesn't arise in that sense, but
4 in principle you have to do that. Because afterwards --
5 I mean, we actually see this situation that we have an
6 approved plan and I commented in November that I wouldn't
7 accept it from one of my students and I'm afraid I will
8 use that phrase again. It's just simply not -- not
9 acceptable.

10 Q. So a reasonable regulator being presented with that
11 plan and then a verbal presentation along the lines that
12 was put to you this morning by counsel, should that
13 regulator be able to draw a conclusion whether this was a
14 conservative or an adventuresome mining method?

15 A. Well, if the regulator is reasonably familiar with
16 the art of pillar mining, he should be able to form an
17 opinion. But he shouldn't give -- grant the permission.
18 He should be able to -- if he follows and ask enough
19 questions, he should understand what the submission is
20 about and he would then arrive at an opinion. But even
21 then, even if the opinion is a favourable one, I don't
22 think he should give a permission there and then, but
23 would ask the applicant to go home, put it -- prepare it
24 properly so it can be properly understood from the
25 written and the drawing material. Drawn material.

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1 Q. All right. Now my question is to a slightly
2 different point now. If we are to hear -- if we were to
3 hear evidence from Dr. Jones, for example, that when the
4 verbal presentation was made to him, particularly with
5 this magic transparency, that every time you turned it
6 around it justified -- I shouldn't call it a magic
7 transparency. That with this transparency using the
8 room-and-pillar method taken from Kilborn, that using the
9 Kilborn example, and purporting to apply it to the
10 Exhibit 45, 4, would it be reasonable for him to conclude
11 all they were proposing to do was a fairly standard room-
12 and-pillar method?

13 A. Well, I don't know Dr. Jones or Mr. Jones, I think
14 Dr. Jones, so I can't comment specifically on his
15 competence or otherwise, but I would say that anyone
16 competent in pillar mining would deduce that it doesn't
17 matter how you turn the transparency, the two are not the
18 same thing.

19 Q. All right. Assuming for the moment that the
20 regulator was advised that if this method was approved
21 that as soon as they did their first heading up to the
22 boundary of the old Allan Mine and depillared out, coming
23 out, they were then going to sit back and look at
24 stresses and have Golder or somebody analyze the adequacy
25 of the pillar. Should a regulator under this kind of

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1 regulatory regime have followed up on that to ask what
2 the result was?

3 A. I'm glad that you give me the opportunity to say
4 something. One of the problems we have in dealing with
5 nature-made material like rock and coal and so forth,
6 that you can't just take a laboratory test and apply it
7 underground. For example, the test -- the strength of
8 the coal in the laboratory might be 10-20 MPA, maybe even
9 higher in certain cases.

10 But the strength of a large piece of coal
11 underground is considerably lower. And not five percent,
12 10 percent, but maybe a factor of 2:5 lower. For
13 example, Bieniawski formula has a multiplier which is
14 6.2, I think, mega pascal, as opposed to, as I said, 14
15 to 20 which you would measure in the laboratory. So we
16 have a great problem and one of the difficult problems
17 they -- in doing designs that you can't just accept the
18 laboratory results.

19 So the suggestion that you can take a piece of coal
20 or samples and then test it and decide what you should
21 do, it just doesn't wash. I mean, if it would be so
22 easy, I think we would have solved this long, long ago.
23 We wouldn't have these kind of problems. We wouldn't
24 need to resort of back analyzing case histories of actual
25 events, or we wouldn't have done what we did in South

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1 Africa, tested specimens up to two meters in size.

2 The reason why this happens, I will try to explain,
3 it's a little obscure anyway. When you take a sample,
4 especially from a material, coal, which has a lot of
5 natural weaknesses, some are fairly regular and we even
6 have a name for it like "cleat." But there are, apart
7 from that, there are all sorts of weaknesses in coal.
8 It's a very fragile material. What tends to happen --
9 that when you prepare your specimens, the larger weakness
10 will never be tested because you can't prepare a specimen
11 that size which has a big cleat across it. It just falls
12 apart. Also the small -- weaker part of this coal will
13 not be tested because you can't make a specimen.

14 So what tends to happen that in testing you
15 naturally bias the results. You tend to test the
16 stronger part of the coal and it applies to rocks as
17 well, but coal is especially a difficult one. So that's
18 why you can't just take your samples in your bag and take
19 it home to the lab and then say, well, this is what I'm
20 going to use by testing it.

21 Then you still have this reduction factor to
22 determine -- which is more difficult than the laboratory
23 test.

24 So that's really an issue why I don't think that's a
25 practical step to try to control pillar design by taking

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1 samples on the spot and doing some laboratory tests.

2 Q. My question to you is this, and if you can answer
3 it, all right; if you can't because you're not a
4 regulator, that's all right as well, do you have any
5 views on whether a regulator, exercising the kind of
6 regulatory jurisdiction that the Department of Natural
7 Resources had in this case, approving this development,
8 the Exhibit 45, tab 4, being told by way of explanation
9 the information that you were given this morning which
10 you say should have indicated that this was a different
11 kind of mining and being told that they were going to do
12 that first heading and then see from whatever analysis or
13 testing, either on site or in a laboratory, as to whether
14 it was safe to do that, to what extent should a regulator
15 continue to monitor that kind of a mining method? Should
16 they merely approve it and take a hands-off approach and
17 wait to see what happens? Should they approve it and
18 follow-up and, for example, contact the company in
19 January to see what's happening, contact the company in
20 February to see what's happening? What should be the
21 kind of regulatory exercise that takes place in that kind
22 of situation?

23 A. Well, it's a difficult question, but I will try to
24 reply to it on various levels. First of all, a person
25 who is not in the position to form the judgement

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1 shouldn't be there to be asked to make that judgement.
2 And I think that's pretty fundamental. Anywhere one
3 makes an appointment you must try to have a
4 responsibility. I mean, I talked about the owner's
5 responsibility yesterday. It applies to the regulatory
6 system as well. So that a person or a system which
7 appoints persons should -- must make sure that the person
8 appointed to do the job is in the position to deliver.

9 Having sort of overcome that and saying you have the
10 right person, then obviously once he approved -- my
11 experience always based on on-hands inspection. You
12 know, you can't just go to the office and wait for the
13 company, the mine to inform you what they're doing or not
14 doing or whether they're changing their plans or not. If
15 that would be as simple and humans would be so
16 predictable, well, of course, we wouldn't need regulators
17 and inspectors. The whole system of inspection came
18 about because, unfortunately, we are not as simple beings
19 that we walk on the straight-and-narrow all the time.

20 Therefore, if the person approved the plan, he would
21 have to or he or one of his colleagues, whoever -- was
22 his assistants, carry out inspections and actually see
23 what happens. And not only in the case of when there is
24 a change approved but do this on a continuous basis.

25 Q. So you would expect that having approved this kind

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1 of plan, particularly in these circumstances, and with
2 that kind of an explanation, that there would have been
3 follow-up?

4 A. Oh, definitely.

5 Q. All right. Let me ask you this, at the time the
6 company came into the Department to get approval for this
7 plan, they tendered the exhibit that we see, Exhibit 45,
8 tab 4. And on that exhibit it shows where they have
9 mined so far. And in particular I'm thinking about the
10 combination of headings that we see here that were in
11 place at that time. Now if we look just at what was
12 actually done at that point, if you were in the position
13 of a regulator and a company comes in and says here is
14 what we've done so far and that particular layout of
15 headings had not been previously approved; there had been
16 approval for some Southwest entries but not this, and we
17 see things like this, would you say that the portion of
18 that plan that is shown as an as-built, if you will, is
19 that a typical layout or does that indicate problems?

20 A. It indicates problems and the explanation probably
21 lies in these faults which are present there.

22 Q. For example, I'm noticing that, to a lay person at
23 least, that while this looks like, as you start in the C-
24 1 and B Roads you've got what looks to be a fairly
25 typical room-and-pillar --

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1 A. Yeah.

2 Q. -- starting layout, but then we get very narrow
3 pillars --

4 A. That's right.

5 Q. -- and we get strange crosscuts that seem not to be
6 consistent. Let me ask this, do you believe that a
7 reasonable regulator should have been alerted by that or
8 asked questions as to what they had already done?

9 A. Well, you know, more -- and my point all along has
10 been that the regulator would have been aware of this is
11 happening and would have been asking the questions much
12 before that, why are you doing this, why are you turning
13 this off, for example. Why are you suddenly making that
14 there a small pillar. And -- because that's not a --
15 because some of these other stoppages were due to faults
16 and falls which is an understandable problem.

17 Unfortunately, we're not as good that we can always
18 foretell where there will be a fault or a fall. But
19 that's a deliberate action. You're creating a small
20 pillar, why you do that? You know, this is a tiny,
21 little mine. A small, little mine. I mean, you should
22 know every corner of it.

23 Q. All right.

24 A. It's not something -- you know, there are huge big
25 mines where I can -- I accept that the regulator or the

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1 inspector runs around with a mine plan because he is not
2 sufficiently familiar. That's quite possible, especially
3 if he has responsibility for more than one mine. But in
4 a mine like this --

5 Q. Well, let me ask this, we know that --

6 A. Especially a mine which have had already at that
7 stage several major falls and is battling with a serious
8 roof control problem, roof and side control problem.

9 Q. And that's the reason for my questions, Doctor, that
10 I -- and we'll hear from witnesses later to what extent
11 the Department, both departments were aware of the
12 serious problems that Westray was facing. Whether that
13 would have made a difference or not we will speculate
14 about later. Let me take you to one other point along
15 this same line. If you look in Exhibit 15 at page 115,
16 that's a letter dated April the 13th, 1992, from Mr.
17 Phillips to Mr. White enclosing -- he encloses a summary
18 of ground conditions, and that's attached on the
19 following pages, and you will see there where that's the
20 summary that was prepared and we've already had evidence
21 about this, that describe their withdrawal from the
22 Southwest 1 district.

23 COMMISSIONER What number was that, Mr. Merrick?

24 MR. MERRICK Page 115 at Exhibit 15. It's a --

25 COMMISSIONER Okay, yeah.

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1 MR. MERRICK -- letter --

2 COMMISSIONER Yeah.

3 MR. MERRICK -- Gerald Phillips to Mr. White. So he
4 encloses the memorandum that describes them being chased
5 out of the Southwest 1 panel on March the 27th, '92 and
6 they attach a diagram that shows where they got chased
7 out of. And the diagram shows what I guess I have been
8 referring to as the "finger" pillars. It shows that
9 there was, in fact, no attempt made to implement the
10 Wongawilli -- the Nova Scotia Wongawilli. And I suppose
11 if you know that you've been chased out of those finger
12 pillars at the end of March and you're now getting this
13 in the middle of April, it may raise the question where
14 are you now because you're not just sitting inactive. Do
15 you have any views as to what a reasonable regulator
16 should have done on receipt of that memo as far as
17 following up what was happening?

18 A. Well, Mr. MacLean was, according to this letter,
19 because he requested this report, was aware of Southwest
20 1 closing or losing Southwest 1, I think, is probably a
21 more-correct description. Having now put this report on
22 the file, we -- I don't have any evidence that what the
23 regulator system did in reaction.

24 Q. What should it have done?

25 A. Well, I think it's -- there should have been an

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1 inquiry to see now how are we going to proceed from here.
2 You know, at this stage I think it is justified to ask
3 the mine, when you have a major loss in your new
4 approach, you radically changed. And I used deliberately
5 the words "radically changed" your mining approach by
6 creating this small pillar panel and it's failed.

7 Now the fact that not only they have created the
8 small pillars but they actually wanted to depillar it.
9 It really is -- I'm not even sure what to -- I better not
10 use a description. Because, I mean, one of the absolute
11 fundamentals in pillar extraction, that the pillars, if
12 you want to depillar, you want to pillar extract, you
13 have to secure your back. You have to secure that you
14 don't get cut off. And people don't appreciate this
15 could have fallen, completely fallen in 20 seconds.
16 Nobody would have come out of it alive.

17 So when this something happened, fortunately it
18 happened in a relatively slow manner, not very slow but
19 certainly slow enough that people could withdraw, I think
20 it would be in those circumstances to -- it would be
21 justified, and I'm not sure what legal background the
22 regulator would have to be able to do that, to have a
23 discussion with the mine, an inquiry on the mine and say
24 -- ask them, first of all, what conclusions can we draw
25 from this; and, secondly, where are we going from here?

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1 Q. That brings me to my last question, Doctor, and this
2 may be a very key question, or it may be asking for too
3 much speculation, but it picks up on a question that
4 counsel for the Province asked you this morning. They
5 directed you to the memo that was prepared by the
6 Department I think in November or December of '91 when
7 they indicated that the proposed plan that had been
8 submitted at that time could constitute grounds to yank
9 the license of Westray and counsel put to you that they -
10 - that that memo may have laid the groundwork and
11 therefore that was something that might well have
12 happened down the road had the Department been alerted to
13 what was really happening. And my question to you is
14 this, and if it is asking you for too much speculation,
15 please defer because I think it's a very critical
16 question.

17 By this point in time, and I'm talking now April of
18 '92, based on what we have seen as far as what the
19 company was doing, how it was moving from one thing to
20 another, perhaps very quickly, how it was proposing
21 something and not implementing it at all, how it was then
22 moving into a completely different layout without even
23 seeking approval from the Province, how it got chased out
24 of that unapproved area under circumstances that if
25 somebody had looked at it very carefully, might have

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1 realized that loss of life could have happened there, do
2 you think that by April there were grounds that might
3 have justified the regulatory agencies to have stopped
4 Westray and possibly avoided the explosion?

5 A. I don't think I can answer as far as the legal
6 grounds are concerned. I don't think I feel competent
7 enough with Nova Scotia's legal system to be able to --
8 to answer that. I think it's very difficult to put
9 oneself in April in the position what people were at that
10 position at that stage. I think there certainly should
11 have been an inquiry. And in the course of that inquiry
12 if no satisfactory explanation is given and after lessons
13 which could be or should be learned from the event of
14 abandoning this Southwest 1 and no satisfactory
15 explanation given where are we going from there, I think
16 the removal of license could have been very seriously
17 considered.

18 Now whether this would have constituted a legal
19 ground to do it, I don't know. What is perhaps
20 disturbing that site was abandoned or the panel was
21 abandoned on the 27th of March, I think. This report of
22 Mr. Waugh's was written on the 7th April, was sent off to
23 the Department on the 13th of April, so that's something
24 like 2 1/2 weeks or so after the event. And the
25 explosion has happened almost a month later. And during

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1 this period there doesn't seem to have -- at least I
2 haven't seen -- I think it's perhaps more accurate to put
3 it that way, any reaction from the regulator.

4 Now, of course, this presupposes the point I made
5 earlier that you have to appoint, and I made it now
6 yesterday and just a few minutes ago, there is a
7 responsibility on the regulatory system that you appoint
8 people who can, in fact, make that kind of judgement.

9 Q. And will, if they think necessary?

10 A. Yes.

11 Q. Those are all the questions I've got, Doctor, unless
12 there are any other points that you wanted to clarify as
13 a result of the questions put to you by other counsel.

14 A. I think I will pass.

15 COMMISSIONER Thank you very much, Dr. Salamon.

16 A. Thank you.

17 WITNESS WITHDRAWS

18 COMMISSIONER I suppose you're not all that anxious to
19 fill in the next seven minutes are you, Mr. Merrick?

20 MR. MERRICK I think Mr. Mitchell and I could probably
21 speed through a few things but it wouldn't be worth it.

22 COMMISSIONER No. Well, we will adjourn until 9:30.

23 INQUIRY ADJOURNED (TIME: 4:24 p.m.)

REPORTER'S CERTIFICATE

I, Margaret E. Graham, Court Reporter, certify that the foregoing is a true and accurate transcript of the evidence taken by way of recording and reduced to typewritten copy.

Margaret E. Graham

DATED this 9th day of January, 1996, at Stellarton, Nova Scotia.