NATIONAL ENERGY BOARD

OFFICE NATIONAL DE L'ÉNERGIE

Order No. MH-2-95

Ordonnance N° MH-2-95

National Energy Board

Public Inquiry on Pipeline Stress Corrosion Cracking

Hearing held at
Audience tenue à

Calgary, Alberta

22 April 1996
22 avril 1996

Volume 6
ORDER NO. MH-2-95
ORDONNANCE No MH-2-95
IN THE MATTER of the National Energy Board Act,
and the Regulations made thereunder; and
IN THE MATTER of an Inquiry by the National
Energy Board into Stress Corrosion Cracking on
Oil and Natural Gas Pipelines.
RELATIVEMENT à la Loi de l'Office national de
l'énergie et ses règlements d'application; et
RELATIVEMENT à l'enquête publique sur la
fissuration par corrosion sous tension des
oléoducs et gazoducs canadiens menée par l'Office
national de l'Énergie.

Hearing held at Calgary, Alberta, on Monday,
April 22, 1996.
L'audience tenue à Calgary, Alberta, le lundi,
22 avril 1996.

PANEL:
K. W. Vollman               Chairman/Président
A. Côté-Verhaaf             Member/Membre
R. Illing                   Member/Membre
II

APPEARANCES/COMPARATIONS

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J. B. Malone, Q.C.            Canadian Energy Pipeline Association

D. H. Rogers, Q.C.            Canadian Gas Association

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J. Lutes           Foothills Pipe Lines Ltd. and Westcoast Energy Inc.

C. Havers                  NOVA Gas Transmission Ltd.

W. M. Moreland Inc.        Interprovincial Pipe Lines

C. B. Woods            Mobil Natural Gas Canada Ltd.

R. C. Youell           Novagas Clearinghouse Ltd.

R. J. Smyth Ltd.        Petro-Line Upgrading Services Ltd.

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M. W. P. Boyle Trans Mountain Pipe Line Company Ltd.

A. Reid                Alberta Department of Energy

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C. M. Fowler CAPCIS Ltd.; Harris Scientific Products Ltd.; and CML Real Time Corrosion Management Ltd.

B. de Jonge        Board Counsel

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B-3-24     CEPA Response to Undertaking given 668/669
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UNDERTAKINGS/ENGAGEMENTS

Page 685:
To advise as to range of crack velocities assumed for purposes of Paper submitted in Evidence.

Page 703:
To submit CAPP Membership List, indicating thereon which of the member companies are NEB-regulated.

Page 734:
To provide the TCPL Soils Model identifying the location of the 498 kilometres of SCC susceptible pipe.

Page 754:
To advise as to breakdown of Youngstown and Welland Tube used on the Montreal Line.

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V

TRANSCRIPT CORRECTIONS
CORRECTIONS A LA TRANSCRIPTION

Volume 5 - 19 April 1996

Page Line
534 17 "Electric" should read "Elastic"
--- Upon commencing at 8:30 a.m./A l'ouverture de
l'audience à 8h30

THE CHAIR: Good morning, everyone. I
trust everyone had an agreeable weekend. It may
probably have been easier for those of you who are not
Flames fans.

Mr. Malone, do you have some
preliminary matters?

MR. MALONE: Good morning, Mr.
Chairman. I have some Responses to Undertakings given
by CEPA Panels.

The first is the Response to an
Undertaking given by Mr. Clive Ward, Panel 4, to Mr.
Abes, at Transcript Volume 3, page 289.

THE CLERK: That will be Exhibit No.
B-3-23.

--- EXHIBIT NO. B-3-23:
CEPA Response to Undertaking given by
Mr. Clive Ward to Mr. Abes (Tr. 3:289)
re position of British Gas on FBE.
MR. MALONE: The second is the Response to an Undertaking given by Mr. Rothwell, on Panel 2, to Mr. Abes re filings of a Revised Response to NEB IR No. 23 re Thermal Radiation Curves, at Transcript Volume 4, Page 468.

THE CLERK: That will be Exhibit No. B-3-24.

--- EXHIBIT NO. B-3-24:

CEPA Response to Undertaking given by Mr. Rothwell, Panel 2, to Mr. Abes (Tr. 4:468) re filing of a Revised Response to NEB IR No. 23 re Thermal Radiation Curves.

MR. MALONE: Thirdly, the Response to an Undertaking given by Mr. Burdylo, Panel 4, to Mr. Illing, at Transcript Volume 5, page 642.

THE CLERK: That will be Exhibit B-3-25.

--- EXHIBIT NO. B-3-25:

CEPA Response to Undertaking given by Mr. Burdylo, Panel 4, to Mr. Illing (Tr. 5:642) re results of British Gas run done for TCPL in the Fall of 1995.

MR. MALONE: And finally, Mr. Clive Ward, Panel 4, asked if I would read onto the record a clarification to a response that he gave at Volume 5, page 625, lines 6 to 10.

He asked that the wording at lines 6 to 10 be replaced with the following:

"I cannot give you precise numbers for the extension there, but it looks to me like we have a new crack appearing in this position, extending the previous colony length by 30 to 40 millimetres. This may have been due to growth of an existing crack so that it just exceeded the system's detection threshold."

That completes my clarifications and Undertakings Responses.

THE CHAIR: Thank you, Mr. Malone.

Mr. Schultz, I think we are ready for your Panel.

MR. SCHULZ: Thank you, Mr. Chairman.

I am pleased to present the CAPP Witness Panel -- which I hope you will find has a suitably earthy presentation, this being Earth Day.
The main documents which I think you would wish to have before you are the CAPP Submission, which is Exhibit B-2-2; the Response to the NEB Information Request, which is Exhibit B-2-6; and then the article which was requested in Item 3 of the NEB Information Request, which is Exhibit B-2-5.

Again, those are numbers 2, 5 and 6 under the "B-2" series.

Sitting closest to the Board is Ravi Krishnamurthy. His background is found in Exhibit B-2-8, which we filed on Friday.

You will see, when you have an opportunity to review that exhibit, that Mr. Krishnamurthy has a Doctorate in Material Science and Engineering, and his work experience is in relation to applied research and development issues related to cracking and corrosion.

He assisted Rainbow in addressing its SCC problem and he is here today to answer questions about Rainbow's SCC experience.

Sitting next to Mr. Krishnamurthy is Don Gregor. His background is found in Exhibit B-2-7.

He is the President of Rainbow Pipe Line and has 27 years experience in pipeline construction and operation. He is also Chairman of CAPP's Pipeline Committee.

Rainbow has chosen to participate through CAPP so that Mr. Gregor is here wearing two hats. Wearing his hat as President of Rainbow, he will answer questions about Rainbow's SCC experience; and wearing his hat as Chairman of CAPP's Pipeline Committee, he will speak to CAPP's policy position as set out in CAPP's Submission.

He will also be the quarterback of the Panel and will steer questions, if necessary, to other members of the Panel.

Sitting next to Mr. Gregor is Ian Scott. His background is found in Exhibit B-2-9.

He is the Manager, Pipelines, Environment and Operations with CAPP, and has more than 20 years of industry experience. The Pipeline Committee is one of Mr. Scott's responsibilities, and he coordinated the preparation of CAPP's Submission. Mr. Scott will speak to CAPP's position as set out in that Submission.
And sitting at the far end of the Witness Table away from you is Richard Woodward. His background is in Exhibit B-2-10. He is CAPP's Vice-President of Markets and Transportation. He will speak to CAPP's policy position as well.

With that, Mr. Chairman, could we swear the witnesses.

R.M. KRISHNAMURTHY, Sworn:  
D. GREGOR, Sworn:  
I.F.H. SCOTT, Sworn:  
R.S. WOODWARD, Sworn:

EXAMINATION-IN-CHIEF BY MR. SCHULTZ, ON BEHALF OF CAPP:

Q. Mr. Krishnamurthy, can you confirm that your background is as set out in Exhibit B-2-8?

DR. KRISHNAMURTHY: Yes, I do.

Q. Thank you. Can you also confirm that you are one of the authors of the article which is found in Exhibit B-2-5?

DR. KRISHNAMURTHY: Yes.

Q. Are there any changes or corrections that you would wish to make to any of the material that has been filed by CAPP in this Proceeding?

DR. KRISHNAMURTHY: Yes, there is one typographical correction to be made in the Paper which is going to be published in the ASME Conference.

Q. That is Exhibit B-2-5?

DR. KRISHNAMURTHY: Yes.

If we turn to page 2, the left-hand column of the two columns, and go to the third paragraph, the ninth line, the sentence that starts with "However", that sentence should read:

"However, when pressure varies from 400 to 600 psi, the crack depths are significantly larger than when the pressure is between 600 to 800."

It had been reversed previously.

MR. SCHULTZ: Thank you.
Mr. Chairman, that is the sentence beginning "However". The references to the psi are simply reversed from the first to the last of the sentence.

Q. With that change, Mr. Krishnamurthy, are you prepared to answer questions about Rainbow's experience with SCC?

DR. KRISHNAMURTHY: Yes, I am.

Q. Thank you.

Mr. Gregor, can you confirm that your background is as set out in Exhibit B-2-7?

MR. GREGOR: Yes, sir.

Q. Are there any changes or corrections that you would wish to make to any of the material CAPP has filed in this Proceeding?

MR. GREGOR: No, sir.

Q. Are you prepared to answer questions about Rainbow's experience with SCC, and also to speak to CAPP's policy position?

MR. GREGOR: Yes, sir.

Q. Thank you.

Mr. Scott, can you confirm that your background is as set out in Exhibit B-2-9?

MR. SCOTT: Yes, sir.

Q. Are there any changes or corrections that you wish to make to any of the material CAPP has filed?

MR. SCOTT: No, sir.

Q. Are you prepared to speak to CAPP's position?

MR. SCOTT: Yes, I am.

Q. Mr. Woodward, can you confirm that your background is as set out in Exhibit B-2-10?

MR. WOODWARD: Yes, I can.

Q. Are there any changes or corrections you would wish to make to any of the material CAPP has filed in this Proceeding?
MR. WOODWARD: No, there are none.

Q. Thank you.

Are you prepared to speak to CAPP's policy position as set out in its Submission?

MR. WOODWARD: Yes.

MR. SCHULTZ: Thank you.

Mr. Chairman, I have two brief questions for Mr. Krishnamurthy about Rainbow's experience, which I hope will be of assistance to the Board.

Q. Mr. Krishnamurthy, could you comment briefly on the Integrity Program which is under way to manage the stress corrosion cracking on Rainbow's 24-inch line?

DR. KRISHNAMURTHY: Yes. There were two ruptures which Rainbow experienced in the early part of 1993. It is well documented.

At that point in time, Mobil and Rainbow did not have an understanding of this problem to the degree we do today. So as a reaction to it at that point, due to our lack of understanding, or lack of understanding of the integrity of the pipeline, we reduced the pressure from 780 psi, which was our maximum operating pressure, down to 652 psi, as a first step.

Then we had a second rupture following that, and we dropped the pressure further, down to 435 psi following the second rupture.

That is where the pressure was for a year until we studied and understood the problem.

At that point, we were totally ignorant about this problem. Eventually we had an Integrity Management Program which included excavation, application of fracture mechanics, and hydrotesting.

The Excavation Program was primarily driven by corrosion in our inspection logs and two other factors which we looked at on a constant basis; soil type and pressure.

Then we have the elastic plastic fracture model which we used to make life predictions and hydrotest frequency predictions.
The major drawback in that model is crack growth rate. We are doing some experiments right now, and we are planning some fatigue testing in the immediate future to better describe that.

Finally, we are looking at evaluating a crack detection tool. We have done some preliminary experiments, and we are looking to run that tool either late in 1996, or early 1997.

We consider this approach very proactive, and it is in a manner consistent with our operating environment and our corporate philosophy.

Q. Thank you.

If these incidents had occurred in 1996 instead of 1993, would your approach have been the same?

DR. KRISHNAMURTHY: Back in 1993, the amount of knowledge that was in the open literature which we had access to was very limited.

That is in contrast to the dissemination of information which is occurring right now in 1996. So definitely it would have been different. It probably would have been faster.

We would have arrived at those answers in less than six months -- I am guessing.

As part of that process --- Our objective in publishing that Paper was to identify the approach that we took, identify what the shortcomings were in our approach, and generate a discussion, to hopefully refine our approach in the long term.

At this moment we believe all companies should develop an approach which is consistent with their operating environment, drawing on others' experience.

MR. SCHULTZ: Thank you.

Thank you, Mr. Chairman. With that, the Panel is available for questioning.

THE CHAIR: Thank you, Mr. Schultz.

Are there any Parties in the room other than the Board who wish to cross-examine this Panel?

--- (No Response/Pas de réponse)
THE CHAIR: It appears your team is up, Mr. de Jonge.

EXAMINATION BY MR. ABES, ON BEHALF OF THE NEB:

Q. Good morning, gentlemen.

I would like to start off with some questions on the Rainbow experience, and follow up with questions on CAPP's general Submission.

On the issue of the Rainbow experience, do I understand correctly, Mr. Krishnamurthy, that you said there were two stages of pressure reduction: there was one immediately after the first rupture; and it was followed by a subsequent lowering of pressure after the second rupture.

Is that correct?

DR. KRISHNAMURTHY: Yes, there were two.

Q. Would you still consider pressure reduction, if you had the same situation occurring now -- pressure reduction as an interim measure?

DR. KRISHNAMURTHY: That is a difficult question.

It depends on where it occurs and what the situation is. I would hesitate to comment on that. It would depend on the situation; on what triggered that cracking and where it triggered it.

I would hesitate to comment on that because it is, at this point, purely speculative.

What we did in 1993, at that time, we felt was appropriate. But I do not know whether we would repeat that right now.

Q. Would you agree, then, that there may be circumstances wherein pressure reduction, as an interim measure, may be appropriate?

DR. KRISHNAMURTHY: Yes. Definitely as an interim measure, yes; as a short-term measure.

Q. In the Paper that you referred to earlier, on page 1, the second column -- and you do not
have to look at this. I will just read it to you.

Under "Results", the second sentence reads:
"There were only seven locations where the estimated crack depths were greater than 20% of the wall."

How were these crack depths estimated?

DR. KRISHNAMURTHY: That is a good question.

Up to 20 percent of the wall, we used to grind it out to establish the depth of the 15, 20 percent.

Anything greater than 20 percent --- We had a consultant whom we had hired who had worked on TCPL. It is actually Jim Marr.

They would make an estimate that it was greater than 20 percent, and we went with that. That is all.

The practice today is different.
Right now, we are grinding cracks up to 30 percent of the wall to establish more accurate depths for that reason alone, because depth is guiding our program.

Q. You also mention here that these cracks are generally associated with localized corrosion.

In addition to the metal loss due to localized corrosion, you would grind deeper?

DR. KRISHNAMURTHY: No. Total. The total grinding would be 30 percent.

Q. Total grinding would be 30 percent. Thank you.

Would you have any data or thoughts as to whether, in these excavations that you conducted, both localized corrosion and SCC were still active?

DR. KRISHNAMURTHY: I am sure they were active unless we either rewrapped them or sleeved them, depending on what situation we were looking at.

Where we grind them off, if they are shallow, like 5 or 10 percent, we grind all those cracks off, every one of those, and then we rewrap them.

In that case, of course, the SCC is
not active.

In other cases where they are deeper, greater than 30 percent total wall, then we would sleeve them.

Q. Was the disbondment generally associated with just wrinkling throughout the whole pipe body, or was it associated with a weld seam?

DR. KRISHNAMURTHY: It was throughout the body. And the cracking was always in the base. It was never associated with any welds.

Q. So would you say that this would be associated more with soil sheer stresses?

DR. KRISHNAMURTHY: Again, that would be speculative, at best. Our hypothesis at this point is that it was solely due to misapplication of tape, and maybe aided by soil stresses in some form or fashion. We are unclear on that.

You can go to a certain location where you have a certain drainage, certain topography, certain soil, and you can dig, and the cracking is only in a certain aspect of that line. You go away from there and you cannot see it.

So I do not know if we can solely associate it with stresses. It was probably due to misapplication during construction.

Q. Most of the deeper cracks that you mention in your Paper were associated with localized corrosion?

DR. KRISHNAMURTHY: Could you repeat the question?

Q. Most of the deep cracks that you found on your system were associated with localized corrosion.

DR. KRISHNAMURTHY: Yes.

Q. Why do you think that is?

DR. KRISHNAMURTHY: Again it is speculative -- but I will speculate here.

Where these tapes overlap, there is seepage of groundwater, with some form of perhaps C02 underneath the tape. And then it settles down to the bottom of the tape. At that point, I do not think the
stresses are high enough on our pipeline to initiate any cracking, and so there is a corrosion event going on.

After a sudden initiation and growth of localized corrosion, there is probably a stress concentration.

We believe -- and again, this is purely an hypothesis. We believe it is cyclic loading in our line, where the R-ratios are from 0.6 down to about 0.3, which initiates the cracking.

Q. You mentioned that there might be some stress corrosion. When you attempted to measure the depth of the cracks, were the deepest cracks generally associated with the bottom of the localized corrosion?

DR. KRISHNAMURTHY: Yes.

Q. Was the profile of the localized corrosion fairly spread out, or would it occur in a narrow area?

DR. KRISHNAMURTHY: It is actually what we used to refer to as channel corrosion. It is longitudinal. It runs longitudinally along the pipe. It is pretty wide. My guess is around ten millimetres.

I don't know that number exactly, but it is around that range.

Q. What would be the range of lengths?

DR. KRISHNAMURTHY: I do not remember, offhand, what lengths they would be. But they are very long; they are pretty long.

Q. Did you run a mag flux inline inspection tool on this?

DR. KRISHNAMURTHY: Yes, we did. Actually, we ran it between the two ruptures. What we use is a high-res mag flux tool, and that is what we used to guide our Excavation Program.

Q. Did you find that that was successful in identifying these narrow channel corrosions?

DR. KRISHNAMURTHY: No. The tool by itself did not identify this as an extensive corrosion.
location. It can give you areas of localized spreading and then, by extrapolation, when we go and dig, yes, we could find those channels.

Q. So, in fact it would identify where you would have localized pitting; but where you have the narrow and presumably deeper corrosion pits, it would not find that?

DR. KRISHNAMURTHY: It would not find them by itself, no. It would require a little bit of judgment there.

Q. Again, I am going to ask you to speculate on this.

You were suggesting that most of the deep cracks would be associated with the deeper parts of the channel, or the grooves.

DR. KRISHNAMURTHY: Yes.

Q. Might that suggest to you a stress-associated or a stress-focused dissolution mechanism?

DR. KRISHNAMURTHY: No. Looking at our fractography, the fracture surfaces, I see some form of cleavage -- quasi-cleavage, as we like to call it.

In my experience, that is traditionally associated with hydrogen assisted corrosion fatigue, or things like.

So by extrapolation, I would say that that is the role of hydrogen. That does not eliminate corrosion, of course. That is a big part there.

Q. On page 2 of the Paper, you mention that there was one location where the removal of the coating allowed the penetration of CP to the pipeline.

That is at the top of the column on the right, in the second paragraph?

DR. KRISHNAMURTHY: Yes.

Q. Did that occur just in that one location?

DR. KRISHNAMURTHY: I am sure it
occurred in more than one location. But that is one location where we analyzed the corrosion product, and that was the context in which I made that statement. There were signs of calciurias deposit, or some sort of calcite which was an indication that the CP was going through.

It was more than one location, but I do not remember the number.

Q. There was no SCC found in that particular location?

684 CAPP Par (Abes)

DR. KRISHNAMURTHY: No. It was purely non-SCC, yes.

Q. Towards the bottom of that page, you make reference to British Standard PD-6493 as part of your fracture mechanics model.

I am wondering whether you took residual stresses into account in using that methodology?

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DR. KRISHNAMURTHY: No, I did not.

Q. On page 3, when you are talking about crack velocity, what value did you assume for crack velocity.

DR. KRISHNAMURTHY: There is not one crack velocity. The assumption we made was based on a Paper published in the literature for X65 Steel.

It does not refer to one crack growth rate; it is a crack growth rate as a function of "J".

It will depend on what your applied "J" is. By implication, it will depend on what your loading is and what your crack depth is.

That was a very conservative assumption we went with, that we were comfortable with. It is not reflective of the mechanism of cracking there.

Q. What would the range of crack velocities be that you used?

DR. KRISHNAMURTHY: I am just talking from memory. It is probably between 10-10 to 10-6. In that range. I may want to check on that and get back to you with the exact numbers. I am talking from memory here.
Q. Could you undertake to submit that information?

DR. KRISHNAMURTHY: Sure.

--- UNDERTAKING:

To advise as to range of crack velocities assumed for purposes of Paper submitted in Evidence.

Q. When you conducted the hydrotest on this at this system, you limited the maximum pressure to 90 percent of yield.

Did you consider raising the test pressure at the time that you conducted it?

I gather you did not experience any failures during the hydrotest.

DR. KRISHNAMURTHY: No, we did not experience any failures. And yes, the test was done in a range of 90 to 95: 90 was our maximum target, and we go up to 95.

There were various reasons for that. No. 1, when we bought this pipeline we had not tested this beyond 90. That was the first consideration under the test pressure.

And No. 2, we were looking at about 1.25 times our operating pressure, which is 72 percent, and that comes down to 90.

That was another factor.

And the third factor was that our modeling had indicated to us that at 90 percent we would cause the cracks which we considered critical to fail, and blunt a certain range of crack depths and then leave some of them unaffected.

So we were comfortable with that prediction, too.

So taking all of those three into consideration, we went with 90-to-95.

Q. Would that still be your position today?

DR. KRISHNAMURTHY: Yes.

Q. In CEPA's Submission they make reference to an AGA Report that was conducted for gas
This is reflected in the Guidelines that are being proposed by CEPA.

Have you had a chance to look at that?

DR. KRISHNAMURTHY: No, I have not. I have not looked at the Report, no.

Q. Basically, one of the objectives there is to have a margin between test pressure and operating pressure as large as possible so that that would define your margin of safety.

Have you given any thought as to whether that might be of benefit to the test pressure model that you have?

DR. KRISHNAMURTHY: No, I have not given any thought to that.

The way we view it is that at 90 to 95 percent SMYS, you would have a certain hydrotest frequency. If you go to 100 to 125 you may have a more spread out frequency, but we are not sure that we would be comfortable with that at this point since I am not privy to all the data.

Q. You also mentioned you are looking at inline inspection for future use.

Are you confident that the inline inspection that you are considering will be effective for your system?

DR. KRISHNAMURTHY: I wouldn't say confident. Yes, we have some indications that it would pick up all of our critical cracks, of depths greater than 20 to 40 percent. In that range. It does cover those depths. And the other thing that gives us comfort is that ours is an oil line, and the tool we are looking at, which is a Pipetronix tool, would be a good fit for us from that perspective.

So we expect it to function. We are still looking at its viability.

Q. Would you see it as eventually replacing your hydrotest program?

DR. KRISHNAMURTHY: Again, that would depend on what the tool finds, in our opinion. Yes, that would be the best scenario. The best scenario would be the replacement of the hydrotest. But I think
we have to look at how many defects it finds, how
critical they are, and what our excavation results tell
us.

It could potentially lead to that, but
I am not so sure it would.

Q. Thank you, Dr. Krishnamurthy.
I would like to move on now to some
questions on the CAPP Submission.

On page 5 of the Submission, in the
middle of the page, there is reference to the Federated
Pipe Line failure in which SCC was a contributing
factor.

I understand this was a transverse
crack resulting from an improperly installed shrink
sleeve.

Is that correct?

MR. SCOTT: That was the information
that was provided to us, yes.

Q. Would you have any further
details on that, Mr. Scott?

I gather it was the failure of the
shrink sleeve that led to the SCC?

MR. SCOTT: I believe so. The
information that is in our Submission was provided to
us by Federated. As you may recall, there was an
Undertaking earlier in this Proceeding, that was made
by CEPA, to provide further details from Federated on
that particular incident.

As I understand it, Federated is
providing that information, but I do not have it at
this point in time.

Q. Thank you.

The Federated and the other failures
identified in your Submission, were these identified
through the Survey that you referred to earlier in your
Submission?

MR. SCOTT: The incidents identified
are all on the public record with the Energy and Utilities Board. A lot of the information, other than the information provided by the companies, is available through the EUB, as well.

Q. Thank you.

Moving on to the bottom of page 5, Issue 1.3, where we are talking about a database on SCC, would the CAPP member companies adopt the use of such a database, as might be proposed by CEPA?

MR. SCOTT: The particular database that has been proposed by CEPA has not been widely distributed within the CAPP Membership. There have been some preliminary discussions through the group of companies that were involved in the development of this Submission. It would be our intention to make the database -- and it has not been provided to us -- available to any of our members who wish to participate in it.

Q. Do you feel that you need to participate in the development, the further development of that database?

MR. SCOTT: At this time, it is difficult to provide a definitive answer. One of the things that we would like to do is to have it reviewed by our members, to make sure that they are satisfied with the level and that they understand the types of information that are being requested. And that has not been done as of yet.

Q. On the top of page 6, it states: "A database of this type should be maintained by an industry association." Would you then support CEPA maintaining that database?

MR. SCOTT: I think it is probably more appropriate, in that I would suggest that they certainly have more experience on the issue of stress corrosion cracking. So in that context, we would support that.

Q. What would your thoughts be as to the accessibility of the information on that database to the general public or to the regulators?

MR. SCOTT: I suppose I would draw for my response on my experience with the database that CAPP and its predecessor, the Canadian Petroleum
Association, developed in the context of the Oil Pipeline Performance Review.

It is an industry-developed document. We maintain the database. But the document is widely available to anyone who wishes to see it.

I think that, in that context, I would certainly encourage CEPA to make that material or information on a general basis available.

Q. I would like to move on to page 8 of your Submission, on Issue 2.3. The second paragraph reads:

"It is critical that the technical experts from the operating companies discuss this problem in extreme depth with researchers from academia and identify appropriate directions for research ---"

And later on in that paragraph, you discuss a possible meeting between "concerned pipeline companies and/or pipeline associations".

How do you see that such a meeting would take place, and what would be the objectives of such a meeting?

MR. SCOTT: One of the things that has been very good, for example, with this Inquiry is that a lot of information has become publicly available.

From our membership, we have felt that it has not been a big problem with our pipelines. And when I say "pipelines" in that respect, I am talking primarily about the upstream pipelines.

But I would envision that we would need to have discussions with our members, further discussion with our members; we would need to have discussions with CEPA; and I think we would need to have discussions with the appropriate regulators. And based on those discussions, we could then pull together a meeting or workshop that brings all of those Parties together to look at the various issues related to stress corrosion cracking: areas where we think there are deficiencies or a need for further research. And it is hoped that, through that process, we could then identify where our priorities should be placed.

Q. Thank you.

I would like to move on now to page 12 of your Submission, on issue 4.1.4, Pipe Recoating.
In your Submission, you propose that hand-applied tape coating would be appropriate as a repair methodology.

In light of the concerns brought out about tape coating, do you still feel that that is appropriate?

MR. GREGOR: Yes. We feel that the new manufacturing or technology in the tapes that we are using for hand-applied make it suitable for spot repair or field repair coating failures.

Q. These would be the more modern tape coatings?

MR. GREGOR: That is right. We use an RD-6. But the polyethylene coatings I would not recommend, consistent with CEPA's findings.

Q. Thank you.

Going now to page 15, under Issue 6.2. What would CAPP's position be on the use of buffer zones or set-back distances for pipelines?

MR. GREGOR: On a liquids line, the appropriate stress levels --- There is no distinction of setbacks, I believe, on the stress level that a liquids line is operating under.

I believe the appropriateness in respect of a gas line is set forth in CSA, and I have no reason to think that that is not appropriate.

Q. There are no specific provisions in the CSA standard for setbacks.

I guess my question is: What would your thoughts be on the development of setback distances for pipelines in general?

MR. GREGOR: Would you clarify the term "setback" that you are using here?

Q. Yes. What I meant was a distance immediately adjacent to the pipeline wherein no residential dwelling units would be allowed, such a distance, for example, in the case of gas lines, being defined as a function of diameter and operating pressure.

MR. GREGOR: Again, we do not feel
like any setback provision, other than what is
construed for operating stress level in CSA, needs to
be addressed.

Q. Thank you. And --
MR. SCOTT: I might add, Mr. Abes,
that CAPP has been very supportive of the process
through the MIACC group.

The issue of encroachment on existing
rights-of-way is of concern to our members, as it is to
a number of other pipeline companies.

I think the process that is ongoing in
MIACC to try to determine whether there should be
setbacks or buffer zones or -- they are called many
names.

I think that is part of the value that
will come out of the MIACC process: to provide some
continuity as to what we mean by these various terms.

One of the dilemmas that pipeline
companies in particular face is that they can design to
all the codes that they may wish to, but often there
needs to be some opportunity for these companies to be
advised that there are pending developments on their
particular pipelines.

That still can be a problem to many
companies.

We are very supportive of the MIACC
process, to try to clarify the process as it relates
to, primarily, the developers and municipalities
developing plans, so the companies have an opportunity
to represent themselves and make the developers and
those that are planning subdivisions aware of some of
the risks that could be associated with pipelines.

Q. Do I understand you to be saying,
Mr. Scott, that pipeline companies have little control
in terms of the encroachment of dwelling units in
proximity to their pipelines?

MR. SCOTT: I believe that is the
case, certainly, in some instances.

In Alberta, for example, there is a
mechanism for sour gas pipelines. There are some
requirements under the -- I think it is an
Informational Letter or an Interim Directive issued by
the Energy and Utilities Board with respect to sour gas pipelines. But with respect to other types of pipelines, there really is no mechanism in the Planning process.

Q. Would such a mechanism be of value to the pipeline industry?

MR. SCOTT: I believe it would.

Q. Would that be achieved through legislation? Is that how you see that working?

MR. SCOTT: Pardon? Could you repeat the question?

Q. How would that be effected. In other words, how would pipeline companies have such a control over encroachment of dwelling units in proximity to their lines?

MR. SCOTT: I think it is in part through a collaborative process. Part of the problem that industry faces is that often the Planning Acts fall under other jurisdictions, and that is where we believe that the energy regulators can provide a role and assistance, in developing some form of process that deals with this issue of encroachment on pipeline rights-of-way.

It is not an easy solution, but it is something that has been identified by a number of our members: that we need to deal with the issue of encroachment.

Q. You mentioned the role of the regulators and also the role of other jurisdictions for providing that control.

How do you see that working?

MR. SCOTT: I think in part it is an education process.

Some of the dilemma that has occurred is as a result of municipalities making planning decisions not recognizing that there is a pipeline in that area and not recognizing the implications that it may create for a pipeline company.

I think the process can be easily handled for new pipelines. The dilemma remains with those that are in existence now.
We want to make sure that any Planning processes that occur for changes in planned subdivisions recognizes the existence of those existing pipelines.

Q. You have mentioned the possible coordinative role between regulators and these other jurisdictions -- presumably, the municipal jurisdictions.

What do you see as the role of the MIACC Task Force that you referred to on Land-Use Planning?

MR. SCOTT: I believe the MIACC, by its very nature, is a consensus process. I believe, as you are aware, that many of the regulators, including other departments, other than Energy Departments or Energy Regulators, are part of the process.

I think that that is an excellent process to continue.

The one concern that I know that has been expressed with the MIACC is that because it is a consensus-building process, it can take a considerable length of time.

But because at this time there really is nothing else, I would stress that the MIACC process be encouraged to continue and be supported.

Q. The particular MIACC Task Force that you are referring to, Mr. Scott, just for clarification, are they attempting to develop risk-based guidelines for land-use planning?

MR. SCOTT: I believe in a general sense they are.

I am not a risk analysis or assessment expert, by any means. But certainly they are taking into consideration the risks associated with pipelines, yes.

Q. Would one of the issues faced by that Task Force be a distinction between how to treat new lines versus existing lines?

MR. SCOTT: I believe we have to be careful in making a distinction between new lines and old lines. If you distinguish between new lines and old lines, it may convey to the public that there is something wrong with the old lines -- which I do not believe is the case.
In fact, I think the record speaks fairly well of pipelines in general.

I think if you can develop a process for new pipelines that avoids some of the potential problems that we see now with existing lines, that would be very beneficial.

I do not believe the rules necessarily have to change with respect to the operation and maintenance of old pipelines versus new pipelines.

Q. Thank you. I would like to move on now to page 17 of your Submission.

At the bottom of that page, you make reference to the importance of safety and reliability for pipeline systems.

Do I take it, then, that CAPP is in favour of steps which would improve system safety and reliability?

MR. WOODWARD: CAPP is strongly behind public safety, in part because of the link between safety and reliability. We see those as consistent, and we see safety on pipelines consistent with the economics of pipelines.

However, we do not believe that safety ---

First of all, we do not believe that we should find high-cost solutions to improving safety. We believe that what we need to find are the lowest cost solutions possible, and we do believe in promoting as much public safety as possible.

Q. You agree that there is a cost associated with maintaining the reliability of pipelines?

MR. WOODWARD: Absolutely. As you know, the producing industry pays the majority of that cost through its tolls, and we strongly support a safe and reliable system.

Aside from CAPP and the producing industry's track record on safety issues, with respect to the running of pipelines, safety and reliability just go hand-in-hand. The economics of a pipeline are devastated if it is not a reliable pipeline.
We strongly support maintaining and improving reliability and safety.

Q. Thank you. On page 18, later on in that same section, the second paragraph, around the third line down, it states:
"In CAPP's view, this available technology is adequate to manage the SCC problem."
Could you just expand on what you mean by that statement?

MR. WOODWARD: I will let some of my colleagues follow me, but we believe that the approaches used by the existing pipelines, in terms of the full Integrity Management Programs that are in place, which include modeling systems using hydrostatic retesting, investigative digs, and ongoing maintenance, are very effective.

We also would suggest that these processes that are in place are regularly adapting and changing to new information.

As we get more information on this problem, these programs are tightened up. And they are working.

We recognize the amount of uncertainty around this SCC problem, and we have gained an enormous amount of knowledge literally in the last couple of years, and in part through this Inquiry. And we expect that that will continue.

Frankly, we see moving forward on this whole issue of improving safety being related to trying to take the available information that we have -- not us, I mean the entire industry -- and sharing it: sharing research, sharing best practices, and building on what we have.

We do have quite a bit at this point.

I do not know if anybody else ---
MR. SCOTT: I might just make a comment.

One of the purposes of our Submission is to identify that our members operate a considerable number of pipelines, and particularly if you look at the upstream industry.
You may recall that earlier in this Inquiry a figure of approximately 544,000 kilometres of pipeline in Canada was quoted.

In Alberta alone, there are approximately 200,000 kilometres of upstream pipelines, of which the majority would be less than 12 inches in diameter; and more realistically, less than six inches in diameter.

Most of these pipelines have been coated in a controlled environment using the extruded polyethylene, or the yellow jacket, as it is more commonly called.

The Energy Utilities Board has indicated that there are approximately 700 pipeline failures a year in Alberta. Those would include operational failures and those that fail during hydrostatic test. The majority of these, 50 percent approximately, would occur in emulsion lines and in waterlines, and those, typically, are less than four inches in diameter.

Every failure that has occurred in Alberta is required to be reported to the Energy and Utilities Board, and the Energy and Utilities Board in Alberta now has a good public record and a good database with respect to these types of failures.

Despite the fact that there may not have been significant metallurgical analyses looking specifically for SCC, we believe that those historical figures suggest that SCC is not a significant problem, at least from an upstream perspective. But there are investigations as to why pipelines have failed; and based on a limited survey of some of our members, we have not seen any predominance or any trending for significance of SCC.

In fact, as we have indicated in the Table in our Submission, there has only been one such failure that has been identified by the AEUB, and that was a Produced Water line.

Although we may not be specifically looking for SCC ---

And part of the reason for that statement is that we feel that current existing integrity management practices are sufficient. Most companies have them. They may not be particularly directed to SCC, but they obviously are looking at other mechanisms that have the potential to damage pipe. And that would be, primarily, internal corrosion, which seems to be a bigger problem, from our
In that regard, we think that technology is there. Companies are continually revisiting their Integrity Management practices.

Again, I would agree with what Dr. Woodward said, in the sense that by having this type of Inquiry, putting information out, we are able to provide information to our members, there is a greater awareness out there for SCC, and I think that that will certainly be taken by industry, to be used in the future, for future failures.

Q. Do I understand you correctly then, Mr. Scott, that the statement that "available technology is adequate to manage the SCC problem", as made in your Submission, was principally in respect of your member companies, as opposed to pipelines in general?

MR. SCOTT: Yes, that is correct.

Q. Thank you. What would CAPP's position be in respect of participating in the development of the Guidelines currently being developed by CEPA for SCC Integrity Management?

MR. GREGOR: We would encourage the ongoing development of those Guidelines. Again, though, each member company is going to have to look at their operating environment and structure their Integrity Management Program around their system or their operating environment.

Q. Do you feel that there might be a need for CAPP to participate in the development of these Guidelines?

MR. GREGOR: Working with CAPP to develop these Guidelines I think would be appropriate for CAPP.

Q. Would it be possible for CAPP to submit -- I think somewhere in your Submission you make reference to 190 companies.

Would it be possible to submit a list of your member companies, identifying those who are under NEB jurisdiction as well?

MR. WOODWARD: Yes, there is no problem with that.

--- UNDERTAKING:

To submit CAPP Membership List,
indicating thereon which of the member
companies are NEB-regulated.

MR. ABES: Thank you very much,
gentlemen.

That completes our questions for this
Panel, Mr. Chairman.

EXAMINATION BY BOARD PANEL:

MR. ILLING: Dr. Krishnamurthy, you
mentioned that you were using or working with the
Pipetronix tool.

Is that the only tool that you have
used? Or are you planning to evaluate other tools as
well, and particularly gas tools?

DR. KRISHNAMURTHY: At this point we
find the Pipetronix tool best fits our needs, and so we
are focusing on that one to evaluate and to go to the
next step.

MR. ILLING: Thank you.

To Mr. Woodward: You mentioned CAPP's
position, I believe, as being that you should find the
lowest cost solutions to safety.

I wonder what that might be
interpreted as? What do you feel would be the
principal elements of the "lowest cost" solutions to
safety?

MR. WOODWARD: We feel that expanding
on this Inquiry by sharing information -- both
knowledge that Parties have gathered, research
findings, data, information on best practices -- in a
type of collaborative effort, with the NEB involved and
all the Parties that have or think they might have an
SCC problem, would really be the way to go.

We, frankly, do not see sort of a
global solution of trying to de-rate the entire system
as a viable solution.

Not only is there a lot of evidence to
suggest that that will not provide an enhancement of
safety, but there may be some collateral damage in
terms of higher risks as a result of that type of
reaction.

It certainly would mean that to
replace lost capacity, more miles of pipeline would have to be laid. There would be risks related to the additional miles of pipeline, laying the pipeline. There would likely be additional risks related to the movement to alternative transportation of hydrocarbons, which would likely result as you change the relative prices of these different transportation systems.

Not only do we not have a lot of confidence that a de-rating would in fact improve safety, because of the evidence that has been submitted here, we think that there may be some potential increase in risk, and it would be all at a very, very high cost, not simply to the producing industry and pipelines, but to consumers at the downstream end as well.

I guess as we look forward, given the uncertainty around this problem, we acknowledge that we think small steps are much better and more appropriate than giant steps, if I can say it that way, Mr. Illing.

MR. ILLING: Obviously, from what you have said, and from what the CAPP Paper says, you have a principal concern about pressure reduction.

MR. WOODWARD: Yes, we do.

MR. ILLING: You have defined your concern as "lowest cost solutions to safety". I wonder if in fact what you are looking for is not the optimum costs --

MR. WOODWARD: Yes, optimum cost in terms of the best sort of reduction -- or improvement in safety per dollars spent. Sure, that is another way of thinking about it.

MR. ILLING: I do not think I have ever heard the airline industry saying that it was looking for the lowest cost solution to safety.

MR. WOODWARD: That is correct.

MR. ILLING: On this matter of pressure reduction, there has been some discussion, some evidence, in this Hearing about what would pressure reduction do, particularly from the higher pressures, in terms of extending time to failure for cracks which were getting near failure, and it does seem as though there could be some months gained -- I am not sure that anybody is particularly clear on the figure -- by a reduction.
In terms of there being an SCC rupture inline, where there might then, for whatever reasons, be some other colonies, and perhaps imminent failures in that line in that area, might it not be prudent for the pressure to be lowered, presumably on a temporary basis, pending running an ILI inspection tool through and/or followed by hydrostatic retesting before raising the pressure of the line again?

In other words, might not a temporary reduction be, in some cases, a good thing to do, to gain some time to allow inspection or hydrostatic retesting processes to take place?

MR. WOODWARD: I guess part of the difficulty that we have, Mr. Illing, is that we see the operating environment around each individual pipeline as critical, and critical to understanding the problem. A sort of global solution of de-rating, even temporary ---

It may make sense for some specific organizations. But in our view, it is unlikely to make sense for the entire system -- in part, because of the evidence that is been presented here at this Hearing.

It is clear that there will be Parties that will take different positions with respect to that evidence; but there is certainly a mountain of evidence which suggests that there may not be any gain at all with respect to savings, with respect to safety, by de-rating.

And given that, given that we have these alternate mechanisms for improving safety which do not have the large collateral damage side effects and potential increases in risk, we strongly support moving in the other direction. Notwithstanding that, for specific circumstances, for specific pipelines, it may be that a temporary reduction may make sense. But certainly we do not believe globally for the whole system.

MR. ILLING: All right. I think I understand. You are saying that in some cases it may make sense to do that, but the situation would have to be evaluated on a specific-incident basis.

MR. WOODWARD: Yes.

MR. ILLING: Thank you. Those are all of my questions.

THE CHAIR: Panel, I have some questions on the survey you conducted, which is discussed on page 3 of the Submission.
The second paragraph on that page begins by saying "selected operators" were surveyed. Does that mean you picked which companies this survey form was sent to? Or are the 11 you mention among a larger list that you sent the survey form to and only these 11 replied? Or did you identify them ahead of time and say: "These are the 11 we want to know about."

MR. SCOTT: The easiest explanation of how this survey was conducted is to point out that there is a smaller group of companies that have an ad hoc committee outside of the domain of the CAPP committee structure.

These are all producers, and I think they are primarily corrosion-type individuals.

Two of the people on that ad hoc committee were part of the Task Force that developed the CAPP response.

And when we say "a survey", my understanding is that at one of their meetings -- and they met on a regular basis -- they polled the members at that particular meeting as to what experience they had with respect to SCC.

It was not, I do not believe, a formal survey per se. It was a polling of individuals at the particular meeting, and the companies that are identified in the Table are those that were asked the questions.

THE CHAIR: Okay. Let me jump straight to my concern, rather than go through a series of questions.

The way the industry is structured in Alberta, I think the experience in Alberta with high pressure gas pipelines is probably fairly adequately summarized through NOVA's experience, and we have that on the record.

On the oil side, the experience would be through a very large number of large diameter feeder lines that largely deliver oil to the Edmonton area.

In this survey, you specifically mention looking at production pipelines -- which I
believe, the way you have defined them, would exclude all of these larger diameter feeder oil pipelines.

Am I correct or incorrect?

MR. SCOTT: That is my understanding.

I have not been party to the meetings of this producer group, but my understanding is essentially they are producers and they would not include the larger feeder lines.

THE CHAIR: If I go to Table 2, which lists the companies, a lot of those companies are involved, through subsidiaries and joint interest arrangements, in operating what I would call those larger diameter feeder oil pipelines.

When these companies responded and said "no, we do not have any SCC", were they speaking of these feeder pipelines as well?

MR. GREGOR: I might add some clarification to that, if I might, being Rainbow is a joint interest pipeline company and a member of CAPP.

Amongst the Pipeline Committee, Rainbow, to date, is the one experiencing this problem.

So the answers to these questions -- I think you are intuitively right. It was from the production of an affiliate, and not meant to represent any other joint venture interests.

THE CHAIR: The producing side would essentially have the smaller diameter, largely yellow jacket-type pipes, where it is commonly accepted SCC is not a problem. But I am still wondering whether --- I guess you are not intending, through any of the statements you make, to reflect the experience of the larger diameter oil feeder pipelines which would have tape coating.

MR. SCOTT: That is correct, the earlier statements I made were specific to the upstream production pipelines.

THE CHAIR: The 11 companies, again, probably would not have been using landscape models or any other technique of that sort to actively go out and look for SCC.

MR. SCOTT: I think that is correct. I do not believe they actively go out and look for SCC, but I was advised that in some instances, when there was a pipeline failure, there was metallurgical
analysis undertaken and, based on that, they did
indicate to me that they did not find any evidence of
SCC.

THE CHAIR: Would you happen, through
the committee you are in charge of, Mr. Gregor, to know
what the experience of the crude oil feeder pipelines
is in respect of SCC?

MR. GREGOR: I could only acknowledge
Rainbow's experiences in that matter. I am not aware
of any efforts amongst the Crude Feeder Group. I know
one other member is actively investigating the
corrosion problem and continually evaluating SCC from
their dig program. But their findings, I am not aware
of. Outside of that, I am not aware of anybody with an
extensive SCC Management or Integrity Program in place.

THE CHAIR: Thank you. The other area
I want to discuss with the Panel is what you view the
role of the NEB to be in -- well, I guess in a number
of areas.

Let's begin with the area you have
identified as a priority, and that is the promoting and
facilitation of data sharing.

Do you see a role for the NEB in that
activity?

MR. WOODWARD: Yes, we do. This
problem is very complex, as everyone in this room
knows. And although there is a large mountain of
research that we currently have in front of us, a lot
more needs to be done.

There is a lot of experience amongst
the pipelines, amongst the producers, amongst the
different segments of the energy chain.

Frankly, there has not been,
historically, a lot of information in the public
domain, or information sharing.

We see that as very important, again
on not simply data but research findings, best
practices.

We do see it as a collaborative
initiative amongst all the various Parties, and perhaps
maybe the NEB as the quarterback of that initiative.

The NEB has a critical role.
The NEB, I would expect, might have better access to information and data in other regulatory régimes, perhaps outside of Canada even, which we may be able to use to raise the safety level across our system, because really that is the way we think that progress is going to be made here.

THE CHAIR: Do you have any thoughts on what it is that the NEB could do specifically? Are you thinking of a public registry for SCC material, or having the NEB involved in setting research priorities?

Have you given those matters any thought?

MR. WOODWARD: We have had some discussions on them. Frankly, I guess there are a lot of different ways in which the NEB could be involved. One would be through a forum similar to the forum that the NEB held a number of years ago on incentive regulation -- which really created a catalyst to motion and movement in the industry. Something of that type -- which basically brings together all the various interested parties that have knowledge, have background.

Maybe a sequence of those, where a lot of information is shared and databases are established, that various member companies and organizations can access.

The facilitation in setting some Guidelines also I think might make sense.

The Integrity Management Programs that are in place, that are in place at TCPL, we see these as very good programs, and the dissemination of those programs to other organizations that may not have been so aware of SCC problems, I think, makes sense.

THE CHAIR: I have read the Submission carefully to see what you were leaving on the Table for the NEB to do. Other than this area of data sharing and research, and so on, is there anything in the Submission that I have missed that you feel is a target for regulatory action?

MR. WOODWARD: We see these initiatives -- and they are not benign sort of non-events or actions. We really do see them as being critical to moving forward on this whole front. We need to extend the boundaries of what we know about SCC. We need to implement more thoroughly what we do know about SCC across the various organizations that may have the problem. We see the NEB having a critical role in that. But we do not see that as a soft
solution.

These programs are very expensive.

But we think that is the optimal way to go.

THE CHAIR: Mr. Gregor...?

MR. GREGOR: I feel that where a company experiences an SCC problem, the NEB should then consult with that company to evaluate their system or management system that addresses their practices and ensures something is in place to address the issues or the SCC problem specifically.

So from a regulatory standpoint, I think it is on an individual company basis that the consulting continues.

THE CHAIR: Thank you, Panel.

Mr. Schultz, those are all of the Board's questions. Do you have any redirect?

MR. SCHULTZ: I have one or two questions. Thank you, Mr. Chairman.

RE-EXAMINATION BY MR. SCHULTZ, ON BEHALF OF CAPP:

Q. Mr. Scott, you had an exchange with Mr. Abes where he asked you about the comment at page 18 of CAPP's Submission about existing practices appropriately addressing SCC, and the exchange concluded with agreement that that was a statement about our own member companies rather than pipelines in general.

That raised a question in my mind -- and I will take a little liberty and put it this way: I thought that we would be making an argument at the end of this Hearing that was generally supportive of CEPA's view that there were existing practices that can be applied to the particular circumstances of individual pipelines that would address the SCC issue; possibly, depending on the circumstances, temporary de-rating but not de-rating, for example, as a permanent measure.

I am just wondering if you have any comment on that exchange with Mr. Abes, just so the record is clear before we move on.

MR. SCOTT: Yes. For those who know me, I have a little hearing problem, and certainly I
did not want to convey the wrong message.

Our view is that we would certainly support the information that CEPA has put forth. We are glad that it is out in the open and that we feel that there are still mechanisms that would apply to all pipelines and not just strictly CAPP members.

Q. Thank you. Mr. Gregor, in the last exchange you had with the Chairman, you talked about Regulators working with companies to assess their particular management techniques, integrity management techniques, and I was wondering if your comment in that regard is related to any view you have about the development of an Integrity Management Program to fit the particular circumstances of a particular pipeline.

MR. GREGOR: Well, if I understand your question correctly, I think each pipeline company or pipeline system has its own operating environment, and therefore working with that individual company on their management program, or their actions that they are taking, are prudent.

That is what I intended.

MR. SCHULTZ: Thank you, Mr. Gregor.

Thank you, Mr. Chairman.

THE CHAIR: Thank you, Mr. Schultz.

The Panel is excused, with our thanks.

--- (The Witnesses Withdrew/Les témoins se retirent)

MR. MURRAY: Good morning Mr. Chairman, Members of the Panel.

This is the TransCanada PipeLines Panel. Their Submission is Exhibit B-34-13.

Our Information Requests are contained in Exhibit B-34-14 and 15.

Our Direct Evidence is contained in the Direct Evidence Binder, which is Exhibit B-3-8.

Mr. Chairman, closest to you is Mr. Robert Basaraba, Senior Manager of Operations at TransCanada, who has previously been sworn.

Next to him is Mr. John G. Walker, who is our Vice-President of Operations and the quarterback of this Panel.

Next to him is Mr. Ronald Burdylo, who was previously sworn, Manager of System Integrity.
And finally, Mr. Trevor K. MacFarlane,
who is a Metallurgical Engineer concerned with system
integrity.

If two of the Witnesses could be
sworn...

R.H. BASARABA, Recalled:
J.G. WALKER,        Sworn:
R.S. BURDYLO,       Recalled:
T.K. MacFARLANE,    Sworn:

EXAMINATION-IN-CHIEF BY MR. MURRAY, ON BEHALF OF TCPL:
Q. Dr. Walker, your Evidence is found
in the Direct Evidence Binder, at Subtab 17 of Exhibit
B-3-8.

MR. WALKER: Yes, that is correct.
Q. Do you have a copy of that before
you?
MR. WALKER: Yes, I do.
Q. Was that Evidence prepared by you
or under your direction and control?
MR. WALKER: Yes, it was.
Q. Are you jointly responsible, along
with the other members of this Panel, for the
preparation of TransCanada's Submission, filed as
Exhibit B-34-13, and TransCanada's Responses to
Information Requests, filed as B-34-14 and B-34-15 in
these Proceedings?
MR. WALKER: Yes, I am, Mr. Murray.
Q. Mr. Walker, do you have any
changes or additions to the matters for which you are
responsible?
MR. WALKER: No, I do not.
Q. Do you now adopt that Evidence as
your testimony in these Proceedings?
MR. WALKER: Yes, I do.
Q. Mr. MacFarlane, your Evidence is
found in the Direct Evidence Binder, Subtab 8 of
Exhibit B-3-8.
Do you have a copy of that before you?

MR. MacFARLANE: Yes, I do.

Q. Was that Evidence prepared by you or under your direction and control?

MR. MacFARLANE: Yes, it was.

Q. Are you jointly responsible, along with the other members of this Panel, for the preparation of TransCanada's Submission, which is filed as Exhibit B-34-13, and TransCanada's Responses to Information Requests, filed as Exhibit B-34-14 and Exhibit B-34-15 in these Proceedings?

MR. MacFARLANE: Yes, I am.

Q. Do you have any changes or additions in respect of the matters for which you are responsible?

MR. MacFARLANE: No, I do not.

Q. Do you now adopt that Evidence as your testimony in these Proceedings?

MR. MacFARLANE: I do.

MR. MURRAY: Thank you.

Mr. Chairman, I do not propose to go through that Evidence-in-Chief with the Witnesses who have been previously sworn.

We are presenting this essentially as a Panel speaking to all of the TransCanada Evidence.

Q. Mr. Burdylo, perhaps I could turn to you first and ask you a question which arose out of some remarks that the Chairman made last week, or during the past week, with respect to issues that had been addressed or not addressed since the Board's previous decision in this matter, MHW-1-92.

I am wondering, with your leave, Mr. Chairman, if you would permit Mr. Burdylo to describe some of the things that TransCanada has done since that Decision.

THE CHAIR: Yes, that would be fine.

MR. BURDYLO: Yes, thank you.

MHW-1-92 identified basically four
major areas for further investigation and action.

I would like to identify those four areas and briefly give you an update as to our progress.

Area No. 1 was on the effects of repetitive hydrostatic retesting.

Area No. 2 was to assess the susceptibility of heavy-wall pipe.

No. 3 was to continue a soils and risk analysis approach.

And No. 4 was in regards to the TransCanada PipeLine Proximity Replacement Program.

With respect to the first issue, and I quote the Decision:

"The Board would encourage research into the mechanism of crack propagation at stress levels above yield during a hydrostatic retest and the long-term effect of repetitive hydrostatic tests on pipeline integrity."

In 1993, TransCanada PipeLines completed field experiments to study the effects of repeated hydrostatic retests on cracks.

The conclusions of those tests, referenced in the TCPL Submission under Issue 2, Table 2.1, Reference Report No. 18, concluded that the equivalent of 32 years of hydrostatic retesting resulted in crack extensions equating to less than 30 days of SCC growth during normal operation.

This research is further supported by our operating history and that there has never been an in-service failure within a tested cycle.

TCPL has over 3,540 kilometres of pipe being cyclicly retested currently and mainline valves tested up to five times now have demonstrated reductions in the number of hydrostatic test failures. In fact, many of those valve sections have not failed in the last few cycles of their test program.

In our 1996 program, for example, we have undertaken approximately nine retests thus far, and none of those has failed due to the testing
On Issue No. 2, MHW-1-92 identified carrying out a more extensive inspection of heavy-wall pipe.

Well, TransCanada completed 65 investigative excavations of Class 2 and Class 3 pipe and has not found any significant colonies.

Over 200 hydrostatic retests have not resulted in a single hydrostatic test failure in heavy-wall pipe.

And the British Gas SCC pig has not identified significant cracks in heavy-wall pipe.

I think it is safe to say that TCPL will continue to increase monitoring heavy-wall pipeline to ensure that that is the case.

Issue No. 3, on soils and risk analysis, MHW-1-92, requested the continuation of the development of the SCC model and the risk analysis approach.

TCPL, to date, has completed a system-wide soils mapping system.

TCPL has also completed a system-wide soils -- I am sorry, that should be "system-wide coating database for large tape coating on our pipeline system" -- and is nearing the completion of a coating database for very small discrete portions of tape coating on our pipeline system.

We are currently utilizing the outputs from TRPRAM, which is the TransCanada Risk Assessment Model, to establish relative risk values and to prioritize those in our maintenance programs.

On the 4th issue, which was to do with proximity replacements, MHW-1-92, TransCanada proposed to replace pipe in SCC susceptible portions of the pipeline near dwellings.

In 1995, TransCanada replaced all SCC susceptible pipe within 120 metres of a dwelling on our Line 100-1 between Toronto and Montreal, and we replaced all SCC susceptible pipe within 200 metres of a dwelling on Line 100-2 in the Central Section.

I would like to point out that completion of this program resulted in providing additional protection for approximately 258 dwellings along the pipeline system.
It is important to note that the Proximity Replacement Program was in addition to maintaining the Cyclic Hydrostatic Retest Program that these portions are also undergoing.

That concludes our status of the major issues arising out of the MHW-1-92 Decision.

MR. MURRAY:

Q. To you Mr. Walker.

I understand that you would like to say something to the Board with respect to the LaSalle River line break -- more on the nature of an update. Could you provide that to the Board now, please?

MR. WALKER: Yes, thank you, Mr. Murray.

For the record, I would like to give an update on the report following the LaSalle River line break, which occurred west of TransCanada Station 41, at Winnipeg, Manitoba, at about 6:30 p.m., Monday, April 15th.

The initial investigation of the leak and subsequent rupture occurred at a defect in the girth weld on our 34-inch Line 100-2 in the channel of the LaSalle River -- and I should just mention that the LaSalle River is currently in a flood condition, as most of the Winnipeg area is these days.

Witnesses to the incident indicate that a leak was visible for 10 to 15 minutes prior to the actual rupture, and ignition occurred after the line ruptured.

There were no injuries as a result of the incident.

The emergency isolation procedures closed valves on either side of the break, and the fire burned itself down within 30 minutes.

A dwelling about 175 metres from the break site was severely damaged by the fire.

Since the river is in a flooded condition, the repair will be completed after the river returns to normal levels, which they are expecting to be in probably a couple weeks time.
The outage is currently not impacting Firm Service deliveries.

I would also like to note that the pieces of pipe have been located, and the pieces that contain the girth weld and the failure initiation point are currently being shipped to the Canadian Transportation Safety Board Laboratories in Ottawa for further examination.

That concludes the status Report.

MR. MURRAY: There is one further matter, Mr. Chairman, and that has to do with the Evidence brought before you by representatives of the Canadian Gas Association, where they spoke about a contract entitlement reduction that might occur as a result of the pressure reduction.

I did want to note, for the record, our Response to the Board's Information Request No. 9, that Information Request, dated September 13th, 1995, arising out of the Rapid City incident.

That Information Request Response appears as part of Exhibit B-34 ---
I have it written down as "8" and "9". But it is in that vicinity, Mr. Chairman. I believe it is B-34-9.

There you will see two Tables attached to the Information Request Response dealing with system capabilities and impact of a pressure reduction, two scenarios -- actually, two cases -- that were requested by the Board at that time with respect to deliveries; and then a further Table which discusses the additional facilities to restore capability.

I believe that Mr. Walker can address Board Staff questions on that issue: the impact of the pressure reduction on TransCanada and its customers.

Mr. Chairman, that is all we have In-Chief. The Panel is available for cross-examination.

Thank you.

THE CHAIR: Thank you, Mr. Murray.

Do any Parties other than the Board have questions of this Panel?
--- (No Response/Pas de réponse)

MR. McCARTHY: Thank you, Mr. Chairman.
Good morning, gentlemen.

THE WITNESS PANEL: Good morning.

EXAMINATION BY MR. McCARTHY, ON BEHALF OF THE NEB:

Q. I want to discuss some of the issues and some of the information that we have been discussing over the last week, but using TransCanada as a specific example, just to get a sense as to what specific activities TransCanada has undertaken.

First of all, with respect to the extended severity issues, I understand that TransCanada has identified 3.6 percent of its system is susceptible to significant SCC.

Is that correct?

MR. WALKER: Yes, that is correct, Mr. McCarthy.

Q. Mr. Walker, could you advise me how you did that? How that was determined, that figure was arrived at?

MR. WALKER: Yes. At Figure 1.2, which is Issue 1, at page 5 of 14, there is a diagram that outlines how we arrived at the 3.6 percent of our system being susceptible to significant SCC.

Basically, this has been derived from utilization of the application of the soils model on the system.

It looks at the susceptible sections of our polyethylene tape-coated lines. And as you can see in there, also included in the 3.6 percent is 133 kilometres of the Youngstown asphalt-coated pipe on the Montreal line, which brings the total to 498 kilometres, which works out to 3.6 percent, or roughly 3.6 percent, of our system that is considered to be susceptible to significant SCC, based on the soils model applied to our system.

I can see I clarified it.

Q. Yes. The question I want to understand is how that soils model was used to come up with the -- for example, let's just take a particular section, the polyethylene tape. You have 365 kilometres identified, and you say that is through the
soils model.

Are these the significant terrain areas? Is that equivalent to what we are calling ---

MR. WALKER: Yes. This is an application of the soils model, which then, through the use of investigative digs, has confirmed that, for particular soil types, particular sections of our system are susceptible to significant SCC.

It is through the Investigative Dig Program that we ultimately arrive at the amount of pipe that is considered to be susceptible to SCC.

Q. Is this different than the "significant terrain conditions" that we spoke about earlier with Mr. Marr, the sites that have what he referred to as significant terrain conditions?

MR. MacFARLANE: The terrain conditions that Mr. Marr described previously are coincident with the terrain conditions that we have described as susceptible to significant SCC, and that represents the 3.6 percent.

Q. What you did is you took your system where you had soils models developed and you identified within those sections of your system --- You identified a certain distance that had significant terrain conditions.

Is that how I am to understand that?

Is that fair?

MR. MacFARLANE: Yes. We have conducted approximately 700 investigative excavations in a variety of soil types, including different drainages, topographies and actual soil types, and we have established a correlation where we have found significant SCC.

That 3.6 percent represents those common parameters that have led to significant SCC.

Q. Have all of these areas been investigated?

Have there been some specific excavations in each one of these areas? Or some of them are still yet to be investigated...?

MR. MacFARLANE: There have been a number of excavations in every single combination of drainage, topography and soil type along the
TransCanada system.

Q. But I am talking specifically about the 498 kilometres that you have identified?

MR. MacFARLANE: The 498 kilometres has not been excavated individually. A representative sample of that has been done, and we have applied the proper mitigative strategy for that 498 kilometres.

Q. I understand.

MR. BURDYLO: I would like to add that all but a few mainline valve sections of the entire kilometres of tape, as well as the 133 kilometres of asphalt on the Toronto/Montreal, are currently under the hydrostatic retest program.

Q. Thank you.

If I just turn your attention to this diagram -- which is, I believe, an appendix to I.R. No. 2.

It is Schematic Diagram A, and it shows a map identifying the hydrostatic program that you have outlined, or just briefly referred to there.

I understand that the 498 kilometres that we talked about are somehow indicated on this diagram. I am wondering if could you tell me exactly how that would be identifiable, or where would we find them on this diagram?

MR. MacFARLANE: The diagram you are referring to, Mr. McCarthy, is a schematic diagram illustrating our hydrostatic retest frequency for our valve sections.

That 498 kilometres would coincide with the hydrostatic retesting program.

We are obviously hydrostatic retesting a much larger portion of our system than is considered susceptible.

Q. The areas where there are significant SCC, or which are suspected to have significant SCC are found within this Hydrostatic Retesting Program?

MR. MacFARLANE: That is correct.

Q. If I turn your attention to this section and I take a look at the legend, I see there are two blocks down in the far corner that are sort of
a brown and green colour code, and the legend for the
tape block indicates:

"Tape sections currently being
accessed for susceptibility to
significant SCC."

Does that mean that there has been no
decision taken yet as to whether there are any
susceptible areas in these regions?

MR. BURDYLO: No, that is not correct.

We have done the necessary soils work
in the orange identified section of that schematic.

We have identified how much
susceptible pipe is within them. We have also
identified how many excavated investigations we have
completed in those sections, and overlaid the dwellings
as they relate to the susceptible portions of those.

We have that list available for you,
if you would like that information.

Q. I am not sure I quite understand
what you are telling me, Mr. Burdylo.

You have mentioned that you have done
the work, but you have not ---
What remains to be done?

I do not quite understand why it says
that they are "currently being assessed for
susceptibility."

Is it not completed, or is it
completed?

MR. BURDYLO: It is certainly an
ongoing process. If you would like, I could get into
some of the details of the sections.

For example, Mainline Valve 12, Line
4, is identified with an orange indication.

In that valve section, we have
identified that there are no susceptible soils.

Our mitigative program in 1996 in that
particular section will be to continue to monitor
through investigative excavations.

MR. BASARABA: I think it would be
safe to characterize that as being in the condition
monitoring phase of activities referred to in the CEPA
Panel 2 issue, with regard to those specific sections.

Q. So even though there may not be
susceptible soils in this area, it is still within the
mitigation program, albeit only in the condition
monitoring phase.

Is that a fair assessment?

MR. BASARABA: That's a fair
assessment.

MR. WALKER: Mr. McCarthy, I assume
that everybody understands that these are all
tape-coated sections. That is why they have been
highlighted initially, and that is why we are paying
specific attention to these sections. They are, as you
see here, mainly in the Western part of the system.

Q. Does this comprise all of the
2,100 kilometres of tape-coated? Is it all indicated
on this diagram?

Is that where we come up with what to
include and what not to include in this diagram?

It is solely all of the tape-coated
pipe that exists on TransCanada's system?

MR. BURDYLO: Yes, that is correct.

One clarification: the
Toronto-to-Montreal portion is asphalt.

Q. Fair enough.

So this is the 2,100 kilometres of
tape coated, as indicated here.

Within that, there is 490 kilometres
that you view as being susceptible to significant SCC.

Do you have a complete soils model for
the entire system?
--- (No Response/Pas de réponse)

Q. My question really leads to a
sense of finality.

If we looked at this in another year
or so, would we see different bars or different coding?

What can change that may change what
is currently not viewed as being significantly
susceptible but may be in the future?
MR. MacFARLANE: We have completed a system-wide soils mapping, and we have overlaid that with our coating database, which is 99 percent complete at this time.

In terms of the hydrostatic retest frequencies applied to the various valve sections, that is not expected to change.

MR. BASARABA: I would just like to add, again, as was expressed in previous testimony, that this is an ongoing process, in terms of additional information and what can change.

I am not exactly sure what. I am speculating a little bit here -- but we would be fine-tuning some of the specific susceptible areas and maybe identifying some additional length of the pipeline that would be susceptible. Presumably, they would fall within the same sections that are currently deemed to be susceptible.

Q. Okay. If I can just go back and draw your attention to Issue 1, page 11 of 14 and 12 of 14, the very last sentence ---

The very last sentence says: "A Predictive Soils Model for the western region is nearing completion and is expected to be finalized by the first quarter of 1996."

That is complete, then? Is that how I understand that?

MR. MacFARLANE: Yes, it is, Mr. McCarthy.

Q. I want to get a sense as to the changes over time that you alluded to, Mr. Basaraba.

You mention that this is an ongoing program. I just want to get a sense as to what things could happen such that we could see these sections that are identified now -- being in totality, 498 kilometres -- not viewed as being susceptible to significant SCC, or what could change that would add to that number.

MR. BASARABA: Basically, I was talking details. The sections are already within the Mitigation Program. However, it is important to note where inside the program we think the susceptible areas are.
For example, if we were to consider something like proximity replacement, to know that level of detail would be important.

I am really talking about having more detail within the program.

The change that you might be implying here that might be outside of that number of susceptible kilometres that we have identified in the system, that of course could be determined by other initiatives currently underway: condition monitoring, in the form of investigative digs, and other aspects of the program.

Q. Is it possible to have a listing of all of the 498 kilometres by mile post? Is that something that is easily accessible?

MR. WALKER: I believe you will find that information, Mr. McCarthy, in Appendix D. Table D-1 has the details of the various sections.

Q. Sorry. Let me just turn that up.

MR. BASARABA: Mr. McCarthy, something else I was reminded of is that in terms of getting specifics within the susceptible areas, we could consider specifically where recoating could be applied, and that would be a useful piece of information for that endeavour.

Q. If I were to add up the lengths here, it would add up to 498 kilometres--is that fair?--just to make sure I understand the evidence that has been filed.

MR. BURDYLO: No. If you were to add up all of the lengths identified under Table D-1, you would end up with the total length of tape on the TransCanada system.

Q. That is the 2,100 kilometres.

MR. BURDYLO: That is correct.

Q. Is there information then that you could provide to tell me where the 498 kilometres are?

I know it is within this, but I just want to get a sense as to where it is within this.

MR. BURDYLO: We could provide you
with a copy of our Soils Model which would identify the specifics, the start and end of susceptible soils, of this 2,100 kilometres.

MR. McCARTHY: That would be helpful.
Thank you.

--- UNDERTAKING:
To provide the TCPL Soils Model identifying the location of the 498 kilometres of SCC susceptible pipe.

MR. McCARTHY: Just to reiterate that, the entire TransCanada system has been now reviewed, and the determination has been made as to whether a section falls within this 498 kilometres or not.

Is that fair? Is that a correct understanding?

MR. WALKER: That is correct.

Q. Thank you. Thank you, Mr. Walker.

I want to ask you a question about ---

MR. WALKER: Mr. McCarthy, just before we leave that listing, we were just discussing how long it will take us to get that listing. I am not sure we will have it before the end of the Inquiry, meaning within the next day or so.

MR. McCARTHY: I think the standard that we have been using is "just before Final Argument."

MR. WALKER: So the May 6th date?

MR. McCARTHY: By May 6th would be fine.

MR. WALKER: We will look at that and see if that is achievable.

MR. McCARTHY: Thank you.

Q. As I understand it, all of the susceptible sections of the pipeline are Class 1 only, as Class 2 and 3 pipe have not exhibited a susceptibility to significant SCC.

Is that fair? Is that a correct understanding?

MR. MacFARLANE: Yes, that is correct.
Q. If I look at the 498 kilometres, I will not find anything that is in Class 2 locations. Is that correct?

MR. MacFARLANE: The 498 kilometres represents pipe that is susceptible to significant SCC. Our Class 2 and 3 pipe is in the condition monitoring loop where we are doing investigative excavations, and we have not found any significant SCC to date.

Q. The answer is that there are no Class 2 locations found anywhere within the 498 kilometres?

MR. MacFARLANE: Yes, that is correct.

Q. We had some discussion earlier about whether there was any pipe on TransCanada's system that was operating, in a Class 2 location, at 72 percent SMYS. I wonder if you could confirm, for TransCanada, whether that is the case, or whether there is ---

MR. BASARABA: Yes, that is the case. Those quantities provided in the Undertaking previously filed essentially represent quantities of that type of pipe found on TransCanada's system.

Q. Could you refresh my memory as to what exactly the distance was?

MR. BASARABA: I believe that was 60 kilometres of pipe.

Q. Is that pipe that is currently within the SCC Management Program?

MR. BASARABA: The portions of that pipe that might be within SCC susceptible areas would be within the SCC Mitigation Program, that is correct.

Q. Could you just verify whether there is any pipe of that nature -- in a Class 2 location, operating at 72 percent SMYS -- that is within the SCC Management Program; and if so, please identify where that pipe may be.

MR. BASARABA: Some of that would be on the Toronto-to-Montreal Line 100-1 portion; specifically on the Youngstown Pipe that is currently within our four-year Hydrostatic Test Program.

Q. Could you identify how much pipe
is in there--just to give me an indication.

MR. BASARABA: According to my records here, and subject to check, I show that we have approximately 21 kilometres of Class 1-type pipe that is situated between Toronto and Montreal, generally speaking.

That would be a representative number, in any case.

Q. You say "Class 1 pipe". But it is Class 1 pipe that is in a Class 2 location.

Is that what you mean, Mr. Basaraba?

Maybe I mis-heard you.

--- (A Short Pause/Une courte pause)

MR. BASARABA: Subject to check, approximately 11 kilometres of that pipe would be within a Class 2 location.

Q. Generally speaking, the pipe that TransCanada finds in Class 2, what is it designed to? What is the percentage SMYS that that pipe operates at, at a maximum MOP?

MR. BASARABA: Are we talking new pipelines here?

Q. Let's talk about new pipelines; let's talk about existing pipelines.

How about the new pipelines?

If TransCanada is putting a new pipeline in a Class 2 location, how does it design its pipe? To what stress level?

MR. BASARABA: We would design that ---

Knowing that it is a Class 2 location currently, or likely to be a Class 2 location in the future, we would design it to 50 percent SMYS.

Q. To 50 percent SMYS in the new locations?

MR. BASARABA: That is our practice right now, yes.

Q. If you are in a Class 1 location and, through population encroachment or whatever, it
moves to a Class 2 location and you have to -- I guess you do not necessarily have to replace the pipe if it is operating at 72 percent.

Is that correct? Is it your policy to replace it, or not to?

MR. BASARABA: Our policy right now, to treat Class 1-type pipe that may encounter a change in development -- i.e., from a Class 1 to a Class 2 location -- is to perform an engineering assessment on that piece of pipe; and if that assessment renders the pipeline fit for operation in a Class 2 location, we may choose to allow it to operate in that condition.

Q. Maybe you could elaborate what kind of assessment is conducted? How do you assess that? What things are considered?

MR. BASARABA: Obviously, we would check for stress corrosion cracking. That would probably be the first layer of check that we would make. But there are other factors that need to be taken into consideration for older pipelines -- or existing pipelines, rather.

Generally speaking, we would be looking at things such as the notch toughness properties of the steel, the operating history of the pipeline; in particular, the cathodic protection history, the history related to any corrosion findings, and things along that line.

And perhaps even the extent of development that might be forthcoming.

So all in all, that evaluation would be performed, and we would then make a decision as to whether or not it was fit for operation.

I should tell you that we have that as one of our Engineering Standard Procedures.

I am not sure it is filed with the Board at this time.

Q. That is not a regulatory requirement, though, to do that, is it? Is it part of the CSA that requires you to do that engineering critical assessment? Or is that just a TransCanada policy that you have?

MR. BASARABA: It is a TransCanada policy, but I really do not know if it is a CSA requirement, to be honest with you.
I could check that for you and provide it. It is definitely a TransCanada practice.

MR. McCARTHY: Perhaps, Mr. Chairman, this is a good time to have our morning break.

THE CHAIR: Yes, Mr. McCarthy, we will take our morning break.

--- A Short Recess/Pause

--- Upon resuming/A la reprise

THE CHAIR: Did you have something, Mr. Murray -- I saw you rise -- before Mr. McCarthy continues?

MR. MURRAY: I cannot resist. I was handed Information Request No. 3 to TransCanada, Question 10.

In the brief time that we have had to review it at the break, I am advised that it may take in the order of a month to complete the Response.

It asks for a plot of significant SCC based on a number of colonies per metre of pipe inspected versus the percent SMYS, based on typical average operating pressure for the tape-coated sections of Line 100-2; it asks for a plot of significant SCC based on the range maximum crack depths at each excavation site in millimetres; it also asks for the data plot requested in 10.1 for non-significant SCC; and then also the same information is requested for Youngstown Pipe.

I am advised that this is a significant undertaking, Mr. Chairman.

If the Board wants this information -- which of course we will provide to the Board. I do not see how we can do it by May 6th -- or rather, May 3rd, which is the date by which we might have to have the Response prepared, filed and served on interested Parties, so they could at least think about it over the weekend for their Arguments.

That is the comment that I have.

MR. de JONGE: Mr. Chairman, the I.R. that Mr. Murray was referring to actually has not been filed as an exhibit yet. Mr. McCarthy was going to do that. Perhaps we could do that now.
It is available at the back of the room. It is Exhibit A-79.

--- EXHIBIT NO. A-79:

NEB I.R. No. 3, Question 10, to TCPL.

THE CHAIR: I wonder, Mr. Murray, if it would be appropriate -- at the conclusion of the day, perhaps -- for you to discuss the I.R. with Mr. de Jonge, to see whether there is a more expedited fashion for complying with what the Board really wants to know.

There has not been much discussion of the I.R., so I am not sure how far we can take it right now.

The Panel is aware of the rough intent of the I.R. and thinks it is important, because it would give us some field data upon which to assess the position taken by CEPA and TransCanada that while initiation may be a function of operating stress, propagation is not.

I think that is the concern behind the I.R., and the feeling is that that would give us some very important information.

MR. MURRAY: That is fine, Mr. Chairman. If we could consider it over the afternoon and then speak with Board Staff through Mr. de Jonge, perhaps by telephone this afternoon or tomorrow morning, that would be acceptable.

We could see if we could arrive at some practical parameters for our response.

THE CHAIR: I must say also, Mr. Murray, the Board was under the understanding, from the Evidence, that the database was populated as of April 1st. So what you are telling us now comes as a bit of a surprise. I think you are telling us the database is not populated.

MR. MURRAY: I think the database we were talking about would be the CEPA database.

--- (A Short Pause/Une courte pause)

MR. MURRAY: Perhaps Mr. MacFarlane could tell you what he is saying to me, Mr. Chairman.

That might be the way to go.

MR. MacFARLANE: The CEPA database has been populated with the TransCanada information. However, it is my understanding that the database does not have the actual stress level with which each crack has been located. It has the maximum operating
THE CHAIR: And it would take a month to get that information. Is that what you are telling us?

MR. MacFARLANE: No, it would not take a month to provide that information. But my understanding from the I.R. is that the request is to provide the stress level at the location where the crack was detected, and not maximum level operating pressure for that line.

MR. de JONGE: Mr. Chairman, perhaps we can review this afterwards. It may be possible to change the I.R. somewhat to enable them to reply within the time we have got.

THE CHAIR: Yes. Let's do that, Mr. de Jonge. I still want to clarify, for the record, the pressure concern you are expressing.

I think Mr. McCarthy, or one of the Board Staff, went through those three pressure boxes that are on the CEPA data input form and tried to clarify what that first box was, and my recollection is that the first box was something like the typical average operating pressure.

Am I correct or incorrect in that recollection?

MR. MacFARLANE: I will have to review that with the CEPA Panel to determine what that pressure refers to. But it is my understanding it is the maximum allowable operating pressure for that line. But we can review that.

THE CHAIR: Thank you.

Mr. McCarthy, please.

MR. MCCARTHY: Thank you, Mr. Chairman.

MR. BASARABA: Mr. McCarthy, I wonder if I could interject, having taken some information over the break, to advise you, if it is proper, that the current edition of CSA Z 662 does call for an engineering assessment in the event of a class location change.

I had not remembered that when I
answered the question.

MR. McCARTHY: That is right. Thank you. Thank you for the clarification, Mr. Basaraba.

EXAMINATION BY MR. McCARTHY, ON BEHALF OF THE NEB, (Continued):

Q. I want to carry on with our discussion.

We were talking about the 498 kilometres of pipe which are viewed to be susceptible of significant SCC. There are a couple of other numbers in respect of which I want to make sure I understand clearly what is meant by the data that is provided.

If you turn to the Response to NEB I.R. No. 2, appended to that I.R. is Table 2.1.

This Table 2.1, if you look at the total, which is on page 2, shows 1,636 kilometres, which is, as indicated here, in Column No. 5, the valve section's length.

I just want to clarify that number, the 498 with the 2,100 kilometres of tape-coated section that we spoke of earlier, with -- if I can go one step further -- that figure that we were discussing that showed all the colour coding.

Can you try and explain to me what the distinction is between all of those numbers?

MR. MacFARLANE: Mr. McCarthy, the Table you just referred to, Table 2.1 in I.R. Response No. 2, is a summary of the total amount of tape-coated pipe which is being hydrostatically retested at this time.

The 2,100 kilometres includes spirally-welded pipe which is tape coated, which is not being tested at this time.

The 498 kilometres is incorporated into the 1,600 kilometres, which is pipe which is tape coated which is susceptible to significant SCC.

Q. So this Schematic Diagram A, which refers to the SCC Management Program, illustrating the hydrostatic retest frequency, refers to the 1,600 kilometres of pipe or the 2,100 kilometres of pipe, of
tape-coated pipe?

MR. MacFARLANE: It refers to the 1,600 kilometres, in addition to the Youngstown. But when we are talking in terms of tape-coated pipe, it includes the 1,600 kilometres.

Q. Thank you very much, Mr. MacFarlane.

MR. MacFARLANE: You are welcome.

Q. As I understand it, within the 1,600 kilometres of pipe, of tape-coated pipe that is subject to the SCC Management Program, there are a number of sites -- it is 498 kilometres -- that are viewed as being susceptible to significant SCC.

Is that correct? That is what I understand so far.

MR. MacFARLANE: Yes, that is correct.

Q. I was wondering what happens to the pipe that is outside that 498 kilometres but still within the 1,600 kilometres.

MR. MacFARLANE: The 1,600 kilometres represents the amount of pipe that is being hydrostatically retested. So the pipe outside of that 498 would be still in a Hydrostatic Retest Program.

Q. What you are suggesting is that 1,600 kilometres of pipe is subject to periodic hydrostatic retest?

MR. MacFARLANE: That is correct.

MR. BASARABA: I would like to elaborate -- I am getting something from your line of questioning -- just to make clear that if there is a misjudgment to the precise boundaries of the SCC susceptible pipe, that is already going to be covered with the SCC Management Program by way of hydrostatic testing.

So there will not be any omissions, if this is what the concern might be.

Q. I just want to make clear that the program is much broader than the 498 kilometres as far as the retesting program ---

MR. BASARABA: Oh, yes, definitely.

Q. I just wanted to make sure that I understood the distinction between these things.
When we talked earlier, Mr. Basaraba, about some sections of pipe being in a periodic monitoring phase, where do you see those sections of pipe within these two numbers that we are talking about now?

You mentioned there would be still some periodic monitoring that would be done for certain sections of pipe.

I assume you meant outside of the Hydrostatic Retesting Program.

Is that fair? Or am I missing something here?

MR. BASARABA: No, it is mainly intended to be outside of the program that is currently undergoing SCC mitigation.

But again, just by the nature of the activity, there will be some monitoring within the valve sections, the 1,600 or so kilometres that are within the SCC Mitigation Program as well.

So it is broadened both inside and outside of that range.

Q. If you have a Class 2 location within those sections that are being hydrostatically retested, a Class 2 location, even though it may be at a 60 percent SMYS operating stress level, for example, that still would be subject to the hydrostatic retest program.

Is that fair?

MR. BASARABA: That is absolutely correct.

I think at this point in time I should mention to you here -- it would be very useful for the Board and everybody here -- that TransCanada has for some time been monitoring the risk aspects of its system, and in particular to light-wall pipe within developed areas, in Class 2 areas.

We are now in the somewhat final stages of putting together a Section 58 Application that we intend to file with the Board very shortly. That Section 58 Application mainly deals with the Four-Year Pipe Integrity Program, specifically related
to pipe replacements. It is going to entail some
hundred kilometres of pipeline; it is going to be a
$200 million program; and it is going to start this
year.

Basically, it is made up of
concentrations of people at Class 2 locations and Class
3 extensions.

The Class 2 locations that I referred
to would be those for which the coverage would be
enhanced by the current Z 662.

For example, previously Z 184 used to
define a Class 2 location by a 90-metre band width for
places of public assembly. That has now changed to 200
metres.

In addition, the area of influence is
revised somewhat by a demarcation point that goes to
the outside boundary or last dwelling, as the case may
be, perpendicularly to the pipeline, and from that
point it stretches out an additional 200 metres.

So that is providing additional
protection.

On top of that, we have the ongoing
monitoring program for current pipe replacements, and
one in particular identified by Board Order, the A.O.
Smith Board Order, and another one that we have
embarked upon for replacing Welland Tube pipe
replacement.

All in all, we are going to see a
significant program that has been identified with risk
in mind. A lot of these locations will be included for
pipe replacement.

Q. Is SCC susceptibility one of the
criterion for this replacement program?

MR. BASARABA: SCC is not driving
these replacement programs, but there are some
locations within this pipe replacement program that are
susceptible to SCC. But again, these are currently
undergoing hydrostatic tests.

If you were to go to the Montreal Line
and talk about Youngstown Pipe, that pipe is currently
being tested.
In itself, we could have seen that pipe remain, because it is being addressed by the SCC Mitigation Program. But in terms of risk, we had decided that we would provide additional protection to cover risk reduction.

I should also mention to you that the pipe there, on the Montreal Line, is mainly Welland Tube, although there are some Youngstown Pipe replacements.

Q. When is this Section 58 Application expected to be filed, Mr. Basaraba?

MR. BASARABA: It will be shortly. I hate to pin a date to it, but it would be on or around the end of this month.

Q. What you are suggesting, just to clarify, is that some of the 1,600 kilometres that are subject to the SCC Management Program will be part of this replacement program, although SCC is not the driver with respect to the replacement of these sections.

Is that fair?

MR. BASARABA: Sorry, I did not catch the complete question.

Q. Some of the pipe that is part of this proposed Section 58 Application would fall within the 1,600 kilometres that is part of your Hydrostatic Retest Program.

Is that fair?

MR. BASARABA: I have to check a moment here.

--- (A Short Pause/Une courte pause)

MR. BASARABA: Yes, that is correct. Some of that pipe is within the SCC Mitigation Program.

Q. Thank you. And ---

MR. WALKER: I would just like to also add, Mr. McCarthy, that of that replacement program that Mr. Basaraba spoke of, as you identified, or we identified before, 60 kilometres of Class 2 pipe operating at 72 percent, I think there are about 27 kilometres out of that 60 kilometres that are part of this Application.

I just want to make sure that it is clearly understood that that is part of this Application.
Q. When you replace pipe, for example, along these lines, as part of this program, or just as TransCanada's practice, is it your practice to replace it in Class 2 locations to a 50 percent SMYS, equivalent to a 50 percent SMYS?

Is that fair?

MR. BASARABA: Yes, that is correct. The replacement pipe at these locations for this program that I am talking about will be replaced at a 50 percent design factor.

Q. Mr. Walker, we spoke about, I think it was, 11 kilometres of pipe -- that was Youngstown Pipe, as I understand it -- 11 kilometres of that 60-kilometre section we talked about as being 72 percent in a Class 2 location, and you mentioned that 11 kilometres of that was Youngstown Pipe -- or Mr. Basaraba did earlier.

Is that part of the replacement program that you are thinking of with this Section 58 Application?

MR. BASARABA: That will be part of the replacement program, but not all of it will necessarily be Youngstown Pipe. Again, a large portion is likely to be Welland Tube.

Q. But that 11 kilometres that we spoke about earlier would be part of that program, that is planned to be replaced.

Do I understand that?

--- (A Short Pause/Une courte pause)

MR. BASARABA: Yes, that is correct.

Q. Thank you.

Is it fair to say that the SCC Management Program, which is subject to hydrostatic retesting, when applied to asphalt-coated sections, only includes the section from Mainline Valves 131 through to 149, Line 100-1?

So that is the asphalt-coated section that is currently part of a hydrostatic retesting program.

Is that fair?

MR. BURDYLO: Yes, that is correct.
That is shown as the blue portion on that schematic.

Q. As far as the entire SCC mitigation program, are there other asphalt-coated sections that are part of another portion of the program?

Maybe not hydrostatic retesting, but some other element of it.

MR. BURDYLO: Yes, there are.

Q. Would that be investigative digs?

You are digging? You are conducting investigations for SCC on sections that are asphalt-coated that are not on the 131 to 149 valve section?

MR. BURDYLO: Yes, that is correct. I would also like to elaborate that our current SCC Management Program has condition monitoring applied to the entire system, and that means areas that are fusion bond epoxy coated, Class 3 locations. We are extending to the entire system.

Q. Okay. Of the 498 kilometres that you have identified as being susceptible to significant SCC, how much of those sections are suitable for internal inspection using some sort of ILI tool?

MR. BURDYLO: It would be the 365 kilometres of tape-coated pipe that would be capable of inline inspection pigging.

Q. So all of the tape-coated pipe could be inspected. The only thing that cannot be inspected, I guess, from your answer, is the Youngstown section.

Is that fair? Is that what I am to understand you to mean?

MR. BURDYLO: Inspected in the terms of an ILI?

MR. McCARTHY: Yes.

MR. BURDYLO: That is correct.

Q. The Youngstown Pipe, if I could talk to that question for a second; that is found in the section from 130 through to 149. Is that correct?--on the Montreal line, Line 101. Is that the Youngstown Pipe section?

MR. BURDYLO: That is correct.
Q. This is all 508 millimetre pipe.

I understand that in that section there is some Welland Tube.

Is that fair? That section from 130 to 148 or on to 149 is a mixture of Youngstown and Welland Tube?

MR. BURDYLO: That is correct.

MR. BASARABA: I do not have the exact figures, but the split between Youngstown and Welland Tube on the Montreal Line is approximately one half.

Q. Half and half?

MR. BASARABA: I can get the detailed numbers for you.

MR. McCARTHY: Okay. Thank you.

--- UNDERTAKING:
To advise as to breakdown of Youngstown and Welland Tube used on the Montreal Line.

MR. McCARTHY: I understand that Youngstown Pipe is referred to as 207 kilometres in length.

Does that include -- that is excluding the Welland Tube, I guess, from that area.

What does the 207 kilometres refer to?

MR. BASARABA: Yes. That should exclude it, because Youngstown, being about 207 kilometres, means that the balance is going to be Welland Tube.

Q. And you suggest it is probably about the same distance. But you are going to confirm for me how much is Welland Tube.

MR. BASARABA: I believe so. I just do not know what the distance is from Toronto to Montreal right now.

Q. That is fair.

Is it fair to characterize the Youngstown Pipe as being perhaps the section of pipe that seems to have the highest number of significant colonies per metre of pipe?
My reference there is CEPA Table 1.10.

MR. MacFARLANE: Yes, that is correct, Mr. McCarthy.

Q. I think you alluded to this, Mr. Basaraba. The Youngstown Pipe is on a four-year hydro retest frequency.

MR. BASARABA: Yes. It currently is right now, yes.

Q. Are there long-term plans with respect to replacement of this line?

MR. BASARABA: We have talked about that, yes.

Right now we are looking at the long-term integrity of Youngstown Pipe, recognizing that it is subjected to a four-year hydrostatic test program.

One of the concerns we had was that we do not have as much historical data on the Youngstown Pipe as we do on the 36-inch or 914 millimetre diameter pipe in the Central Section.

At this point we are not sure if we can conclude -- like we can, say, for Line 100-2 -- that the hydrostatic test rupture frequencies are going to be diminishing over time.

We would like to give it a bit more time, is what I am trying to say.

If we can see that happening, then that will give us some information. If, however, on the other hand, we are seeing a consistency in the test rupture pattern such that they are continuing, or perhaps even increasing, we will probably be concerned to the point that we may want to consider a replacement program for it.

At this time, we have just been looking at various aspects of it.

One, in particular, to identifying the susceptible portions of SCC within Youngstown Pipe and
another looking at replacing virtually the entire 200 kilometres of it.

However, our major concern is that a capital replacement of that magnitude would be very significant and we would really like to investigate the possible opportunities of enhancing system capacity at the same time.

At this point in time, that opportunity is not available, and so we are just basically monitoring the situation.

MR. BURDYLO: I would like to add that in 1998, we will have a 20-inch Mark III British Gas tool available.

So another option for us is to begin a pigging program in 1998, to identify suspect locations along the Youngstown for cutout and replacement.

In the meantime, we feel that our four-year retesting program, coupled with our completed Proximity Replacement Program on that portion of line, will meet the needs until 1998.

Q. Mr. Burdylo, I thought I just heard that the Youngstown Pipe was not piggable. Did I mis-hear that?

Someone said that the tape-coated pipe was suitable for an internal inspection, but the Youngstown Pipe was not.

MR. BURDYLO: Yes. There are two reasons why it is not piggable.

One is the fact that there is not a 20-inch tool available to pig that portion. The other reason is because the valves on that portion of the line would have to be replaced. Or we could pig it off-line.

Q. When you are talking about in 1998 using the Mark III, you are talking about pigging off-line. Is that correct?

MR. BURDYLO: That is correct.

Q. Thank you.

Just going back to your point, Mr. Basaraba, would you take a look at -- and this is
Appendix A to the TCPL Submission. It is Table 2. It indicates the yearly hydrostatic retesting summary.

Do you have that handy?

MR. BASARABA: Yes, I do.

Q. What I am looking at is the sixth column, which is entitled "Number of conducted on specified pipe".

That looks like it was truncated somehow. Does that mean hydrostatic tests that were conducted on the specified pipes? Is that what that means?

MR. BURDYLO: Yes, that is correct.

Q. If I take a look down through PTO starting at 1992, I see the Youngstown Pipe -- and again, they are all talking about the same thing, I assume: The Mainline Valve 130 through to 149 section. I see "Youngstown" and I see, for 1992, we have two SCC failures; in 1993 we have five SCC failures and two ERW seams weld defect failures.

Moving on to the next section, 1994, we only tested 60 kilometres of it at that time, but again we have six failures, six defects. And then moving on to the 1995, which is the most recent, we only tested 600 metres, as I see it, and there were no failures or leaks.

It seems to indicate, to me, that there is a fairly significant trend; that these sections may not be hydrostatically retested, but I would assume that they had been retested before.

It seems to me that they still have a fairly high number of failures through hydrostatic retesting.

Is that a fair assessment of that pipe?

MR. MacFARLANE: Yes, that is correct.

I would just like to point out that for a number of those valve sections, that was their first hydrostatic test to the current hydrostatic testing parameters that we use.

So that was the first test where they would have seen 210 percent of SMYS.

In 1997 and 1998, as Mr. Burdylo
pointed out, we will be retesting a number of these valve sections, and that will provide a better example of their performance on retesting.

Q. Your suggestion, if I understand it, is that if you do not see a trend where these rehydrotest failures start to decrease, you would move towards replacing that section.

MR. BASARABA: It would be strongly considered.

Again, it is a form of engineering assessment. If the number of test breaks continues, or continues to increase, we would certainly be very concerned, and a pipe replacement would be an option.

But as Mr. Burdylo has pointed out, if at that time -- and it would probably coincide with the availability of the new enhanced Mark III ILI tool, in that size range. If it is effective and available and we could employ it to monitor the Youngstown Pipe, perhaps that would be an option, as well.

We are not making a final decision in that regard at this time.

Q. What criteria do you use when you finally decide to replace a section?

I know you suggested that you would like to try and incorporate it into a capacity expansion program.

Is that a criterion that you would use?

MR. BASARABA: No, it is not a criterion, as such. It would just be an opportunity that we might like to take advantage of.

It is really market-dependent, more than anything else. It is not a strong criterion. But it is one that has been identified that we are just simply keeping our eyes on.

Q. What do you mean by "market-dependent"? I did not quite understand what you meant by that.

MR. BASARABA: Expansion of volumes for deliveries, for system enhancement.

Q. I am more interested in the
decision to replace the pipe or not to replace the pipe.

You have had ---

MR. BASARABA: Let me help you out here.

Basically, a decision to replace the pipe would be one based on engineering judgment, engineering assessment, with safety first and foremost in mind.

If there is a safety concern with this line and we want to continue to use it, that we need the capacity of that particular line, then we are going to look strongly at options such as replacement.

MR. WALKER: I would just like to emphasize that, Mr. McCarthy. As soon as we have a feeling that there is a concern with the integrity which goes beyond the hydrostatic testing program that we have now, we would immediately move into a replacement scenario based on --- obviously, if it is a populated area down there, the risk side of it would come into it.

As we saw the performance under hydrostatic test, we would be evaluating that, as Mr. Basaraba said, and it would be done on an engineering assessment basis. But there would not be any hesitation, once we saw what trend was starting to prevail there.

Q. Your concern about the integrity of the line, does that extend to the Welland Tube sections in there, or is it solely the Youngstown Pipe that you are worried about in that section?

I just looked back at the same Table that we were looking at a moment ago.

The Welland Tube pipe seems to have performed a little bit better with respect to its experience in the hydrostatic retesting program.

MR. WALKER: That is true. As you have noted from Table 2, it has performed better during the hydrostatic testing. But it is also being tested, at the same time, in conjunction with the Youngstown Pipe.

So we are getting more information,
more data on that as we are progressing through the hydrostatic test program as well. So it is under review at the same time.

Q. Thank you.

Just to clarify, my understanding is that of the areas that are identified as susceptible for significant SCC, there is --- I am just trying to turn up that graph that we were looking at earlier.

133 kilometres of that falls into that Youngstown section.

MR. BASARABA: Yes. I think that number is familiar to me, in that it has been identified as susceptible to SCC within the Youngstown Pipe. Yes.

Q. When the hydrostatic retesting program goes on and you have a series of unsuccessful tests -- successful in that you found a defect but unsuccessful in that you have to keep the line out of service -- how long would a section like the Youngstown Pipe section be down or out of service while you are testing, trying to complete a hydrostatic?

MR. BASARABA: Typically speaking, a hydrostatic test of a mainline valve section, if it is not complicated by any busts or breaks due to elevation changes, would take in the order of about 10 to 15 days.

If, on the other hand, there are complications as a result of hydrostatic test ruptures, that could certainly well extend in duration, and one can expect to see the section out of service for two weeks, and even longer, if necessary.

Q. I suppose you have to consider that when you are making your assessment as to whether it is feasible to replace the line or continue to use the existing mitigative program?

MR. BASARABA: If I read your question correctly, when one goes and embarks on a hydrostatic testing program or in particular testing over a particular valve section, the intention is to get out in a finite amount of time.

It is true that if one encounters
several line breaks, it is a sign that something might be of additional concern in that particular valve section.

But a decision to actually replace the whole valve section outright would, in all probability, not be made at that particular time. It would have to go into a broader planning scheme.

Q. I will pose a question to you, and you can respond to it.

I will just try and see if I can summarize a few things here.

You have identified 498 kilometres of pipe that are susceptible to significant SCC. 133 kilometres of that, roughly a quarter, is the Youngstown Pipe which is not piggable online and has a series of problems with respect to repeated hydrostatic testing.

Through the hydrostatic retesting program, it seems to have a number of other defects as well -- because it was not solely SCC that was the cause of a number of the hydrostatic test failures.

I suppose over the years you are also spending an awful lot of time and energy on the engineering staff with respect to concerning yourself with the Youngstown Pipe.

Why do you not replace it?

MR. BASARABA: That is a fair question.

Again, I have mentioned to you that TransCanada has considered the option of replacement of that portion of the system and removing that type of pipe, in particular.

It is something that we would want to be very sure of, to undertake in terms of feasibility.

And that may well be the outcome of that type of pipe. We are continuing to monitor it. Rest assured that we are just not letting it go by indefinitely.

If we have continued test breaks, and if pigging is not deemed to be a feasible option to address the problem, then pipe replacement could certainly be the move we make.
MR. WALKER: Perhaps I could just add
to that.

I think you are referring to more than
just the Youngstown Pipe. You are referring to the 498
kilometres? Or were you just referring to the
Youngstown?

Q. I am speaking only of the
Youngstown. When I look Figure 1.2, it says:
"SCC Susceptible Youngstown Asphalt
Coated Pipe (133 km)."
MR. WALKER: I misunderstood your
reference to the 498 in your discussion.

MR. WALKER: That is right. The 498
is spread out over a large distance. It is not all in
one contiguous section. That becomes a much more
difficult issue when it comes to replacing the balance,
the 365 kilometres across Line 2.

That is a different issue than the
Youngstown issue.

Q. Mr. Walker, I am only focusing on
the Youngstown Pipe.

It is a significant portion of your
SCC problem, I suppose?

MR. WALKER: Correct.

Q. Moving on, I want to turn your
attention to Issue 1, page 6 of 14.

This is a section that deals with the
question of "why some pipeline systems have experienced
more SCC failures than others".

If you remember, I asked, I believe it
was, Mr. Delanty on the CEPA Panel as to why CEPA did
not respond to that question.

But TransCanada certainly did, as I
see here.

This is TransCanada's Response.

I want to try and make sure I
understand how you view these comments in respect of
TransCanada.

If I could summarize, it says that
TransCanada's view -- which differs from CEPA's, as I understand. Is that fair?--or maybe I am going too far.

MR. WALKER: I am not sure it differs from CEPA's view. But we will carry on with our view.

Q. That is fine.

It seems that the criteria that you have used here to identify the reason why some pipelines have experienced more SCC failures than others -- polyethylene tape-coated pipeline systems.

If I could just summarize here, you talk about:

"Approximately half of the expansion phase pipelines were installed during the colder months of the year (October to April), thereby creating challenging conditions for pipeline construction crews applying pipe coating."

We asked a question of CEPA as to whether there was a correlation there, between the date of installation and the incidence of SCC.

I do not have their I.R. Response handy, but my understanding is that they could not identify any correlation.

Is it TransCanada's view that there is a correlation? Have you done a similar analysis?

MR. MacFARLANE: At the time that this Submission was formulated, that was one possible explanation of why some companies have experienced more of an SCC concern than others.

Upon receiving the Information Request to CEPA, we performed a detailed analysis, and no trends were evidenced with a higher significance of SCC or a higher probability of SCC in the season of construction.

Q. So you removed this element from the list.

Is that fair?

MR. MacFARLANE: Yes. We, along with
the CEPA-member companies, are currently investigating parameters associated with the various companies and their experiences with SCC, in an attempt to establish trends or correlations which may lead to why some companies have had more of an SCC concern than others.

But yes, we have removed this from our list of possible explanations.

Q. You also go on and talk about that -- you draw the note that:

"Field applied polyethylene tape coatings have demonstrated to be more susceptible to significant SCC than factory applied polyethylene tape systems."

Are factory-applied polyethylene tape systems in much use? Is there much pipe in the ground that is factory-applied?

MR. MacFARLANE: Predominantly, the tape coat that we have on our system has been applied in the field, over the ditch applied.

Q. Are there many -- and maybe this should be to CEPA.

Are there many systems in Canada that have factory-applied polyethylene tape?

MR. MacFARLANE: I am not familiar with that.

MR. WALKER: I am not really aware of the details, Mr. McCarthy. Speculation would be that the smaller diameters may in fact have factory-applied.

Q. You go on to say that the "larger diameter pipelines...are more prone to soil loading" than are smaller diameter pipes.

MR. WALKER: Correct.

Q. I have a few more questions here, just to clarify.

We spoke a little bit earlier about TransCanada's policy that if they were building new pipe or if they were replacing pipe in Class 2 locations, they would use 50 percent as a target operating stress level.

When you move to Class 3, what is the company practice?
MR. BASARABA: It would still be 50 percent, as well.

Q. So for Class 2 and Class 3 you would still use the 50 percent SMYS target level?

MR. BASARABA: Correct.

Q. I want to talk a little bit about internal inspection.

There is reference in your Submission, when you are talking about internal inspection, to an issue with respect to the ability to use internal inspection devices -- and I think you are speaking specifically about the British Gas device -- in high reflector steels.

Is that a reference to the high inclusion content of 1970s vintage pipe?

I have a reference here. It is page 5 of 16. It is at the top of the first complete paragraph. It says:

"TransCanada has encountered an additional technological limitation with the use of the elastic wave inspection vehicle ---"

I believe that is what the acronym is short for.

"-- which is caused by the unusually high inclusion content of the 1970's vintage steel."

Is this a phenomenon that is common for all the lines that match that description on TransCanada? Or does the inclusion content vary from line to line?

The lines I am most interested in are the ones that are part of the SCC Mitigation Program.

MR. BURDYLO: I think it is safe to say that inclusion content is characteristic of a certain vintage of steel. Although we have not pigged other vintages of steel as of yet on our system -- because it was isolated to a certain number of years that the rare earth elements were added in the steel-making process to achieve a certain metallurgical condition that we were after, it is only isolated to those portions of the system. We expect that other portions of our system would not have this challenge of high inclusion content or reflectors.
Q. What portion are you referring to specifically, Mr. Burdylo? It is Line 100-2?

MR. BURDYLO: That is correct.

Q. It is primarily Line 100-2. From where to where, are we speaking about, that you feel is particularly prone to this issue?

MR. BASARABA: That vintage of pipe basically applies to Winnipeg to roughly North Bay. But if you are talking that vintage, we are talking construction/installation years of 1971 to 1973.

I can only surmise at this time that it is possible that Line 4, out West, might have the same phenomena as the Line 2 in the Central Section. But I think I would offer at this time that it is not likely -- and we would have to confirm this -- that the other lines in the system would be prone to the extent of inclusions as observed on Line 100-2.

Q. How do you determine that? Is it only when you run the pig that you realize that you have a lot of inclusions?

MR. BASARABA: That would be the ultimate test. But I do believe that one can get a good idea, a good handle, as to whether or not one would encounter inclusion content by the requirements for toughness.

I think it was recognized after the mid-1970s that the addition of rare earth metals, previously mentioned, contributed to these inclusions, and that the achievement of toughness was obtained by the addition of some other elements. But I do not know what they are.

Q. There is also a mention in here -- it is on page 9 of 16, where there is the statement: "TransCanada foresees the implementation of in-line inspection tools as a replacement for hydrostatic testing."

Then you go on to say: "TransCanada is planning to qualify the EWIV inspection system as an alternative to hydrostatic retesting as an acceptable method for assuring the integrity of a pipeline section
affected by stress corrosion cracking.

This will be conducted in 1996 and 1997."

Could you tell me a little bit about what steps you would take to qualify the use of the EWIV tool for a replacement for hydrostatic testing?

MR. BURDYLO: Basically, we would run the particular valve section with an inspection tool, repair any significant cracking that the tool identified, and then sometime after that subject that same portion of pipeline to a hydrostatic retest, which would ultimately prove out whether the tool had in fact caught all of the structurally significant cracks within it.

Q. How do you know that there were any structurally significant cracks there?

Let me just put it back to you. How does that validate it?

You have run a tool. You have found some indications, perhaps, but you find that there is nothing structurally significant; and you hydrostatically test and you also find that there is nothing structurally significant.

How is that a validation?

I do not quite understand it.

MR. BURDYLO: In one particular case, that may happen. But if you did that more than once, you would validate the tool.

Q. So you would have to go do it a couple of times?

MR. BURDYLO: Right. You would have to get the confidence level such that that occurrence that you mentioned there did not happen.

MR. WALKER: I think also, as discussed with the CEPA Panel, as you stated there, or we have stated in our Submission, that we are going to run the tool and test.

I believe it was IPL that is going to do the same thing this year.
We certainly would not say that the tool was qualified based on the one test, as Mr. Burdylo said. We would have to do that certainly more than once. I am not sure how many times we would have to do that to get the confidence level up, but it would certainly have to be done more frequently than just this one run that we have referred to there in 1996.

Q. You see that as a bit further off, then, than 1996-1997?

MR. WALKER: I think it is a process or a program that we are started into right now. We are committed to running the tool, as we have been since 1986, when we started with the first British Gas run. Obviously, we have invested a lot of money and a lot of time into working with British Gas to develop the tool to the point where it is right now.

We are well down the path to getting that comfort level, with the experience we have had over the last couple of years with the cracks that they have found with the tool.

I think, as we indicate, we are into the next phase now, where we are wanting to make that transition from testing to running the tool. So we are going to do the two things, one in conjunction with the other.

Q. The last area I want to talk to you about is the issue of some of the information that is on the record with respect to the costs of pressure reduction on TransCanada's system.

The latest information we have is TransCanada's Response to NEB I.R. No. 9.

This is an I.R. dated 13 September, 1995, as I understand it.

Is that correct? Is that the latest information with respect to the determination of the costs of a pressure reduction?

MR. WALKER: Yes, we have that. As you say, it is dated September 13, 1995. There was mention made of those costs in our Submission.

I believe it is in Issue 4, page 24 of 31.
Q. But you are drawing upon this request of September of 1995.

If I can just summarize: Two scenarios are talked about here, a Case 1 and a Case 2 scenario. The Case 1 scenario is at a de-rated MAOP based on 72 percent SMYS. As I understand it, that scenario is that the entire system is de-rated to 72 percent SMYS—is that fair?—except for the sections, of course, that are already at 72 percent or lower.

Is that the scenario that we have there?

MR. WALKER: That is correct, with the exception of the fusion bond sections of the system.

Q. You did focus solely on de-rating the tape-coated sections? Or is this the entire section, the entire system?

MR. WALKER: On page 2 of 4 we indicate what the exceptions are ---

Q. So when you have an entire section, when you talk about the North Bay Shortcut and the Iroquois Extension --

MR. WALKER: Right.

Q. -- which are entire discrete sections, you have left them at their original MOP?

MR. WALKER: That is correct.

Q. I understand that. But where you have lines that are fusion bond epoxy running parallel to a tape-coated line, the entire two lines would be brought down to the 72 percent SMYS level?

MR. WALKER: That is correct.

Q. Similarly, if you are in the West here where you have ---

I am sorry, Mr. Walker, is it six lines?

MR. WALKER: That is correct.

Q. All six lines would be reduced to the same, 72 percent of SMYS.

MR. WALKER: Right.

Q. Okay. And the conclusions of the first case was that there would be a very significant reduction in capacity, and the replacement costs of the
facilities would be in the order of $682 million.

Is that a fair summary?

MR. WALKER: That is correct.

Q. What steps were considered in order to minimize the effect of the pressure reduction? You mention that if you have a discrete section that was fully FBE -- that would be the North Bay Shortcut and the Iroquois Extension -- you maintain the pressure there. But in other sections, as I understand it, there was no effort to try and minimize the cost of the reduction in pressure.

Is that fair?

MR. WALKER: No, we did not look at fine-tuning, I guess, if you want to call it that, on a section-by-section basis. We looked at the overall loss in capacity or reduction in capacity if the system were reduced from the 77 percent down to 72 percent on a generic basis. So we did not look at the individual sections.

My feeling is that if we were to go in and look at individual sections and try and be selective on particular sections, we could end up with some costs that are even higher than the costs that are indicated. Once we took a look at the piping that was required -- if we were going to go with a split line operation for parts of the system -- we could end up with some higher costs or some additional costs that we have not taken into account.

Q. Have you done any of that evaluation or that analysis on a preliminary basis?

MR. WALKER: The only thing we have looked at is, on a typical section, what would be involved, as far as piping goes, as far as what that would mean to the operation of that particular valve section.

I think it has been along the lines of what we discussed the day that we had the meeting in our offices as part of this Inquiry, the information gathering.

Q. But TransCanada has not done any
sort of more extensive evaluation of maybe perhaps
optimizing -- I do not know if you want to call it
optimizing. But if you focus solely on the areas ---

We talked about 498 kilometres of pipe, 133 of it being on the Youngstown section.

Doing some quick arithmetic, you have
got 365 kilometres of pipe on the mainline.

That sounds like an awful large cost
if you are really only focusing on the SCC susceptible areas.

Could that cost be reduced if you
focused solely on SCC susceptible areas?

MR. WALKER: I think there are a
couple of points to be made.

One would be that the 365 kilometres
that you referred to on the Line 2 part of our system
is, as I think we mentioned earlier, spread across an
extensive part of our system. So it is not just say
several valve sections. We would have to take a look
at virtually all of the valve sections on Line 2 across
the system, if you are going to address the SCC susceptible sections.

It would not be as straightforward as
just going in and looking at a couple of valve sections
and feeling that you had an effective solution.

I think that the reason we have not
looked at it in any greater detail is that, as has been
stated numerous times, I guess, over the last few days,
we are not of the opinion that pressure reduction is
the solution to the SCC problem.

We feel we have an extensive
mitigative program in place right now where we are
addressing all of the SCC susceptible locations on the
system, significant SCC susceptible sections on the
system through the hydrostatic program, and through
that program we are addressing the risk and the concern
regarding the integrity of the system that results from
SCC.

So we have not addressed or have not
looked at pressure reduction as a long-term. Because
once we launch into something like a pressure reduction
program, that is a long-term issue, if we get
proceeding down that path.

So as I say, we feel we have a
mitigative program that addresses the issue without
getting into pressure reduction.
Q. I know TransCanada will be providing the locations for the 498 kilometres, but I guess, in advance of that, I just want to get a sense as to how many of those kilometres were in the first valve section downstream of a compressor?

MR. MacFARLANE: The 498 kilometres identified are based on environmental parameters such as topography, drainage, and soil type, and therefore they are not a reflection of the location of that soil relative to a compressor station. Therefore, the 498 kilometres is spread throughout the valve sections, generally speaking, fairly equally.

Q. Is it fair to say that the Hydrostatic Retesting Program focuses on the first valve section downstream of compressors, and that the retest frequency is in the order of five years for retests versus seven years when you move further down from the compressor?

MR. MacFARLANE: That is correct. The first valve sections are retested at a frequency of five years; and second, third and fourth valve sections are retested at a frequency of seven years.

The Hydrostatic Retesting Program addresses all of the valve sections which may have SCC susceptible conditions. So it addresses all of the polyethylene tape-coated pipe.

Q. You would not take the 498 kilometres and attach any priority to those areas that were again in the first valve section downstream of a compressor station?

MR. WALKER: I am not sure I understand the question or the ---

Q. Let me just try and go back here. The hydrotest frequency changes from the first valve section down to the subsequent valve sections, and as I understand the evidence -- and correct me if I am wrong, Mr. MacFarlane -- it is primarily a function of the pressure fluctuations as well as the pressure levels.

Is that fair? Is that why it changes?

MR. MacFARLANE: The five- and seven-year retest frequencies have been based on operational experience. We have provided in the I.R. Responses possible explanations of why we have
experienced varying crack growth rates at different
valve sections downstream of compressor stations.

Q. There is no suggestion that the
first valve section is more susceptible to significant
SCC?

MR. MacFARLANE: Based on the research
that has been done, stress plays a role in initiation
of SCC; therefore we have a higher population of SCC
colonies which have initiated closer to the compressor
station.

Q. Tell me, could you not take the
498 kilometres and prioritize it in correlation to the
proximity -- or perhaps the stress level or the
proximity to the compressor station?

MR. MacFARLANE: I do not think there
is a requirement for prioritization because the 498
kilometres in its entirety is being addressed through
the Hydrostatic Retesting Program.

MR. BASARABA: I think, Mr. McCarthy,
I should add something here. If de-ration were to be
looked at at a specific location -- as I gather from
your inference, the section immediately downstream of
the compressor station -- we could well see that if
pressure de-ration were to take place, the SCC
Mitigation Program would still have to continue there
and would also have to continue in the sections
downstream of that section that would be operating at
the lower pressures just by virtue of their distance
from the compressor station.

We do not see that as being that much

further ahead in terms of management of SCC.

MR. McCARTHY: Mr. Chairman, that
concludes my area of questioning.

EXAMINATION BY BOARD PANEL:

MR. ILLING: Gentlemen, I have some
questions that primarily relate to Issue 6, "Safety of
the Public and of Company Employees, and Protection of
the Environment and Property".

I am going to be referring to Exhibit
A-45. That is one exhibit. That is a Report from
Fresh Start Limited to the Board on community sessions,
Williamstown, Vermilion Bay and Rapid City.

I am also going to be referring to TransCanada's Evidence on Issue 6, B-14, 13. And on to Exhibit C-112, which is a Detailed Report on the Mainline Break Near Rapid City, July 29, 1995.

I probably have a couple of other questions on top of that, but those are the exhibits I shall be referring to.

The consultant's Report is reasonably comprehensive. It was also accompanied by some notes made by a Mr. W. Cowling of Williamstown in relation to the Williamstown incident.

They explored with those communities and some of the emergency response organizations how things had gone and the concerns that there had been and reactions from TransCanada and so on at the time of the pipeline ruptures.

Of course, in Cardinal and Williamstown, fortunately, there was not ignition; at Vermilion Bay and Rapid City, of course, there were explosions.

Having given that preamble, really, I am going to refer to page 4 of 12 of the Report on Community Surveys, Williamstown and Cardinal.

This is a Summary of Conclusions from the Community Surveys.

The Cardinal incident was December 8, 1991 and the Williamstown was October 6, 1994. So they were about three years apart. But this is the joint remark, referring to both the Williamstown and Cardinal surveys.

In point 3 of the Summary of Conclusions, it says:

"The Williamstown TCPL Open House after the accident was viewed negatively by everyone we talked to.

The session did not provide an open question and answer period and the company did not answer many questions at the time, stating that the accident was under investigation. In the opinions of most people surveyed TCPL has not provided sufficient subsequent information to the community. People in Cardinal did not recall an Open
Point 4 says:  
"Most people in the area have not received answers to their questions including what caused the accident and what they should do to protect themselves or public safety in the event of another accident. There is some anger towards TCPL because they haven't provided more information..."  
Et cetera.

No. 3, is:  
"We recommend that the Pipeline Company restructure its Open Houses held after accidents to include open question and answer periods."

These community surveys were carried out in the latter part of last year, of 1995. So in both cases, they were some considerable time after the incidents. But obviously the community continued to have strong feelings about communication, and the type of communication.

I now go on to the Consultant's Report on the Rapid City and Vermilion Bay incidents -- which were much more recent, of course. I think Vermilion Bay, February 4, 1995; and Rapid City, July 29, 1995. Roughly six months apart.

In the Summary of Conclusions from the Community Surveys, page 5 of 14, in Point 11 there is reference to the open houses, as follows:  
"While the Open Houses answered many questions, some people still had some outstanding issues. There were some rumours about pipeline safety and questions about what had occurred on the line just before the explosions.

It was suggested by many that post-incident Open Houses should provide an opportunity for an open question and answer period."  
So there seems to have been, in Vermilion Bay, no open house; in Williamstown, an open house, but not very satisfactory from the residents' point of view, and perhaps some improvement in communication between then and Vermilion Bay and Rapid City, but still some concern about the open house in the format of discussion.
I am sure that TransCanada is well aware of these consultant reports, and I wonder what comments you might have to make about what seem to be objective consultant reports and about how you might be prepared to address the handling of communication with communities in any future incidents; if you have something to learn from this.

MR. BASARABA: Mr. Illing, I would like to start, first of all, with the Williamstown open house -- mainly because I was present at it. So I think I had a good firsthand view as to what the feelings of the people were at that particular point in time.

The open house in Williamstown was structured such that it would be an opportunity for the local people, especially those impacted by an un-ignited rupture, to obtain additional information, to give them an assurance that the pipeline that was put back in service after was of sound integrity.

The way it was structured was that we had it extended from some point in the afternoon -- I am not sure exactly what time; perhaps it was around three or 4:00, and it went on in the evening and finished at approximately 9:00 or 10:00.

The reason for that was quite simple: we realized that people, for whatever reason, would have difficulty in coming to the location at one specific point in time.

The intention there, however, was to go and give them the maximum opportunity to express their feelings and to ask their questions.

We were set up in a fashion -- and we made it known to everybody that came into the open house that whatever question they had, we would try and answer; and for those questions that we did not have answers for, that we would get back to them. We asked them therefore to leave their names and addresses.

And to the best of my recollection, I think that that was satisfied completely.

The other issue that you talk about here is the amount of information regarding the procedures, if you will, to follow in the event of an incident.

That becomes a little bit more difficult.
I know that with Mr. Abes I was talking on behalf of CEPA, trying to say that we provide basic information, especially to landowners; and then we go to another level of information to First Responders, because they are professionals in this particular field and they are better addressed to handle such matters regarding emergency responses.

In any case, since the landowners here are the ones that are raising the concern, we recognize that it is difficult to provide all the information to them that they might like to know in the way of a blanket package.

One of the things about Williamstown: as you are aware, it was an un-ignited release. And that contrasts definitely from an ignited release.

We have looked at the feedback from the questions that were asked, and at this point in time we are looking at what is the best available package of information we can provide to landowners to give them the degree of information. But we also recognize that it is a fact, the way we see it, that it is going to be very difficult to portray every scenario which we actually talk about and every possible course of action that they may take; for example, if it is not ignited; if it is daytime versus night time, et cetera.

We have committed, as we have stated in a Response to an Information Request -- I believe No. 9 -- to tighten that area up and to deal with communities and landowners in the fashion described.

I do not know if I have covered all the areas.

MR. ILLING: I think you basically have, Mr. Basaraba.

I do think, though, that it was significant that at the time that these interviews were carried out, which is -- I do not have the specific dates. But it was the latter part of last year.

It is significant that for the Williamstown situation particularly, the consultant said: "Everyone we talked to felt negatively about TCPL's open house" -- and that was a recall later.

So obviously things stuck in their
minds. People still have not received answers.

I am sure that whatever needs to be done is being done; at least I hope so.

But there was obviously a strong recall in these communities and some dissatisfaction.

That is, as you know, recorded in Exhibit C-45.

I should say that anyone who is interested in this subject should read the whole of Exhibit C-45. It is not just critical things; there are commendatory things, too.

There are some things that are critical of the National Energy Board, as well.

I think one has to recognize the context in which this should be considered.

MR. WALKER: Mr. Illing, just to follow up on Mr. Basaraba's comments: He attended Williamstown. I was at the Rapid City Open House. And we have noted the comments that have come from the review that the consultants gathered when they were out to visit these sites.

As you just mentioned, this is definitely an ongoing process.

Our No. 1 objective here is to avoid having open houses; that we do not have incidents such that we have to go back and do this again.

But having said that, we are quite open to taking a look at the process that we use in these situations and considering alternatives.

I know in the case of Williamstown -- and Mr. Cowling, you mentioned had some observations.

There has been a fair bit of communication, written and otherwise, between Mr. Cowling and TransCanada since that time as well.

What we at Rapid City had was much the same format as Williamstown, but we ensured we had a significant number of TransCanada employees there, both from our Field Organization and from Head Office.

Actually, Mr. MacFarlane was there, as well. If anybody wanted to ask questions on any part of the operation, we felt we had people there to
address those.

The only difference is we did not have
it in a public forum, in that format.

MR. ILLING: That seems to have been
the main suggestion for improvement ---
MR. WALKER: Right.

MR. ILLING: -- the main thought that
came out of those meetings.

There were, of course, some problems
particularly identified, I think, in Williamstown of
congerns about the emergency response and who knew what
to do, and so on.

I am sure there are lessons to be
learned from that.

I move on from Exhibit A-45 to
TransCanada's B-34-13, Issue 6.

I note on page 12 of 17 there are --
there is a statement there by TransCanada about public
awareness as follows:

"TransCanada makes regular
landowner/tenant contacts, both in
person and through printed material
delivery."

And yet, going back to the
Williamstown incident, people seem to have not known
what to do.

That may be because they have not paid
any attention to whatever they have been told or had
delivered to them.

But is that statement relating to
public awareness a reflection of how things are today,
as far as TransCanada's program? Would that have been
applicable three or four years ago? Or is it an
improvement from the way things were three or four
years ago?

MR. WALKER: Definitely there has been
some improvement from the way it was at the time at
Williamstown.

When we talk about landowners -- i.e.,
individuals that own property on our right-of-way --
that is one group. There is another group which I
think were involved in some of the discussions at
Williamstown which went a lot further than just our own landowners. And of course that is an area of significant debate: How wide do you cast the information net in some of these locations?

We have heard anything from half a kilometre up to a kilometre wide on each side of the right-of-way; that we should be contacting landowners in that area -- which definitely becomes a different task than just dealing with our own individual landowners that have property on our right-of-way.

I think we have got two different groups that we are dealing with as we go across the system.

Our Response to I.R. No. 9 addresses a number of the points. I think a couple of the brochures or the booklets and the information that we are sending out to landowners are included in that.

But the area that we have not perhaps come to grips with is this other group in the wider band along the right-of-way.

MR. ILLING: I can understand that as incidents occur, there becomes a wider audience, perhaps; a wider sphere of interest.

On page 13 of 17, Issue 6, the subject of preparedness ---

You emphasize prevention of emergencies is your primary concern, but being prepared to react, should an emergency occur, is essential.

Then you go on to a whole list of preparation efforts, and it is not clear to me whether those were all in place at the time of writing this or whether some of them were under development. Or is it something that you consider to be in kind of perpetual improvement -- the area of preparedness?

MR. BASARABA: This is definitely a perpetual program that is going to be revisited on a regular basis, and will be modified to suit the level of concern and degree of information that we think that we can spread out to these people, so long as it is effective.

In terms of dealing with people that might be nearby but not adjacent to the pipeline rights-of-way, I think our most effective approach will be through the Community Awareness Program -- which, too, are being held on a regular basis, and will continue to be.
MR. ILLING: I noticed, too, on the
next page, that you initiated a pilot project in June
of last year with the Emergency Coordinator of the
Regional Municipality of Hamilton-Wentworth, Ontario.

You state:
"This project was undertaken with a
goal to explore coordination with
large and well-organized emergency
measures organizations and further enhance coordination..."
"The Company has targeted to complete
the pilot in mid-1996 and, by using
this project as a template, implement,
in the remainder of 1996, even more
comprehensive and consistent emergency
response coordination ---"
Is that the first initiative of that
type that you have had working with a regional
municipality or something equivalent in developing
effort measures and procedures for testing them, and
so on? Is that the first time you have done that?

MR. BASARABA: It is the first of its
type for this comprehensive type of emergency response
plan, although it is certainly not the first time we
have met with municipalities.

This one has been earmarked to be a
very effective type of First Responders' procedure and
format. We would like to go and spread that out across
the entire system for all the municipalities that we
pass through.

MR. ILLING: Do you feel it is an
initiative that you could perhaps have embarked upon
earlier, with some benefit?

MR. BASARABA: Are you referring to
starting this particular initiative with the
Hamilton-Wentworth?

MR. ILLING: Yes, this one or consider
that one of a type of initiatives that you might have
taken. Do you think it is something that might have
usefully been done earlier?

MR. BASARABA: I would like to think
that we should have embarked upon it sooner, but I get the feeling, without knowing specifically, that this type of program was not available elsewhere to the degree of effectiveness that it is reputed to have.

MR. ILLING: I am going to move now to ---

MR. WALKER: Before we leave that one, could I just add one point?

I do not want to leave the impression that we have not been meeting with municipalities.

For as long as I can remember -- and that is sometimes longer than I care to think about. But for quite some time, we have been meeting with municipalities all the way across the system and have had discussions with them regarding our system.

It is part of the ongoing Awareness Program that we have.

The particular initiative that Mr. Basaraba is talking about was a new initiative. But by no means was it the first time that we have embarked on meeting with municipalities and other First Responder-type groups.

MR. ILLING: All right. I understand your and Mr. Basaraba's response.

I am going to move now to C-112, the detailed Report on the Mainline Break near Rapid City.

I am referring to page 10 of 19 of that Report.

In the second paragraph of 7.3, the subject is "Isolation". It talks about Mr. MacLaughlin, who was the operator on duty at the compressor station, then evacuating the station, et cetera, et cetera. And then it is stated:

"He initiated a station emergency shutdown (ESD) by depressing the "Station ESD" button on the ESD shutdown box... Follow-up investigation of the operation of this ESD button found it to be in full working order. It was concluded that although Mr. MacLaughlin felt he had initiated the ESD at the ESD box on at least three separate occasions, in the excitement of the situation, he apparently failed to depress the button sufficiently to actuate the ESD system."
It then goes on to discuss Mr. McMillan's actions in the Winnipeg Regional Control Centre, stating that he had "also initiated a Station ESD from his console," which "should have shut down all the units and closed all plant side valves".

The next paragraph goes on to state:

"The display failed to confirm these results and Mr. McMillan repeated the command on another two occasions.

Failing to receive confirmation ---"

Is it possible that you are describing the situation a little unfairly for Mr. MacLaughlin when you say that apparently "in the excitement" he failed to press the button.

And yet, we have an operator in Winnipeg getting negative results, also.

There were two different sets of circumstances, but I would just like to know what the linkage was.

MacLaughlin could not do it, but McMillan could not do it, either.

In spite of checking that the ESD box was functional later on, was there perhaps something that was generically wrong, when you have got two different operators not getting results?

MR. BASARABA: When we reviewed the incident, I think that the ESD system, the push-button ESD system referred to here, was in proper working order.

What was determined, insofar as the effectiveness of the remote isolation command from the Winnipeg Regional Control Centre, was that there were difficulties because that same weekend, or immediately prior to the break, our technicians were installing a new SCADA program.

Unfortunately, it had not performed the way it was supposed to have done so. After we had realized that, we certainly set that straight and made a check of all the other remote commands on the SCADA system, for the entire system.

MR. ILLING: So Mr. McMillan's inability to get a response was due to problems with the SCADA system.
MR. ILLING: It is just a little difficult to think of somebody three times not actually pressing the button correctly. Anyway, that clears up that point for me.

You have mentioned the problems with the SCADA system. I notice on the top of page 12 of 19, it says:

"SCADA commissioning procedures are also being developed and implemented to ensure field staff can verify and accept equipment during commissioning."

Had that been part of the problem, that field operators were not familiar with the system?

What inference do I draw from that reference?

MR. BASARABA: I think the inference you can draw from that is that, as you may be aware, we had just restructured our field organization, where we went more into the localized command by way of Regionalization II, as it is referred to. The entire system had to be modified to alter the communications command. That was part of the program at that time.

I think had it been in a more basic mode, as seen previous to Regionalization II, that problem may not have happened.

That is my understanding of the situation.

MR. ILLING: I have a generic question on safety and the procedures and emergency response.

Who would be the Senior Executive in TransCanada who would be responsible for safety and emergency response?
At what level in the organization would it be?

MR. WALKER: I have the direct responsibility for the Operations side of the organization.

I report to Bob Reid, who is Senior Vice-President responsible for the Mainline; and he reports to George Watson, who is the President and Chief Executive.

The Safety Policy that we have and the safety -- the importance that we have placed on safety at TransCanada stems from Mr. Watson, at the top of the organization.

And the policy that we have issued, and is issued across the system, is one that he has issued to the organization.

But as far as day-to-day responsibility for emergency preparedness, that would have to fall with me.

MR. ILLING: When a major incident occurs, such as Rapid City or one of the other three that we have been talking about, that would be reported, obviously, to you very quickly. And then would you go up the system with that information when something happens?

MR. WALKER: That is correct. We have an Emergency Notification Roster Procedure that we have in place for notifying yourselves, the Transportation and Safety Board, our own internal Executives, and all those that are required to respond in an emergency situation. Then there are the other responses that are required on a regional basis: contacting the local fire department, police, whatever other groups are on their list of emergency notification actions. They carry those out from the Regional Office.

But certainly any time there is an incident, day or night, notification quickly comes into myself and to Bob Reid, and others in Calgary.

MR. ILLING: In other words, it gets senior notification?

MR. WALKER: Oh, absolutely.

MR. ILLING: The issue of the pipeline incidents and incidents of SCC, is that the kind of
issue that would from time to time get discussed at the
Board of Directors level?

MR. WALKER: Yes. Certainly any
incident on the system ---

I guess that is probably the way I can
tell who is responsible for some of these things, who
gets to go and make the presentations. If it is not
Bob Reid, it is going to be me.

But definitely it gets discussed at
the Board of Directors. They are, to say the least,
interested in that side of the operation.

Anything to do with any emergency on
the system usually ends up coming up on one of the
agendas for the Board of Directors.

MR. ILLING: Thanks, Mr. Walker.

I have one other area I want to touch
on.

Of course, as you have said, both in
your Written Evidence and here, your objective is
really to minimize the requirement for reacting to
incidents by reducing incidents and that a key part of
that strategy for the future is the use of a prudent
in-line inspection vehicle.

I do not know whether you were here on
Friday or not when I was asking some questions of Mr.
Ward of British Gas about British Gas's longer term
commitment to development of their tool or tools in
relation to the reorganization of British Gas that was
taking place.

I referred to a letter from Mr.
Friedrich to Mr. Anderson, and so on.

I must say that on thinking back,
after reviewing the Transcript and thinking further, I
quite realized that Mr. Ward was not authorized to give
me some of the answers I was looking for. No
reflection on him whatever.

But I still feel uncomfortable at this
stage of the potential reorganization, or announced
reorganization of British Gas, that one could be sure
that British Gas is necessarily going to continue in a
long-term commitment to the development of the Mark III
tool.
I wonder if this is of any concern to TransCanada; and if so, what steps you might, either now or later, take in relation to that concern?

MR. WALKER: Yes, I was here for the discussion on Friday, Mr. Illing.

Also, as I think Mr. Anderson indicated, I was present at the discussions with British Gas in the U.K. a month ago, I guess it was, approximately, when we met with British Gas.

I received the same assurances at that time as Mr. Anderson covered off on Friday.

It has obviously been an issue. I would not say it is a concern of TransCanada; but it has certainly been an issue and a question that we have had as to what is the longer term relationship going to be with British Gas.

Obviously, we have had a long relationship with British Gas over the years already, starting back in 1986. So we probably have a longer ongoing relationship with British Gas than some of the other companies.

But having said that, I felt reassured from the discussions we had, both with the PII Group in the U.K. as well as those at the Research Centre who are basically involved with all the research work that goes into the tools -- and I must admit, you can never have too much reassurance. But I certainly came away from the discussions feeling that there was a definite commitment there to proceeding with this development work and to make sure that we do get these tools, as we are anticipating we are going to have, in 1998 and beyond.

MR. ILLING: As I understand it, the Senior Executive to head up TransCo International, which embraces all of this research and many other things, has not yet been appointed.

Yet, there are also statements about "looking to maximize opportunities", "streamline" and things like this.

I would imagine that as the reorganization/restructuring of British Gas takes place -- and it is, as I understand it, to be completed in 1997 -- that you will be following this carefully, to see in fact what happens.

It does look like a new game in an
overall organizational sense.

MR. WALKER: There is no doubt, based on the discussions we had with the British Gas representatives in the U.K., that things have changed. The whole organization is different now than it was previously.

So there have been some significant changes, and I am sure that there are probably going to be more.

We were really concerned with the two areas. One was the research activities that they were doing at the Research Centre and how dedicated they were to fulfilling that activity; and the other side was the actual in-line inspection services that were being provided by that Group.

As I say, we are going to have to keep monitoring that and keep an eye on it, because it is a changing time.

But I did come away from it with -- I had a lot of questions going into the meeting and got a good number of them answered to give that comfort level at the time.

MR. ILLING: Those are all of my questions.

Thanks very much, Mr. Walker and Panel.

THE CHAIR: Mr. Murray, the Board has no further questions of this Panel.

Do you have any redirect?

MR. MURRAY: No, I do not, Mr. Chairman.

We will consider Exhibit A-79 over the break and be discussing that with Board Counsel.

We do have undertakings to fulfill, and we will do that.

Thank you, Mr. Chairman.

THE CHAIR: As I recognize those Undertakings, and the one yet to be defined, subject to those matters being addressed, the Panel is excused, with our thanks.

--- (The witnesses withdrew/Les témoins se retirent)
THE CHAIR: I think, Mr. Malone, that makes it a day. We will move to the CEPA Policy Panel at 8:30 tomorrow morning.

MR. MALONE: That will be fine, sir.

THE CHAIR: We are adjourned for the day.

--- Adjournment/Ajournement