



COMMISSION OF INQUIRY RESPECTING THE MUSKRAT FALLS PROJECT

Transcript | Phase 1

Volume 19

Commissioner: Honourable Justice Richard LeBlanc

Wednesday

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CLERK (Mulrooney): All rise.

This Commission of Inquiry is now open. The Honourable Justice Richard LeBlanc presiding as Commissioner.

Please be seated.

THE COMMISSIONER: All right. Good morning.

Mr. Mallam, you remain affirmed at this time, and you'll continue your evidence this morning.

Ms. O'Brien.

MS. O'BRIEN: Thank you.

Mr. Mallam, before we get to the IPR team results for DG2, a couple of follow-up questions from yesterday.

First, you talked about the projects that you'd worked on, the generation projects you'd worked on with Newfoundland and Labrador Hydro. Can you give us a sense of the – in terms of cost, what would have been the largest of those projects, and roughly what would the cost have been?

MR. MALLAM: The largest in dollar value was probably Cat Arm. That was around 300 million in early 1980s dollars.

MS. O'BRIEN: Okay. Thank you.

And, in – you – yesterday, as we were finishing up our evidence, you talked just generally about the procedure that you went through with the IPR team in order to do the review.

In terms of numbers of days that was, you know, how long did the review take place? You said you read documents in advance, you got together with the team, you would interview during the days, you'd meet at the end of the day and the team would talk about their findings for the day. How many days did that go on for?

MR. MALLAM: I think it spanned about two weeks, roughly a week of which was reviewing documents remotely. And the team convened and met for approximately one week.

MS. O'BRIEN: Okay.

Okay, if we could bring up P-00491. This would be tab 17 in the binder before you.

So, Mr. Mallam, do you recognize this as the IPR team's report for Decision Gate 2?

MR. MALLAM: Yes.

MS. O'BRIEN: And it was done and presented on September 17, 2010. Is that accurate?

MR. MALLAM: Well, I assume so, yes.

MS. O'BRIEN: Okay. To whom would you have presented this? Do you recall who was there?

MR. MALLAM: Not specifically. I recall the DG3 meeting more clearly than this one. This was two years prior to it. But I assume it would have been approximately the same group: Ed Martin, Paul Harrington, Gilbert Bennett and others.

MS. O'BRIEN: Okay. And we do have a list, I think, for DG3, which we'll get to in due course.

And so would the four members of the IPR team have been there for the presentation?

MR. MALLAM: Oh, yes.

MS. O'BRIEN: Okay. And would there have been discussion ongoing throughout your presentation or was it really just you presented and then left?

MR. MALLAM: No, there was discussion. I'm sure there were questions answered and we provided clarifications.

MS. O'BRIEN: All right, so we're gonna go through, not the entire slideshow, but we just see there's – the Table of Contents is here. We get some of the Background. You discuss how it fits into the Decision Gate process and the Objectives of the IPR and then you talk about the Summary of Findings.

And you really – you categorized each findings in this report in terms of a green for go and I think there was a bit of a colour code. And there

was a few areas that – where you described as high priority. And I think they would've been in some of your pre-work in a red colour, but we'll get to them in a moment.

Okay, I'm gonna go to the Summary. Actually, we're gonna go right to the Findings on page 9.

So, Mr. Mallam, is it fair to say – and the Findings that are here are all set out, and I'll just scan through it so we get a sense of what's going on there, but is it fair to say that out of the 35 Focus Areas that the IPR determine that all but nine were Gate ready for DG2?

MR. MALLAM: That sounds right, yes.

MS. O'BRIEN: Okay. And in terms of the format that you reported on, it looks like you entered – you identified the Focus Area here. You said whether or not it was ready for passage through the Gate. You gave it a Status or Priority, so green meaning the most ready and then, I think, a yellow-green would've been needs a little more work. Is that a fair way to put it?

MR. MALLAM: Yes, it is.

MS. O'BRIEN: Okay. And then you would've – you gave a description of what the Focus Area was. And would that have just essentially been lifted from the DG2 charter?

MR. MALLAM: Yes, it was.

MS. O'BRIEN: Okay.

MR. MALLAM: Mm-hmm.

MS. O'BRIEN: Then you gave your Findings & Observations. So I think Findings are in the black print and Observations are in the red.

What's the difference between a finding and an observation?

MR. MALLAM: Well, a finding is really just a basic, brief commentary on a – basically a yes, no. Whereas the commentary is as the word implies, it's an expansion of why we reached the conclusion that we did.

MS. O'BRIEN: Okay, so that would be the Observations?

MR. MALLAM: Yes.

MS. O'BRIEN: Okay, and then in the last column over, the IPR set out a recommendation.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

Now, I'm not going to highlight all of them but I am gonna highlight one of the Gate ready – of the ones that you found as Gate ready, I think there was, I think 26 of those. And that's gonna be Focus Area 24. It's on page 18 of this slide presentation.

Mr. Mallam, can I ask you to read out what was the focus area here for Focus Area 24.

MR. MALLAM: “That the Environmental Assessment process is underway, on schedule, that no showstoppers are apparent and that there is a plan to finalize the environmental activities leading up to a final decision to meet the Project schedule.”

MS. O'BRIEN: And what was the IPRs finding with respect to this?

MR. MALLAM: The “EA process is being worked hard and professionally, plans in place adequate for Gate 2.”

The observations were: “*While there are no obvious show-stoppers at this time for GEN, it is clear that this remains an area of significant risk & uncertainty the resolution of which must continue to be progressed aggressively through Phase 3. Concern that JRP does not know of switch to MF first and there is no apparent plan in place to rectify this. IL requires only EIS but this work has not started and there are no guidelines currently in place; this is planned for*” first quarter of 2011, “*so we cannot judge the progress.*”

MS. O'BRIEN: Okay. GEN here, so that would be the Muskrat Falls generation –

MR. MALLAM: Generation plan.

MS. O'BRIEN: – plan. Okay.

And I understand that the Muskrat – we've had other evidence already but the Muskrat Falls generation plan and the Labrador Transmission Assets were going through the full environmental assessment review before the JRP panel.

MR. MALLAM: Yes.

MS. O'BRIEN: And the Labrador-Island Link was subject to a different review, a little less. There was not full hearing for that.

MR. MALLAM: It was less rigorous, yes.

MS. O'BRIEN: Less rigorous for that one.

And is that what you would be referring to here when you wrote IL requires only EIS.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

So, it seems here that at this point, to your knowledge, the plan – is it correct to assume from this that the IPR was aware that at this point Nalcor was planning on proceeding with the development of the Lower Churchill with Muskrat Falls first –

MR. MALLAM: Yes.

MS. O'BRIEN: – and not Gull Island.

MR. MALLAM: And not Gull Island, that's correct, yes.

MS. O'BRIEN: Okay.

And so, in this observation here, it – am I understanding it correctly that the IPR team was raising a concern that the JRP process, the JRP panel had not yet been informed of this.

MR. MALLAM: I think that was what we're saying here. The switch from Gull Island first to Muskrat Falls first came relatively shortly before this Decision Gate process was undertaken; a matter of months, I think. And, I think, we were concerned that not all parties were aware of the switch.

MS. O'BRIEN: Okay. And could you just review for us what the IRPs recommendation was.

MR. MALLAM: “Ensure messaging of pivot to MF first is conducted effectively. This requires careful analysis to determine optimum timing to ensure there's no disruption to the ongoing EA process.”

MS. O'BRIEN: Okay.

Other than what's reported here, and you've already told us, do you recall any further discussion with respect to this finding at the presentation of your results?

MR. MALLAM: No.

MS. O'BRIEN: Now, I'm going to put – take a little more time with a few of the items that the IPR recognized as not being Gate-ready. And I believe they are reviewed starting on page 23 of this report?

So these ones, we'll see Gate 2 readiness – the answer is no. And all of them have a high priority status. And I'm not going to go through each one – all nine of them. The document is – it does speak for itself. But there are three in particular that I'd like to go through, starting with the one that's up on the screen right now – number 7.

So can you tell us what this focus area was, please?

MR. MALLAM: Well, the question we were asked to consider here was, was the project contracting schedule properly developed and defined for this project? And our findings were that we were concerned about the reality of the schedule that they had and whether they had fully considered the contracting strategy.

MS. O'BRIEN: Okay.

So specifically here, the focus area is there. Your – just – can you just read your finding and observation into the record please?

MR. MALLAM: Mm-hmm.

The finding was, “The process by which the EPCM strategy was developed (from the EOI) ... has been implemented with regard to the RFP and bid evaluation process is consistent with best practice and very appropriate for a Gate 2 decision.”

And the observation was, “We are concerned about the reality of the schedule: assuming contract award Dec 2010 (which could slip given the number of options to be evaluated), and a mobilization period of Jan – Mar 2011, and the requirement for local office and staffing (consistent with the Benefit Agreement), sanction is scheduled for Oct. 2011 at which time 60-70% of engineering is to be complete. Experience suggests it is unlikely this can be achieved; if it is not, the implementation of the contract strategy gets off to a bad start based on a pattern of unrealistic objectives.”

MS. O'BRIEN: Okay. And what was your recommendation for this focus area?

MR. MALLAM: The recommendation was, “Develop a detailed plan and scope for Phase 3 engineering based on an agreement with the Gatekeeper as to the amount of engineering that must be completed to meet the Gate 3 requirements.”

MS. O'BRIEN: So at this point now – realizing at this point it was a target sanction date of October, 2011 – and we know that the project didn't ultimately get sanctioned until December of 2012 – so over a year later than that – but at DG2 it's – I take from this that the IPR team was concerned that the schedule wouldn't be met.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay, and ultimately we know by DG3, it wasn't met so –

MR. MALLAM: Yes.

MS. O'BRIEN: So, okay. Do you recall any further discussion on this point on – particularly the schedule slippage – at the presentation of these results?

MR. MALLAM: No.

The only comment I can make is that it seemed obvious to us that it was highly unlikely that the schedule that they'd proposed could be met.

MS. O'BRIEN: The next one I'd like to review is Focus Area 20 – that'll be on page 26 please.

Please scroll right down. Oops. I got ahead of myself.

There you go, Mr. Mallam. It's right here on the page.

MR. MALLAM: Mm-hmm.

MS. O'BRIEN: The focus area here was: “That a project cost and schedule estimate in the appropriate range of accuracy is available.”

So, can you please read into the record what the findings and observations were of the IPR team?

MR. MALLAM: Finding is, “The IPR Team was not provided with a definitive probability (“P”) value for the cost estimate nor its level of accuracy.” And the observation was, “There appears to be some ambiguity around the appropriate P-value to be used for the Gate 2 decision, as well as the correct way to utilize the latest Risk Analysis to determine accuracy.”

MS. O'BRIEN: And the recommendations?

MR. MALLAM: Recommendations – the first one is, “Prepare a current analysis of estimate probability value and accuracy and include this in the Gate 2 deliverables.” Second, “Prepare a current analysis of schedule probability value and accuracy and include in Gate 2 deliverables.”

MS. O'BRIEN: So, we have had some evidence already around P-value, and I'll just tell you what we've had so far and you can tell me if that accords with your understanding of it. But if a P-value is a P-value of P50 that would mean the ultimate result had a 50 per cent chance of coming over that value and a 50 per cent chance of coming under that value. And if something had a P90 then if there was a 90 per cent chance it would be that value or less, and only a 10 per cent chance that it would go over the value.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay. So, higher confidence level means a higher P-value.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

So, what – so there was a – clearly discussion about there not being a P-value chosen for DG2. Do you recall what numbers were being proposed or whether any recommendations were being discussed at this stage, DG2?

MR. MALLAM: No. I don't remember any specific P-value being mentioned.

MS. O'BRIEN: Okay.

Any other discussion you remember around this finding, other than what's presented here in the report?

MR. MALLAM: No.

MS. O'BRIEN: Okay.

I'm going to go next to Focus Area 22, which is actually on the next page – page 27.

Okay. And this was one that you may need to read – the one above – or reference it at least. The focus area here was: "That the organization staffing and design is commensurate with the complexity of the project and is both well represented and functional."

Your finding – you refer to the finding in 21 above, is that right?

MR. MALLAM: Mm-hmm, yes.

MS. O'BRIEN: Okay.

And that's there. I'm interested in what – your observations with respect to Focus Area 22. Could you please read those into the record?

MR. MALLAM: The observation is: "It is essential that the mindsets and behaviours of the NALCOR Phase 3 team be appropriate for the Owner role and oversight and guidance of work by the EPCM (many owner teams have difficulty "letting go" of the actual engineering work, thereby rendering the contractor ineffective)."

The contractor referred to there is the EPCM contractor.

MS. O'BRIEN: So that would be SNC-Lavalin?

MR. MALLAM: Yes, exactly.

"The proposed organization consisting of Home Office and Project Teams must function as a matrix with all the well-known challenges that implies. There remain important strategic decisions as to exactly how this will work (e.g., "strong" versus "weak" matrix) and these should be taken seriously."

MS. O'BRIEN: Okay.

So, do you recall, you know, other than what's written here, what the discussion was or what the concern was around at this point?

MR. MALLAM: Yes; what we were talking about here is that at some point the owner's management team has to hand over substantial parts of the project management to the EPCM contractor to do that management function. And, there's frequently a tendency to not let go of that. It's been your baby up to that point and there's like, a natural human reluctance to let go, and we'd observe that. So, our comment was that they have to do that if the project is to be effectively managed.

MS. O'BRIEN: Okay.

And, what was your recommendation with respect to this focus area?

MR. MALLAM: Recommendation is: "Coordinated with the short term staffing plan above, the planned Phase 3 Home Office and Project organizations need to be fully defined in terms of manpower, competencies required, and allocations of responsibility and accountability."

MS. O'BRIEN: Do you remember any further discussion at the presentation of their report on this topic of handover to SNC-Lavalin?

MR. MALLAM: No.

MS. O'BRIEN: Okay.

Generally, at DG2 do you have any further memories as to how the IPR's report was received by Ed Martin, Gil Bennett and those others present?

MR. MALLAM: No. There was discussion during the presentation and at the end of it we were thanked and dismissed.

MS. O'BRIEN: And to be clear, Commissioner, just out of – more concerned with the time in the hearing room there's – clearly in that IPR report there was many, fair to say, Mr. Mallam, many positive things that the IPR team had found about the project and its readiness at the Gate 2 review.

MR. MALLAM: Oh yes, definitely.

MS. O'BRIEN: And those are there and the bulk of the findings obviously were that it was ready and there was a fair amount of praise for the readiness on those other items. Is that a fair summary, Mr. Mallam?

MR. MALLAM: That is a fair statement, yes.

MS. O'BRIEN: Okay.

So I haven't gone through all those. The document itself is filed and all those Gate-ready findings are included. One question I wanted to ask you – follow-up from Gate 2, Mr. Mallam. Could we go to P-00489 at tab 15?

This is just – so you would have presented, I think, on this date, the 17th of 2010. And from this it sounds like – would this have been an email that – to your knowledge that would have come from Derek Owen after you had done the presentation?

MR. MALLAM: Yes, I think so.

MS. O'BRIEN: Okay.

So he's writing to the rest of the team: "Congratulations on an outstanding job over the last few weeks. We blended exceptionally well as a group and I believe the client received the quality product they were looking for. John and I will keep you posted on the Project team's suggested changes.

"Bernie/Dick,.....have a safe journey home."

So here, John and I – I would expect you would be the John.

MR. MALLAM: Yes.

MS. O'BRIEN: Is that right?

MR. MALLAM: That's right.

MS. O'BRIEN: Do you recall what Mr. Owen would be referring to there in terms of what the project team's suggested changes would be?

MR. MALLAM: No, I think that's just a general statement that if there was any feedback coming from the project team to us, that it would be passed along.

MS. O'BRIEN: Okay.

MR. MALLAM: And I don't recall there being any follow-up afterwards.

MS. O'BRIEN: Okay.

If we could next go to P-00492, it's at tab 18 of the book before you, Mr. Mallam.

So September 17, 2010, is when you presented your DG2 review. This is an Executive Employment Amending Agreement between you and Nalcor Energy and Newfoundland and Labrador Hydro dated, you know, a couple of weeks after October 1, 2010.

You had – or yesterday I think your evidence was that at the time of Decision Gate 2, you had – you were working for Nalcor, but on nothing to do with the project. But here, if we go to – could we go to page 3, please?

So I know you had an existing ongoing contract but here some changes are being made. And you – and these clauses, Mr. Mallam, I understand you would be the executive that's referred to here.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

So “Nalcor shall employ the Executive as Lead Mechanical Engineer with the Lower Churchill Project effective October 1, 2010, for a term which shall automatically terminate on May 31, 2012, subject to the terms and conditions hereinafter mentioned.”

“As a member of the Project Engineering team, the Executive shall be responsible for the following: ... Providing expert guidance and advice to the Project Engineering Manager, Project Manager, and other members of the Lower Churchill project team on design matters related to project operations and operability; and, ... Providing technical guidance, advice and mentorship on project design matters related to the mechanical engineering discipline, and on matters generally related to large scale hydro project engineering.”

So clearly at this point there was a change in your contract and now you are starting to do work on the Muskrat Falls Project.

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

Can you please tell the Commissioner what – we've read the clauses so we know what they covered. In practice, what work were you doing?

MR. MALLAM: Divided into two broad categories; one was looking at the – reviewing design documents prepared by SNC and technical drawings, looking at the power plant and the other facilities to ensure that the equipment that was being proposed and the layouts were suitable for, what I would call, sound utility practice, that is, they could be easily and effectively and economically maintained and operated.

I was also looking at the operational issues regarding the entire development and how it would fit into the operation of the existing hydro network considering how it was to be operated and maintained over its lifespan.

MS. O'BRIEN: Okay.

Now, we have had evidence to date – and it was a finding of – in the Grant Thornton Report – was that at – in the – for the CPW analysis at

DG3, that the numbers used for operation and maintenance costs for Muskrat Falls going forward was, I think, 34 million annually. And Grant Thornton pointed out that in 2017 there had been – new numbers for operation and maintenance had been announced annually. And I think at that time it was, you know, over 100 million annually.

Since then, we had some – we've had some evidence filed from Nalcor that it's less than that, somewhere in the range of 70 to 80 million annually, but still significantly higher than the 34 million annually that had been used at DG3. Were you at all involved in doing those estimates for the 34 million annual that was used at DG3?

MR. MALLAM: Yes, leading up to that figure. I retired in May of 2012 and I had done some work on the operating costs up to that point. And it was very much a work in progress; it wasn't even a first draft.

MS. O'BRIEN: Okay.

MR. MALLAM: I think at the time I retired the total was up near 20 million, but at that point we hadn't even identified all the items that would be included in the cost, let alone cost of those individual items. We had no details on the equipment that was being supplied and many other details relevant to the project. So it was very much a work in progress. How it got from 20 to 30, I really don't know.

MS. O'BRIEN: Okay.

And so you certainly – I take it from that you wouldn't know how it got from 34 to wherever it is today at 70 or 80 (inaudible).

MR. MALLAM: Well, I have some insight into that. Beginning in late 2016 up until May of this year, I did some part-time work for the – for Nalcor, assisting them in assembling those operating costs. So I'm aware of how it got to 70 million, but how it got to the 30 million, I really don't know.

MS. O'BRIEN: Okay. Can you give us whatever information you can as to how it got to the current number?

MR. MALLAM: Well, beginning in 2016, at that point all the major contracts had been issued. We had detailed drawings of what equipment was being provided, we had operating characteristics, service lives and all that other sort of information. Also, all the operating companies had been put in positions, so we knew how it was going to be maintained. And then we could detail exactly what the operating costs were going to be and estimate them.

MS. O'BRIEN: So am I understanding from that that the difference from when you'd been doing the work prior to DG3 to when you've been doing the updated work more recently is that you had more information as to what would be needed?

MR. MALLAM: Exactly.

MS. O'BRIEN: Okay.

Could we go to P-00510, which is tab 36 in your binder, Mr. Mallam. And we're still in the sort of – the period in between DG2 and DG3 here.

This is a series of emails – there's an email chain here. It's taking place April 18, 2012. Pat Hussey is on it, you're on it. The subject is: Isolated Island scenario. And the – there's not a lot of information in the email chain itself. There's – and it's – when you read the email it's not clear what exactly is going on here. So the question for you is going to be to ask you to explain what was going on here.

But you – Paul Harrington is also in the email chain where you're talking – it seems to me that you're looking for cost estimates on the Isolated Island scenario. And there is even talk of a cold eyes review of the Isolated Island scenario estimates. It's here, yes: Hi, we have our team ready for a cold eyes review of the Isolated Island scenario.

Mr. Mallam, can you put this email in some context for us? Tell us what was going on, what work you were doing here?

MR. MALLAM: Well, obviously, the other alternative to Muskrat Falls was the Isolated Island scenario. And that was a generation development plan that, over the years, has

changed many times, and it was a hierarchy of different plant types involving wind, hydro and thermal resources. And there were numerous cost estimates that had been prepared for these different plants. And a lot of these I was involved in when I was at Hydro, preparing directly, or they were done under my management.

So the – I think the reason Paul approached me was that, prior to this time, I was the vice-president of engineering, and most of this work was done under my direction. And he wanted me to arrange for people within Hydro to refresh these estimates to make sure they were all done in current dollars with the latest available figures.

So I was really just a person to contact, and I don't remember if I contacted the individuals back at Hydro within engineering or if someone else did, but we contacted the people who had lead the studies of the plants that were in the current Isolated Island case to refresh those estimates.

MS. O'BRIEN: Okay.

And were you actually doing the refreshing work yourself, or were you acting more, at this point, as a coordinator getting the right people on the –?

MR. MALLAM: I was just coordinator.

MS. O'BRIEN: Okay.

And in terms of the contingencies that were built into those projects for the estimates, would you have had any involvement with that?

MR. MALLAM: No. They would've been decided by the people who prepared the studies, and they were based on Hydro standard practices.

MS. O'BRIEN: Okay.

And those would be the practices that you reviewed with us yesterday?

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

So I think you said yesterday – somewhere between 10 and 20 per cent contingency, more typically between 10 and 15 per cent, is –?

MR. MALLAM: That would be typical for a study for a project that was at the point of being developed. For study purposes, it would be slightly less than that, and we have larger contingencies. So you might be – to use P-value equivalence, some of those feasibility studies were probably P70s.

MS. O'BRIEN: Okay.

MR. MALLAM: Some may have been as high as P90, and appropriate contingencies would've been applied. So say, for a P70, it might carry a 25 or 30 per cent contingency. If a project was at a P90-equivalent level, it would be a 10 to 15 per cent contingency.

MS. O'BRIEN: Okay.

Do you mean at a higher – typically, sometimes we think of a higher P-level would be a higher contingency because it – that's what builds in more certainty to that you'll come in under that number.

MR. MALLAM: No, no. What I mean is that at – when I refer to an equivalent to a, say, a P90, I mean that the study that we – that was performed has a very high confidence level. There was a great deal of work done, and so we're very confident in the value of the estimate; therefore, it needs a small contingency.

MS. O'BRIEN: Okay.

And when you say when it's – when you're very confident in the estimate, what type of contingency would you typically add on?

MR. MALLAM: Oh, 10 per cent, 15 per cent.

MS. O'BRIEN: One other piece that I wanna go to prior to getting to DG3. Can we go to P-00095? It's at tab 21 of the binder before you, Mr. Mallam.

Oh sorry, P-00495. I seem to have a problem with dropping the first number.

Okay.

So here we are, so this is July 2011, so this is, you know, partway through the period between DG2 and DG3.

And what is here that you are writing an email, Mr. Mallam, to the other members that had served on the DG2 IPR with you. And what you are essentially forwarding to them is an article by Sue Bailey, *The Canadian Press*. And when we read this article, it – I'm not going to read it into the record. It's there; it's filed as an exhibit.

But it's quite clear that Ms. Bailey would have had a copy of the report that the IPR team had done in DG2. And she is reporting on that and various of your findings that you had made in that report including your observation that the IPR team – we are concerned about the reality of the schedule and other things that she's pulled from that report that we have already looked at this morning.

So trying to get a sense just now – you are saying to the other members of the team: “Good morning gentlemen. Below is the text of the Canadian Press article about the IPR review last fall. It remains to be seen what news services pick this up and what follow up results, if any. If contacted by any media please refer them to Dawn Dalley.”

And now, Dawn Dalley, we've heard evidence already, was the VP of communications at Nalcor. Is that –

MR. MALLAM: Yes.

MS. O'BRIEN: – consistent with your understanding?

Thank you. Okay.

So can you just tell us what happened here and why you were forwarding that to the other members of the team?

MR. MALLAM: I don't remember how we came upon this article. It may be that Dawn sent it to me or I became aware of it otherwise, but in any case, I was just sending it on to the other team members as a heads up.

MS. O'BRIEN: Okay.

MR. MALLAM: As they're named in here, there was a possibility they could be contacted, and I wanted to make sure that if they were, that they would refer those contacts to Dawn Dalley.

MS. O'BRIEN: Okay.

And do you have any knowledge of how the IPR report became public?

MR. MALLAM: No.

MS. O'BRIEN: Okay.

P-00499, tab 25 of the book in front of you.

So this is the IPR team for DG3. And we'll just – I'll just scroll down. We can see that Dick Westney, or Richard Westney, is there; Bernie Osiowy is there; Mr. Owen is there; you were there, and we have one new member, and that is Tim Leopold, who's from Nova Scotia Power, which is a subsidiary of Emera I understand.

Did you have any input into the selection of the DG3 IPR team?

MR. MALLAM: No. None.

MS. O'BRIEN: Do you know why Mr. Leopold was added to the team?

MR. MALLAM: No.

MS. O'BRIEN: Now, we earlier – you know, at DG2 you were not working on the Muskrat Falls Project, so we know that you didn't have any inside view of the project at that point, but at DG3, you were.

MR. MALLAM: Yes.

MS. O'BRIEN: And we've had – we looked yesterday at a slide presentation – which is – I'm just gonna pull it up in front so I have it here.

And one of the issues that had come up with the IPR team is that it's important to have people who are independent of the project and that the word independent in Independent Project Review means independent of the project. I think we had some evidence from the board on that yesterday, some reference to that in board meeting minutes certainly at the DG2 level.

Did you have any concern that by DG3 you were no longer independent of the project?

MR. MALLAM: No, I didn't. Because the main things we were looking at as part of this review were things like capital cost estimate, schedule, things of that nature. Those are the important things to review, and I had no involvement in those whatsoever in my duties at Muskrat Falls.

MS. O'BRIEN: But in some – to some extent, to the – when we look at the Focus Areas – but there was some – you know, one of the – some of the things that you were looking at would be operations and maintenance and how estimates were done.

In some – to some extent, would you not have been in a position where you were reviewing some of your own work?

MR. MALLAM: Not reviewing the work itself. The team did not do things like review precise estimates. They reviewed the way in which they were being prepared, how they were prepared, what information went into them. So you know, I didn't feel a conflict of interest partially because that work had only just started, and as the numbers you mentioned a few minutes ago indicate, there was a long way to go yet.

So I – also, there were four other members on the team who were also looking over my shoulder, if you want to look at it that way, to correct for any biases that might appear.

MS. O'BRIEN: Okay.

And at that time where were you physically working? Like, where's your physical office on a daily basis?

MR. MALLAM: At the time of DG3?

MS. O'BRIEN: Yes.

MR. MALLAM: I was retired.

MS. O'BRIEN: Okay, so between – sorry, when you were working on the project at – between DG2 and DG3 –

MR. MALLAM: Oh, I was working at the Hydro offices on – or the Nalcor offices – on Torbay Road.

MS. O'BRIEN: And were you working in the same area where the project team was working?

MR. MALLAM: Yes.

MS. O'BRIEN: Okay, so you were sharing physical office space.

Were you still working out of that space when you did the DG3 review?

MR. MALLAM: No, I'd retired.

MS. O'BRIEN: Okay.

MR. MALLAM: And we came back, and I think we used their meeting rooms there.

MS. O'BRIEN: Okay, so – and your – do you remember your precise date of retirement?

MR. MALLAM: The end of May 2012.

MS. O'BRIEN: Okay. Okay.

And you said one of the things that you felt would correct against, you know, any potential biases creeping in were the other members of the team. Now, Dick Westney, were you aware that Dick Westney was – and his firm had been engaged as the risk management consultant for the Lower Churchill Project from well back, way before DG2?

MR. MALLAM: I think so, yes.

MS. O'BRIEN: Okay.

MR. MALLAM: Mmm.

MS. O'BRIEN: So again, some of the things that the IPR team was looking through at that time – or looking for in your review was, you know, risk management plans, how risk was being dealt with.

Any concern discussed that Mr. Westney was there? His firm was the consultant who was advising the project team with respect to how risk would be handled. Very much involved with

the project. At least his firm was. And he had some involvement himself, personally; that he was now sitting on this Independent Project Review team and again, in essence, reviewing some of his own work.

MR. MALLAM: No. Not at – I wasn't that concerned because, as you just said, his purpose was as an advisor to the project team. The project team made the final decisions about how they set up their risk register and what they included. So he reviewed it along with the rest of us and we were all, I guess you could say, we were checking him for any biases as well.

In any case, it was a moot point because, I think as is noted in our report, we did not see the risk report. We didn't have a chance to review it. It was not available to us.

MS. O'BRIEN: Okay, we're going to get to that shortly. Okay.

What about Mr. Owen? Derek Owen. He's the lead of the IPR. Were you aware, at the time, that Mr. Owen had a professional services consulting contract in place for the Muskrat Falls Project, Lower Churchill Project team and he'd been acting as an advisor to that team from, you know, well before Decision Gate 2, continuing all up through the period between Decision Gate 2 and Decision Gate 3?

MR. MALLAM: I don't think I was.

MS. O'BRIEN: Tim Leopold, from Nova Scotia Power or Emera, do you know whether he had done any work with respect to the Maritime Link portion of the project?

MR. MALLAM: I don't know.

MS. O'BRIEN: Okay.

And I do believe the other member, Mr. Osiowy, was with Manitoba Hydro and we know that Manitoba Hydro International, which is a subsidiary of Manitoba Hydro, was involved in doing consultant work for the project. But I understand Mr. Osiowy had actually retired in 2009 from Manitoba Hydro. So he was no –

MR. MALLAM: Yes.

MS. O'BRIEN: – longer – so he had not actively worked on the project from what we can tell.

But any discussion for the rest of – Mr. Leopold being a bit of an unknown at this point, but certainly for – you know, you knew you had had some work in the project, you knew Mr. Westney's firm and he had had some work in the project. You didn't know about Mr. Owen.

But was there any discussion about this, you know, at the IPR when you guys were meeting? Was there any discussion like: Look, we're not all necessarily independent of this project, we have had some work and involvement in the project?

MR. MALLAM: I don't recall any discussion, no.

MS. O'BRIEN: And again, I'll just get you to address: Any concerns as you sit here today that there, you know, could be a conflict of interest or a perceived conflict of interest when the Independent Project Review team – some of those members – have actually been involved with the project itself?

MR. MALLAM: I don't think there was any real conflict of interest. I can see how there could be a perception of a conflict. But I mean, if there was and if anyone thinks there was bias, then all they have to do is read our report. We were quite critical in some very important areas that they asked us to review.

MS. O'BRIEN: So we will get to that. Thank you.

Before we get to your report itself, I'm going to review the DG3 charter – similar to what we did at DG2. Can we please bring up P-00502? It's at tab 28 of your book, Mr. Mallam.

Okay, so here it is. This is the charter that's been filed. This is the signed off version and it is – this time it's actually signed off before you did the DG3 work. It has the various sections – I'm not going to go through it all in detail. It talks about the purpose, the scope, the roles, the definitions. And if we can go – let me just see – page 7, please, Madam – Oh, I'm here on page 7 – I got there myself.

Here we have the Focus Areas listed, Mr. Mallam, and I'm not going to go through each of them, but they're on the next three pages. And is it fair to say that there was a good deal – a good few more focus areas for the IPR team to be reviewing at DG3 than there was a DG2?

MR. MALLAM: Yes, I think there were approximately 60.

MS. O'BRIEN: Okay. And that's compared, I think, to 35 at DG2.

MR. MALLAM: That sounds right, yes.

MS. O'BRIEN: Okay.

Now, in terms of the process that you went through, that you described for us for DG2 – you know, getting the documents in advance and then getting together, meeting, interviewing people – would it have been more or less the same process that you followed at DG3?

MR. MALLAM: I think it was virtually identical.

MS. O'BRIEN: Okay. And we do actually – at P-00503, which is at tab 29 of your book.

This is an updated – I think this was the schedule that you followed – and I'm just pointing at the time-stamp here – so this would've been circulated to various parties. I believe you included – yes, your there, Mr. Mallam. And the date it was circulated was August 27, 2012. And this really sets out – it was – the review was going to be happening August 26 to the 31; here's the team members. And it really goes through, in some detail, what you were doing on each of those days – who would be interviewed and whatnot.

So is that an accurate – a fairly accurate representation of how it actually unfolded?

MR. MALLAM: Yes, I think so.

MS. O'BRIEN: Now, in terms of the presentation of the report, can we go to P-00501 which is at tab 27. So this is – I think this is – they're putting – making some suggestions. I'd like to arrange a session for Friday, August 31, early afternoon, for the DG3 team to debrief Ed

and Gilbert on their findings from next week's review.

So I believe – Mr. Mallam, am I correct here that this would've been the meeting for the IPR team to present their findings to the executive?

MR. MALLAM: That is correct, yes.

MS. O'BRIEN: Okay, and here they have the list of attendees, so I'd like to go through this.

So Ed would be Ed Martin?

MR. MALLAM: Yes.

MS. O'BRIEN: Gilbert would be Gilbert Bennett?

MR. MALLAM: Yes.

MS. O'BRIEN: Brian, would that be Brian Crawley?

MR. MALLAM: I think so.

MS. O'BRIEN: Okay.

Paul, would that be Paul Harrington?

MR. MALLAM: That is Paul Harrington, yes.

MS. O'BRIEN: Ron Power – last name. And would Lance be Lance Clarke?

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

Greg Fleming, Mark Peddle and myself – the writer here would've been Jason Kean. Is that right?

MR. MALLAM: Mm-hmm.

MS. O'BRIEN: Okay. And I know it was a while ago now, but are these the people that you recall being present at your presentation for the DG3 report?

MR. MALLAM: I couldn't say.

MS. O'BRIEN: Is there anything there that does not accord with your memory?

MR. MALLAM: Oh, no, no.

MS. O'BRIEN: Okay. So, for example, would Ed Martin, Gilbert Bennett and Paul Harrington have been there?

MR. MALLAM: They – I definitely remember them being there, yes. As to the others, I couldn't say.

MS. O'BRIEN: Okay, that's fine. Thank you.

And to the best – do you recall whether all the members of the IPR team present to give their report?

MR. MALLAM: Yes, we were.

MS. O'BRIEN: Okay.

P-00504 please, Madam Clerk. Mr. Mallam, tab 30 in the book before you. So this is the PowerPoint presentation, if you could just give, maybe, that a quick flip through in your book there.

Do you recognize this as the PowerPoint presentation that you would have presented on August 31, 2012?

MR. MALLAM: Yes, I think so.

MS. O'BRIEN: Okay.

And was this a final report you were presenting at that time or a draft report?

MR. MALLAM: No, it was a final report.

MS. O'BRIEN: Okay.

And, again, I'm not gonna go through each finding but we're gonna focus on some of the ones most relevant for the Commissioner's work, but if you just go through, you know, the Background & Objectives, what the process was, and then, most importantly, the IPR team's Findings and Observations, and then there's appendices on who the team is and the people you interviewed.

I mean, there's some discussion about how an IPR team enhances – review enhances decision-making, and it notes these are the drivers of

readiness that you're addressing, and the tools that you use, an overview of the Decision Gate 3 IPR. In other words, how you did your work, comments on the process, a thank you to, I believe, Mark Peddle and Samantha Lundrigan. They would've been employees of Nalcor who helped – were coordinators for the IPR team, is that right?

MR. MALLAM: That's correct. They helped us get the information we required.

MS. O'BRIEN: And then you talk – more slides here that really address the process itself; you know, the 60 criteria had the key deliverables that were needed for DG3, but your Findings and Observations really start on page 13. I'm gonna ask you to read some of these into the record, Mr. Mallam, and I'd like to start with your first Key Message.

So, what was the – on the slide before you there, could you read please the first Key Message into the record?

MR. MALLAM: "The LCP exhibits a degree of readiness for Decision Gate 3 that meets or exceeds Nalcor" or "industry requirements."

MS. O'BRIEN: Okay, so that was a positive finding that they –

MR. MALLAM: Yes.

MS. O'BRIEN: – were ready to go through Gate 3.

The second finding?

MR. MALLAM: "... Nalcor team made excellent use of the interval between DG2 and DG3 to:

"Significantly de-risk the project via engineering studies (such as the physical model and turbine model testing for" Muskrat Falls "special studies of ice data to enhance transmission reliability modeling, and the SOBI pilot hole to test the efficacy of the planned Horizontal ... Drilling program);

"Increase value by continuing value engineering and constructability initiatives;

"Advance the engineering to improve predictability and facilitate timely award of contracts;

"Commit to critically constrained services and shop space such as provision of the specialized SOBI cable;

"Mobilize early field works (the "Early Works") to protect schedule milestones and gain early on-site experience;

"Proactively mobilize or recruit top talent for key positions;

"Develop and continuously improve Nalcor – SNC Lavalin alignment and organizational effectiveness"

MS. O'BRIEN: On the next page, again, I'd like you to just review number 3 and number 4.

MR. MALLAM: Do you want me to read them into the record or –?

MS. O'BRIEN: Yes, please do.

MR. MALLAM: "Many of the deliverables required for Phase 4 (Detailed Engineering, Procurement and Construction) are not yet in the Aconex document management system or approved for use. An aggressive, focused effort to close these gaps is required."

And number 4 is: "The technical definition of the project is very solid; the IPR Team found no cause for concerns"

MS. O'BRIEN: Okay. So up to that point, certainly, would it be fair to say that findings 1, 2 and 4 were fairly positive – were positive findings?

MR. MALLAM: Yes.

MS. O'BRIEN: And findings number 3 was just noting that they needed – that there was an area that needed to work on to get the documents into the system?

MR. MALLAM: Yes.

MS. O'BRIEN: Okay.

All right. Now, you said a few minutes ago that you were – there was criticism raised by the IPR team, and is it fair to say that that begins with your Key Message number 5?

MR. MALLAM: It does, yes.

MS. O'BRIEN: Okay. Can you – perhaps, read in the first key finding, and then I'll get you to talk about what was underlying that finding.

MR. MALLAM: "The IPR Team finds that best practice risk analysis processes were followed that can reasonably be expected to indicate adequate and realistic cost and schedule allowances. However, since the Project Sanction documentation is not yet complete, the IPR Team cannot comment upon how these allowances have been or will be included in the Project Sanction cost and schedule."

MS. O'BRIEN: Okay. Now, the words certainly speak for themselves, and there's a little more in the report later on. But, at this point, I'd like to take a break and just get you to discuss: What were the concerns that the IPR team was raising with respect to cost and schedule?

MR. MALLAM: Let's talk about the cost first.

As I recall, at the time, they told us that the cost estimates have been completed to a P50 level. And a normal procedure is to determine what an appropriate contingency is; you would do a risk analysis. So you'd look at the elements in the project and consider the risks involved in each one, determine what contingencies are required for all these individual items and, eventually, you'd build up a project contingency. That's the correct way to do it.

Now, they did not have a risk analysis available to us, so we couldn't see it. What they had done was applied a blanket contingency, which I believe was 10 per cent. And for a cost estimate completed at a P50 level, 10 per cent is well below what any reasonable standard would suggest should be required.

There are quite a few organizations out there that produce guidelines for preparing cost estimates, and depending on the level of the study, the P-level let's call it, they recommend various contingencies and for a P50-level study,

I would've expected to see a contingency of 25 per cent to 50 per cent, perhaps higher, depending on the risk analysis.

So, that was the concern with the cost estimate and, similarly, in a project schedule –

MS. O'BRIEN: Well, just before we go to project schedule, I just want to talk – in terms of – at this point, we're talking about getting ready to sanction the project, to make a decision as to whether or not to go ahead.

MR. MALLAM: Yes.

MS. O'BRIEN: You know, whether or not you're going ahead with the project.

What – in terms of confidence level, the number that you are going to be sanctioning that project on, your estimate that you're going – the cost estimate you're going to be sanctioning that project on, what – in your opinion, what was the appropriate P-factor to be using at the DG3?

MR. MALLAM: I can answer that question a couple of ways. Ideally, you'd like to have the highest P-number possible and so I'd suggest a P90; however, that's not always practical.

Yesterday, I described the hierarchy of studies that we would typically do in Hydro and they would apply here as well. You'd start at a desktop level, prefeasibility, feasibility, final feasibility and so on, and the higher up that hierarchy you go, the more accurate the estimate, but the more costly it is to prepare the estimate. You have to do a tremendous amount of field work and pre-engineering and sampling the markets and so forth.

So, as I said a moment ago, you'd love to have a P90 estimate, carry a 10 per cent contingency and base it on that, but, practically, you might use only a P70 and you can, in fact, even use a P50, but you can do that only if you have an appropriate contingency. And as I said again a moment ago, at a P50 level, I would've expected to see a contingency of 25 to 50 per cent, perhaps even higher.

MS. O'BRIEN: Okay.

Then the numbers – so, basically, you’re saying the number – in terms of the amount of work that had gone into the estimates that they were presenting at DG3, so, you know, the detail level of the engineering and the costing and the work, the detail and work that had gone into creating those estimates, your belief was you could only have – I just want to make sure I’m understanding what you’re saying, you felt that at that stage they were, you know, you may be 50 per cent likely to go over that number or 50 per cent likely to go under.

MR. MALLAM: That’s correct.

MS. O’BRIEN: So, you would have taken that number and on top of that added another 25 to –

MR. MALLAM: To 50 per cent or more.

MS. O’BRIEN: Just to make sure that the ultimate number you were using had a very high level of confidence, is that ...?

MR. MALLAM: Exactly, yes.

MS. O’BRIEN: Okay.

And was this communicated by you at the meeting with Mr. Martin, Mr. Bennett, Mr. Harrington and others?

MR. MALLAM: Yes, it’s contained here in the report later on. There’s a slide that deals with that and I’m pretty sure we discussed it at the time.

MS. O’BRIEN: Okay.

And at the interview, I understand – we will get to the slide, but was there any – ever any discussion or anyone communicated to you that there was a preference that you not record some of your findings or observations in the presentation?

MR. MALLAM: I have a memory of being told or requested to keep it brief and I don’t remember where that came from or where it originated. And it may have been done in jest, I don’t know, but I do have that vague memory of being requested to be brief.

MS. O’BRIEN: Okay.

And do you recall who the vague memory is of who requested that – you mean be brief in your written presentation or just be brief when you’re presenting?

MR. MALLAM: In both. The – I suspect it’s because we were asked to look at, I think it’s 60 focus areas here. And I suppose if we’d gone into great detail in each one, we would have a report that’s as thick as this binder. And perhaps that was the reason, I really don’t know.

MS. O’BRIEN: Okay. We may come back to that, Mr. Mallam.

MR. MALLAM: Yeah. It didn’t cause me any concern because we made the points we wanted to make.

MS. O’BRIEN: Now, you were about to go on to schedule. Can you tell us – sorry, on your cost you said you would have expressed that at the meeting. Would other people on the IPR team have shared that view or was that your particular view?

MR. MALLAM: Oh, that was the opinion of all of us. The way we worked on this was for some of the interviews we did, the five of us were there together. For others we broke up into teams of two or three. But at the end of each day, those individual teams would have reported to the group as a whole, we would have discussed our findings and we would have agreed on them. So what you see presented in this report was agreed to by all of us.

MS. O’BRIEN: And let’s talk now about schedule. What was the IPR’s findings, observations, recommendations with respect to schedule?

MR. MALLAM: Well, similar to the cost estimate in that in any schedule you have to build in – I don’t – they call it an allowance here, I’ve always referred to it as float. And those are extra days you build in for all the nasty little surprises that occur on any project: bad weather days, late equipment delivery, labour problems, equipment breakdown, all the sorts of things that can happen. If you’ve ever built a house you know what I’m talking about; anything that can go wrong is probably going to go wrong.

So you build in a considerable amount of float into the schedule so that your completion date is realistic. It recognizes that there are going to be a number of surprises that will occur that will delay you. I don't remember what the float was they had in the schedule at the time, what they told us, but I remember it being very small, almost negligible. And in a project of this magnitude, of this complexity over such a large construction front, I would have expected to see a float of anything from six months to two years. And as I recall, there was almost nothing in it.

MS. O'BRIEN: Okay, we'll go back to some of the findings here.

MR. MALLAM: Oh, I should say that that six months to two years – that's a guess, a reasonable guess. The way you would calculate that is similar to the way you would properly calculate the contingency. You would do a risk analysis of all the key activities and determine what the effect of any risk in any one of those areas would have on the schedule. And then you'd add all these things up –

MS. O'BRIEN: Okay.

MR. MALLAM: – to arrive at a proper schedule float.

MS. O'BRIEN: Okay.

Now we have evidence that Dick Westney's company, Westney Consulting Group, had done some qualitative risk analysis for the project team both around risk, tactical and strategic risk, and also around project schedule. Do you recall whether you had – you at the IPR review – you reviewed that work from Westney Consulting?

MR. MALLAM: I don't remember that.

MS. O'BRIEN: Okay.

If we could go to page 15 – I guess we'll go in order here, so page 15. So you talk about finding five. This is, again, findings and observations. The first bullet here could you – this bullet here and I'll highlight it for you – could you please read just this portion into the record, the top portion.

MR. MALLAM: Mm-hmm.

“The IPR Team has some concerns regarding the implementation of the Construction Management (CM) strategy. Experience suggests that ‘mature’ owner organizations often find it difficult to step back into a monitoring & appraisal role, allowing the CM contractor” – in this case SNC-Lavalin – “to be both responsible for performing the work and accountable for the results.”

MS. O'BRIEN: So this is – sounds like, similar to what you'd raised at DG2. Is that fair to say?

MR. MALLAM: It's exactly the same concern.

MS. O'BRIEN: Okay, so why did you raise it again at DG3?

MR. MALLAM: Because we had indications, from the interviews we had done, that the Nalcor project management team was taking – well, retaining or taking over the responsibilities which should have been transferred to the EPCM contractor.

MS. O'BRIEN: Okay, and was that of any particular concern to you?

MR. MALLAM: Yes, it was.

MS. O'BRIEN: And why would that be?

MR. MALLAM: Well, ideally, you want one party responsible for all those aspects of EPCM. And if you have a blurred responsibility between the owner's team and the EPCM manager's team, in essence nobody is responsible. There's just the opportunity for confusion.

MS. O'BRIEN: And then what was the contracting strategy that was there in the planning documents for the Lower Churchill Project?

MR. MALLAM: It was EPCM.

MS. O'BRIEN: Okay.

Were you aware – did you have information before you at this time that Nalcor was unhappy with SNC-Lavalin's performance as the EPCM contractor?

MR. MALLAM: I had heard that but I can't remember at what point I heard that.

MS. O'BRIEN: So you don't remember if that was before or after DG3 review?

MR. MALLAM: I don't remember. No, I don't remember.

MS. O'BRIEN: Okay.

Do you – at this time when you were doing the DG3 review, do you recall whether you were aware that Nalcor had made a decision to move to an integrated management team as opposed to an EPCM strategy.

MR. MALLAM: I don't recall exactly when I heard that.

MS. O'BRIEN: So it might have been after, you're not certain.

MR. MALLAM: It could have been after, during or before, I don't know.

MS. O'BRIEN: Okay.

I guess it's fair to say it's not mentioned in this report, is it, that there has been a transition.

MR. MALLAM: No, it's not.

MS. O'BRIEN: And in this report SNC-Lavalin is referred to as the EPCM contractor.

MR. MALLAM: Yes.

MS. O'BRIEN: Is that fair? Okay.

Could we just go to page 27 of this report, please? I just want to highlight this one with you, Mr. Mallam, one of the areas.

In this report you present a little bit differently. What we saw in DG3 was that you'd have, you know, the focus area mentioned and then you'd have your findings and observations and then you'd have a recommendation. The way you've organized it in the DG3 presentation is that you have a number of slides that have writing on them, like we just saw in terms of key messages, but when we get to the table itself it's fairly sparse, there's not a lot of detail on comments,

observations, et cetera for each focus area. Do you recall why the difference in the presentation between DG2 and DG3?

MR. MALLAM: No, I don't. And I don't know if we were requested to use this format or if it's a request – or a format we decided to use ourselves.

MS. O'BRIEN: Okay.

MR. MALLAM: But I don't recall.

MS. O'BRIEN: Okay and we can speak to Mr. Owen about that probably later this morning.

One – I just wanted to point out here one of the areas that you were looking at was the operation and maintenance estimates.

MR. MALLAM: Yes.

MS. O'BRIEN: And so this would be an area where you were – that would be your work or work that you had been involved with that was under review.

MR. MALLAM: That's correct. Yes.

MS. O'BRIEN: Okay, page 41, please.

So these are findings and observations with respect to project controls. Can you please read out your first finding and observation on this page?

MR. MALLAM: "The proactive management of project cost, resources, and time, is a Key Success Factor, and presents significant challenges on a mega-project. Nalcor and SNC Lavalin have recognized this, and placed a high priority on ensuring a competent project controls organization is in place."

Now, the next one is "The IPR Team provides the following findings and" – recommendations – "concerning the use of Management Reserve and Schedule Reserve to account for the strategic project risks associated with mega-projects such as LCP."

Do you want me to read out the rest of the page?

MS. O'BRIEN: No, I'm just going to ask you to pause there.

MR. MALLAM: Mm-hmm.

MS. O'BRIEN: I'm just – Commissioner, I need to take a short break if I might. I'm not a hundred per cent sure I have the right document up.

THE COMMISSIONER: Okay. So we'll just take five minutes or so?

MS. O'BRIEN: Five minutes please. Thank you.

THE COMMISSIONER: Okay. So we'll just adjourn for five minutes then.

CLERK: All rise.

Recess

CLERK: Please be seated.

THE COMMISSIONER: I just note that there seems to be one absentee here: Mr. Simmons. Do we know where he is?

UNIDENTIFIED FEMALE SPEAKER: I think he must have just went downstairs. Could be at that space on the first floor. So (inaudible).

THE COMMISSIONER: Okay.

UNIDENTIFIED FEMALE SPEAKER: I think we're okay. But –

THE COMMISSIONER: We're okay?

UNIDENTIFIED FEMALE SPEAKER: I think so. I think we're okay.

THE COMMISSIONER: Okay. All right (inaudible).

MS. O'BRIEN: Okay.

Thank you.

I apologize for that, Commissioner. I got concerned there momentarily that I might not have had the right document up. I did have the

right document up, but it was better that I took the break just to confirm that, obviously.

So we're here on Exhibit P-00504, page 41 is up, and Mr. Mallam, I'd asked you to read the first bullet in and that's – at that point I got a bit distracted because I was unsure, so I'm gonna pick it up from that point.

Can you please read the second bullet on the slide into the record, please?

MR. MALLAM: “The IPR team provides the following findings and recommendations concerning the use of Management Reserve and Schedule Reserve to account for the strategic project risks associated with mega-projects such as LCP.”

MS. O'BRIEN: Okay.

And I'm gonna ask you – this is an important slide, so I'm gonna ask you to continue on reading, please.

MR. MALLAM: “The extensive and very public track record of large infrastructure projects provides many examples of substantial cost overruns and schedule delays. The size of these mega-projects increases their exposure to strategic risks such as regional and global economic conditions, market trends, changing governmental regulations, limits on” – resources – “availability, and declining global construction productivity.

“Nalcor LCP management team has long recognized these risks and the need to account their potential impact on project cost and schedule. The LCP Project Execution and Project Risk Management Plans describe the use of Management Reserve and Schedule Reserve for this purpose.

“Nalcor's decision gate process defines DG3 deliverables that include both Tactical and Strategic Risk Analyses; and the Nalcor team has invested considerable effort in these analyses which provide the required quantification of Estimate Contingency, Management Reserve, and Schedule Reserve.

“The Nalcor team has been” – very – “has been careful to” assign “the project cost estimate and detailed schedule” – I’m sorry, “to align” – “the IPR Team recommends that this” – contingency – “be maintained in the use of risk analysis results.

“The IPR Team concurs with the expectations set” – up – “by the LCP Project Execution and Risk Management Plans that adequate provisions for Management Reserve and Schedule Reserve be included in the Project Sanction costs and schedules.”

MS. O’BRIEN: Okay. Thank you.

And now, the – when you talk there about the tactical and strategic risk analyses that had been done, I understand that these would – was – this is most likely referring to the work that was done by Westney Consulting Inc. Do you – having read this, do you recall whether or not you would have had that work available to you?

MR. MALLAM: I don’t recall if we had the Westney work. We were informed that there was a risk analysis report – I don’t know if it was prepared or being prepared – in either case, it wasn’t available for our review.

So I’m assuming that Westney’s work was included in that report. And that is the document that we would have wished we had had to be able to assess the reserves that they were proposing to use and the contingency they referred to.

MS. O’BRIEN: Okay.

So you’re referring to estimate contingency and management reserve and schedule reserve –

MR. MALLAM: Yes.

MS. O’BRIEN: – so three different things.

MR. MALLAM: All the reserves, yeah.

MS. O’BRIEN: Okay.

And we know that Nalcor broke out its risk between tactical and strategic risk. Do you recall now how they – how the tactical and strategic risk was handled by the estimate contingency and the management reserve?

MR. MALLAM: No, because we didn’t see the report.

MS. O’BRIEN: Okay.

And, ultimately, I take here from the last bullet that: “The IPR Team concurs with the expectations set by the LCP Project Execution and Risk Management Plans that adequate provisions for Management Reserve ... Schedule Reserve be included in the Project Sanction costs and schedules.”

MR. MALLAM: Yes.

MS. O’BRIEN: So you wanted to see those in the ultimate project numbers?

MR. MALLAM: Oh yes.

MS. O’BRIEN: Do you recall how this report was received when you presented it to Mr. Martin, Mr. Bennett, Mr. Harrington and the others present?

MR. MALLAM: I don’t recall specific reactions to any one of the comments that we made. I remember that after we finished the presentation and the discussion, they thanked us and that was the last I’d heard.

MS. O’BRIEN: Okay.

And when you said earlier today that the IPR team had been critical of the work at DG3, are these the elements that you were referring to?

MR. MALLAM: Yes, these are very important elements. After all, this project was being compared with the Isolated Island case and increasing the cost or increasing the schedule, which would also increase the cost, could affect the viability of the project as compared to the alternative. So this was the – as far as I’m concerned this is our most important finding.

MS. O’BRIEN: Thank you.

And during the presentation of the report to the executive and the project management team, in your opinion did the strength of your conviction that this was the most important finding, would that have been communicated to them at that time?

MR. MALLAM: Yes, I think so.

MS. O'BRIEN: And your concern that this would – could affect, you know, the CPW analysis, that it was important to have the right cost and the right schedule there, would that have been communicated to them clearly?

MR. MALLAM: I don't think we discussed the CPW analysis at all. But, obviously, if you change the cost it's going to affect the analysis.

MS. O'BRIEN: Okay. And if you change the schedule, what impact would that have?

MR. MALLAM: Well, that also affects the cost. A change in schedule always affects project cost.

MS. O'BRIEN: We have a series of emails that are in evidence that relate to suggested changes being made to this DG3 IPR report. You're not on those email chains. Do you – at the time – I know you've probably seen them since, but at the time, back in the time of DG3 and after you'd submitted this report, did you have any knowledge or awareness of the emails and what's generally being described in those emails?

MR. MALLAM: None whatsoever. The first I'd heard of it was when you showed them to me last month.

MS. O'BRIEN: Okay.

And so you weren't consulted – Derek Owen is on those emails, I know. Did he consult you at all during that period of time?

MR. MALLAM: No, I have no recollection of that issue at all.

MS. O'BRIEN: Okay.

So after you submitted your DG3 report and you made the presentation on August 31 of 2012, did

you have any further involvement in the IPR review process?

MR. MALLAM: None.

MS. O'BRIEN: Any further review of the project at this kind of a level?

MR. MALLAM: No, none.

MS. O'BRIEN: And were you – did you continue on to work in the project in any way, shape or form after that?

MR. MALLAM: I did, yes, on three occasions. In October or November of 2012 I filled in for the engineering manager who went on vacation for two or three weeks. In 2013 there were some questions I was asked to address concerning either operation or maintenance issues, or perhaps both, regarding synchronous condensers. That was a few days' work. Then beginning in late 2016, until May or June of this year, I did some occasional part-time work assisting with the preparation of the operating cost estimates.

MS. O'BRIEN: At any of those times – I'm going to ask first, I guess: Do you know what if anything happened to your IPR report once you submitted it and presented it on August 31, 2012?

MR. MALLAM: I've heard nothing since.

MS. O'BRIEN: Okay.

And those times when you were back doing some work on the project, did you have any discussions with anyone of what had come to that work or what had been done with the recommendations made by the IPR team?

MR. MALLAM: No.

MS. O'BRIEN: Okay.

When the DG3 numbers were announced, were you aware that the \$6.2 billion did not include anything for strategic risk or a management reserve?

MR. MALLAM: No, I didn't see any details of what was contained in that number.

MS. O'BRIEN: Okay, were you aware at that time that there was only 7 per cent for tactical risk?

MR. MALLAM: No, I wasn't aware of that.

MS. O'BRIEN: Okay. And would that have been – assume that's the case for the next question, would that have been consistent with the recommendations of the IPR team?

MR. MALLAM: Not at all. No.

MS. O'BRIEN: Okay.

And when, at DG3, the date used for first power was mid-2017, does that concur with your recollection?

MR. MALLAM: I think so. Yes.

MS. O'BRIEN: Okay.

Were you aware at that time it was based on, like – you know, it was considered to be a P1 or very low probability of being met date?

MR. MALLAM: Yes, it was. That's why we made this comment in our report about the schedule.

MS. O'BRIEN: And were you aware, when the numbers were announced publicly at 6.2 at DG3, that they were still using that mid-2017 date?

MR. MALLAM: I don't remember. I probably was but I don't remember.

MS. O'BRIEN: Thank you, Commissioner, those are my questions for this witness.

THE COMMISSIONER: All right then, Province of Newfoundland and Labrador?

MR. RALPH: Good morning Mr. Mallam, My name is Peter Ralph. I represent the Government of Newfoundland and Labrador. Just a couple of quick questions.

Just a couple quick questions.

Excuse my ignorance, but you said it may be appropriate to use a P50 with a large contingency.

MR. MALLAM: Yes.

MR. RALPH: But if that's the case it should be 25 per cent or 50 per cent or even higher contingency.

MR. MALLAM: Yes.

MR. RALPH: So how do you determine the contingency in that instance?

MR. MALLAM: If – well, preferably you have a risk analysis report, which would inform your decision. In the absence of that, there are two ways you can approach it. One is based on experience and if it was a hydro project those of us within hydro who've been through many of these, would have a better grasp based on the knowledge that we had going into the project of what contingency to use.

The other thing you can do is refer to any one of a number of international or national bodies who make such recommendations. There is a – The American Society of Mechanical Engineers has a listing of projects – project – what's the terminology they use? Studies. And depending on the level of confidence in the study they'll recommend a contingency to be used.

There's a similar document available from an association of cost engineer – cost estimators – again, that lists projects by level of information available, what contingencies you'd use. So you can use those as guidelines. And there are probably eight or 10 of these out there internationally you can look at.

MR. RALPH: Right.

And again, pardon my ignorance, because I understood that basically the P-factor you adopt tells you what contingency you'll need. Generally speaking.

MR. MALLAM: It does, yes, yeah.

You can take that inference. But you have to use some judgment – I mean, as I said a moment ago. Depending on what information you have available when you do the study, you – for instance I said the range of 25 per cent to 50 percent. Depending on what information was available to the people at the time, they could

have used 25; if there was less information they would have used 50.

MR. RALPH: Okay, can I –

MR. MALLAM: –or somewhere in between.

MR. RALPH: Okay, can I just go back 'cause I just got off track there for a minute – I thought I heard some music or something. So maybe you can just go back and just explain what you just said, because I lost you part way through it.

MR. MALLAM: Okay. What I was trying to explain is that – as I said earlier, preferably you'd like to have a – the numbers at a very high level of confidence, P90. Now that's not always practical because the extent of work required to produce a report or study to that level of accuracy is extensive and it's expensive. So you don't like to do that. So what you could do is prepare a study to a level of confidence – let's say 50 per cent.

But then you must apply a much larger level of contingency because you know it's highly probable that you're not going to come in at that price if you do build it. So you have a choice of somewhere between – who knows what, a wide range of contingency values you can pick. These bodies I mentioned a moment ago who prepare these guidelines for recommending contingencies and study accuracies, would generally recommend for a P50 study, that you would expect to see a contingency of 25 per cent to 50 per cent applied to the base estimate to come up with an expected final cost.

But as I also said, the only way to properly determine the contingency is to have a thorough risk analysis performed and then you can make a proper decision on what it should be.

MR. RALPH: So the P50 that's adopted is not as a result of the risk analysis, in that instance?

MR. MALLAM: No. It's –

MR. RALPH: The reflection of the amount of engineering work that's been done?

MR. MALLAM: Exactly.

MR. RALPH: With regard to schedules, you talk about floats and that you should have six months to two years float, in this instance. Is that –

MR. MALLAM: As a –

MR. RALPH: – or generally.

MR. MALLAM: Generally, yes, yes.

MR. RALPH: And so, when you do that should you attach an additional cost –

MR. MALLAM: Oh yes.

MR. RALPH: – for schedule reserve?

MR. MALLAM: Yes.

MR. RALPH: And how would you do that? How would you determine that six months or two-year reserve?

MR. MALLAM: Well one of the significant cost components on a large project is the IDC, the interest during construction, interim financing cost; and that of course is purely time dependent. So if you start with a project that has a four year duration, you'll cash flow the project estimate over that period of time, and from that you'll calculate an IDC.

If you add six months or a year, or two years to that schedule, then the cash flow is stretched over a longer period and the IDC cost increases.

MR. RALPH: So do you attach a percentage?

MR. MALLAM: No; what you would do is, if you decide that you want to add two years to the schedule then you stretch your cash flow over those two years the way you expect the money will be spent and then you calculate the IDC based on whatever your interest rate is or the money you're borrowing.

MR. RALPH: So that's the only cost you consider, you don't consider any other costs.

MR. MALLAM: Oh no, there are other costs that are spread over that as well. For instance, the owner's project management team, the EPCM contract management team, will be

spread out over a longer period of time when those costs are incurred. There'll be site costs for construction support, construction power, camp facilities et cetera, et cetera. It affects everything. It has a major effect on the cost of a project.

MR. RALPH: But it's not calculated the same way as a contingency.

MR. MALLAM: No, it's not, no.

MR. RALPH: It's more precise.

MR. MALLAM: It is, yes.

MR. RALPH: Those are my questions, thank you.

THE COMMISSIONER: Concerned Citizens Coalition?

MR. BUDDEN: Good day, Mr. Mallam. My name is Geoff Budden, I'm the lawyer for the Concerned Citizens Coalition, and as you may know, the coalition essentially is a group of individuals who have – for many years had some concerns or issues around the Muskrat Falls Project.

I've a few questions for you. I'd like to start where Ms. O'Brien left off and where Mr. Ralph was questioning you, which is to do with, really, Exhibit 00504 and some of the conclusions you had that did or did not end up on paper in that exhibit. Firstly, I too have some questions about the cost.

So as I understand it, at DG3 the Muskrat Falls Project cost estimates at 6.2 billion had a P50 factor and a 10 per cent contingency. Was that your understanding?

MR. MALLAM: That's my understanding, yes.

MR. BUDDEN: Okay. And I understand that –

THE COMMISSIONER: Was it 10 per cent or was it 7 per cent?

MR. BUDDEN: I thought you said a 10 per cent.

MR. MALLAM: I think it was 10 per cent, that's the number I remember.

MR. BUDDEN: Okay.

And you were – you saw that as problematic, in that you thought a 25 or 50 per cent or even higher contingency would be warranted given the lack of a risk assessment and so forth.

MR. MALLAM: That's correct, yes.

MR. BUDDEN: Okay.

I'm just trying to get a sense in practical terms, how that changes the number. So we have 6.2 billion; that does include a contingency of say, 10 per cent, and we'll assume it's 10 per cent. So that brings us down to around 5.6 billion or thereabouts?

MR. MALLAM: Sounds right, yes.

MR. BUDDEN: Okay, so if we added, say, your 50 per cent. That would be 50 per cent of the 5.6 billion –

MR. MALLAM: Yes.

MR. BUDDEN: – which brings us up to 8.4 billion –

MR. MALLAM: Yes.

MR. BUDDEN: – or possibly higher.

MR. MALLAM: Yes.

MR. BUDDEN: Or if we took the more conservative 25 per cent, that would be – I'll perhaps let you do the math because your math skills are undoubtedly a lot better than mine. I would hope they are.

MR. MALLAM: Not without a calculator in my hand they're not.

MR. BUDDEN: Okay, so with 5.6 per cent, so 25 per cent of that is 1.4 –

MR. MALLAM: Yes.

MR. BUDDEN: – or wait, 5.6 billion, 25 per cent of that is 1.4 –

MR. MALLAM: Let's say we're 7 or 8 billion and leave it at that.

MR. BUDDEN: Well, let's not quite leave it at that but –

MR. MALLAM: Okay.

MR. BUDDEN: – we're at 6.2 at a 25 per cent contingency as opposed to a 10 per cent we're at 7 –

MR. MALLAM: Mm-hmm.

MR. BUDDEN: – subject to anybody correcting our math.

MR. MALLAM: Yes.

MR. BUDDEN: At 50 per cent, we're at 8.4 –

MR. MALLAM: Yes.

MR. BUDDEN: – billion. Okay.

So are you saying that with a P50 factor the cost estimate should be somewhere in that 7 to 8.4 billion, or even higher, range?

MR. MALLAM: That's the base, I think, or that's where you have to start because on top of that you have to add the IDC calculation.

MR. BUDDEN: Of course.

MR. MALLAM: And then you also have to take into account adding flow to the schedule, what that will do to the total project cost.

MR. BUDDEN: Yes. Flow, in that case, meaning the delay in the delivery.

MR. MALLAM: Exactly.

That leads to additional expenses.

MR. BUDDEN: Okay.

But just to – I've been accused of comparing apples to oranges so just, in this case, apples to apples, 6.2 becomes seven or eight or even higher.

MR. MALLAM: Yes.

MR. BUDDEN: Okay.

Now, you can get around that by adopting a higher P-factor. I'm correct in that, I assume?

MR. MALLAM: Well, I wouldn't say you'd get around it.

MR. BUDDEN: Not to get around it, but that's an alternate approach.

MR. MALLAM: Yeah.

And I would suggest that would happen is if the estimate had been completed to a higher P-factor, it wouldn't have been 6.4. It might have been seven or eight to begin with, with 10 per cent on top of that.

MR. BUDDEN: Okay.

So either way – so it's either a P50 with a larger contingency that brings us up to 7 or 8 billion or more, or you keep your contingency low, but you adopt a higher P-factor.

MR. MALLAM: Yes.

MR. BUDDEN: And your thinking is it brings us to about the same point?

MR. MALLAM: I would think so, yes.

MR. BUDDEN: Okay.

Perhaps we could bring up page 41 of that Exhibit 00504. Yeah, I think they have it right in front of you.

I don't see it here, or I don't recall seeing it anywhere in this report, what you just told us about this higher contingency. Is that in this written report?

MR. MALLAM: Well, it's right there at the bottom of the page.

MR. BUDDEN: Okay.

MR. MALLAM: The very last item where we talk about the – what's the – “adequate provisions for ... Reserve be included in the Project Sanction costs and schedule.”

MR. BUDDEN: Okay.

But the particular percentages that you have testified here this morning, I don't see that in there.

MR. MALLAM: Oh no, they weren't there.

MR. BUDDEN: Okay.

MR. MALLAM: And it would have been inappropriate to specify those. Those – the numbers that I quoted are just typical numbers from those various bodies that I mentioned a short while ago. The correct way to calculate those reserves is to do a risk analysis and use that to inform your decision.

MR. BUDDEN: Okay.

But in the absence of a risk analysis, your testimony is that best practice is, as you understand it from your familiarity with hydroelectric projects, would bring us to those numbers you just spoke about?

MR. MALLAM: Yes, I would.

MR. BUDDEN: Okay.

Thank you.

Perhaps we could just briefly go to Exhibit P-00206, page 17. And Mr. Mallam, I'm sorry, you don't have this one in front of you but it is another document that has come up in evidence, yesterday in particular.

Perhaps, Madam Clerk, you could do that.

Actually, perhaps go to the first page before we go to page 17. Thank you.

What this is, Mr. Mallam – and, again, I'll be corrected I'm sure if I'm wrong, as I may be. We understood this to be a briefing from Nalcor to the premier's office or perhaps Cabinet, in any event, a high-level briefing from the spring of 2010.

Now, perhaps we could go to page 17.

And perhaps for a moment you could ignore the handwriting and just read the – this is to do with

the Lower Churchill Project. "Scenario Economics – Key Assumptions.
"General Assumptions for all cases:

"P75 capital costs estimates."

Would that square with your understanding of – we're at DG2 at this point – of what an appropriate P-factor would be at that point?

MR. MALLAM: Do you mean a P-factor that they had achieved at that point?

MR. BUDDEN: Or one that perhaps they were – that their assumption is that they were working with?

MR. MALLAM: Well, I have no way of knowing what their intention was, but –

MR. BUDDEN: Okay.

MR. MALLAM: – I can tell you that past Hydro – practice within Hydro was that at project release, our estimates and schedules would have been equivalent to somewhere between P70 and P90.

MR. BUDDEN: Okay.

So that is Hydro –

MR. MALLAM: So it's consistent with Hydro practice.

MR. BUDDEN: Okay.

So that is Hydro – that had been Hydro practice throughout your career?

MR. MALLAM: Yes.

MR. BUDDEN: Okay.

I had some questions, which I'll just perhaps keep pretty brief, about how truly independent that your committee was. And of course, you were lifetime employee of Hydro; you had worked with some of these same people I suppose; you answered to some of these people in your chain of command: Mr. Martin.

Other team members, even though you didn't know it at the time, were also involved in various contractual relationships with Nalcor.

Okay, two questions. Firstly, what is your understanding of what independent means in the context of what you were asked to do?

MR. MALLAM: Well, independent means separate from the project. Now – and I think I'd have to put quotation marks around separate. I think back over my career with Hydro, and I and others often did, quote, unquotes, independent reviews of work of others. But they were our colleagues, our fellow employees.

But this was always in assessing the viability of various alternative designs of power plants and such, and you always looked at them with a critical eye.

MR. BUDDEN: Okay.

MR. MALLAM: So we were used to criticizing the work of co-workers and members of consulting firms who were close friends. It's – you know, all those relationships fell to one side once you start to do a review.

MR. BUDDEN: Sure.

And in your case, I see that you – at the end of the day you certainly did deliver the news.

Do you feel, here under oath, that – in any way that you or the team, soft-pedalled the news because of the fact you were reporting to co-workers or superiors in some cases, like Mr. Martin?

MR. MALLAM: Not at all.

MR. BUDDEN: Okay.

Let's talk a little bit about your own skills and experience and perhaps some insights you may be able to give us more generally. So you basically spent your whole career from your graduation from MUN with Hydro?

MR. MALLAM: That's correct.

MR. BUDDEN: And it sounds like you were at Holyrood, you were involved in Cat Arm, you

were involved in various other projects. I didn't write them all down, but from my sense of things, you were pretty much all over the place over your career.

MR. MALLAM: Yes. I worked on many hydro plants, on thermal plants, both the steam turbine type and the gas turbine type, diesel plants. Virtually every generating plant in the hydro fleet, I've worked on.

MR. BUDDEN: And you actually had hands-on experience with Cat Arm?

MR. MALLAM: Not during construction. During contract negotiations for some of the contracts – contract review. Some sites where I've spent – I was on site were Holyrood Unit 3 for the entire construction of that unit, Bay d'Espoir Unit 7, and then site visits for virtually all the other ones.

MR. BUDDEN: Okay.

So with respect to the components that together added up to the Isolated Island component of Hydro, you would have been quite familiar with all or at least most of those?

MR. MALLAM: All of the existing plants and most, if not all, of the studies for alternatives to Muskrat Falls.

MR. BUDDEN: Okay.

MR. MALLAM: All the various hydro plants. We looked at thermal plants, conversions of Holyrood, wind plants. Yes.

MR. BUDDEN: Okay.

And this is not my main thrust, but you clearly, I presume, would have had some experience with the Lower Churchill – perhaps some of the engineering studies that were done on the North Spur or other projects over the '70s, '80s, '90s?

MR. MALLAM: Virtually nothing

MR. BUDDEN: Oh really? Okay.

MR. MALLAM: That was all handled usually by a separate group, and I had – on occasion, I would see a report or be invited to attend a

meeting of a presentation, but I really had little or no involvement with the Lower Churchill the entire time I was there.

MR. BUDDEN: Okay.

So getting back to the Island. Zooming forward a bit to the late 2000s into 2010, 2012, that era, the latter half dozen years of your career, what was your sense of the culture within Hydro, particularly the executive level, with respect to whether the interest was in pushing forward with the Integrated Island Option as opposed to the Isolated Island Option?

MR. MALLAM: Are you talking about Hydro or Nalcor?

MR. BUDDEN: Nalcor. I'm sorry. I'm using the terms loosely.

MR. MALLAM: Well, actually, I'll talk about Hydro as well. The two are somewhat different.

Over my entire career the attitude within Hydro was we would keep a registry, a list of potential projects that could be developed and they were always viewed from the perspective of achieving the least cost to the ratepayer. And the Lower Churchill was always there as one of those alternatives, and, of course, you've heard much discussion about the complication of getting the energy out through Quebec and the implications of that. So that was always there as one case; the Isolated Island case.

Within Nalcor it was very pro-development of the Lower Churchill. It would've been very much – well, it would've been the first major project that they would have undertaken. So the people within Nalcor were very pro-project and, actually, the project group itself was very pro-project.

MR. BUDDEN: Okay. So even if Decision Gate 3, we're talking about two options, your sense is that the management of Nalcor were very much in favour of the Integrated Island option?

MR. MALLAM: I think they were, but I had no reason to believe that that was biasing decisions. I have no evidence of it and no reason to believe that.

MR. BUDDEN: Sure.

MR. MALLAM: My assumption was that the – all the cost numbers from the Isolated Island case were going into the CPW analysis, as were the numbers from the Lower Churchill alternative and that they were being fairly compared. I had no reason to believe otherwise.

MR. BUDDEN: Sure.

There's – another option has been discussed, I suppose, which is the wait until the 2014 option and perhaps buy back power when that contract expired. There's also been suggestions that the system in Newfoundland, the Isolated Island system, simply wasn't going to hold together. People talked about Holyrood being held together with bubble gum or some expression, obviously, just an expression.

MR. MALLAM: It's not far from that.

MR. BUDDEN: Okay. What was your sense, I guess, as an engineer on the ground of the Isolated Island and the potential of waiting until 2041?

MR. MALLAM: It would have been nice to wait until then, but the load forecast that our system planning department had prepared, indicated that we did need new generation before 2041, if we remained isolated. And also there was the issue of Holyrood hanging over our heads.

MR. BUDDEN: Of what hanging over –

MR. MALLAM: Of Holyrood.

MR. BUDDEN: Holyrood, yes.

MR. MALLAM: Holyrood Units 1 and 2 were commissioned in, I think, '69 and '70. They have a design life of 30 years. They're over 50 years old.

MR. BUDDEN: Yeah.

MR. MALLAM: And your analogy of being held together with bubble gum is an exaggeration but it's not far wrong.

These things – Holyrood – it’s like you using an antique car as a daily driver during winter. You can do it, but you’d rather not.

MR. BUDDEN: Okay.

MR. MALLAM: And even Holyrood Unit 3, which is a new unit, that was commissioned in 1980 and that’s past the end of its useful life as well.

MR. BUDDEN: Okay, there are, however, interim options, I understand, gas turbines and so fourth?

MR. MALLAM: Yes.

MR. BUDDEN: Okay. So it’s not all or nothing.

MR. MALLAM: Oh, no, no.

MR. BUDDEN: Holyrood or bust. Yeah.

MR. MALLAM: No, there were options there.

Gas turbines are convenient in the sense that they’re fairly quick to build and they have a fairly low capital cost per installed megawatt. But, of course, the operating cost is extremely high because they use a very expensive fuel.

MR. BUDDEN: Sure.

And, of course, you talked about Holyrood’s life expectancy, you also talked about load forecast. But that’s assuming, of course, that the load forecast projections were accurate.

MR. MALLAM: That’s true, yes.

MR. BUDDEN: Okay.

Final question is, really, Mr. Mallam, the – you – in your interview with Ms. O’Brien you spoke about your disappointment with some aspects of the project management experience at, you know, at the Muskrat Falls development. Can you elaborate on that a little bit?

MR. MALLAM: I can’t remember the comment I made.

MR. BUDDEN: Okay.

MR. MALLAM: Do you have the text there?

MR. BUDDEN: I do. It’s within the context of how the Nalcor, SNC-Lavalin EPCM turned out and that the Nalcor staff ended up taking over many of those roles. Can you elaborate? Does that contextualize it a bit?

MR. MALLAM: Well, that’s correct. We discussed that briefly earlier this morning. There was this reluctance, I suppose, to hand over management from Nalcor’s project management team to the EPCM – SNC’s team. Why it happened, I don’t know. I wasn’t involved in – at that level in the organization, so I really don’t know what went on.

But my past experience with all the projects we did by the EPCM method was that we handed it over, the transition went smoothly, the EPCM contractor did his job and we did ours and it worked well. There seemed to be some friction between the two. What it is, what started it and why it was there? I have no idea.

MR. BUDDEN: Okay.

To your knowledge, how much experience did the senior management team at Hydro, the individuals that comprised that team – at Nalcor, sorry – of the Muskrat Falls Project team have with hydroelectric development at the beginning of this project?

MR. MALLAM: Little or none.

MR. BUDDEN: Okay.

MR. MALLAM: To my knowledge, I think there was only one person in that senior management group that had any hydroelectric experience. The rest all came from the oil and gas industry.

MR. BUDDEN: Okay.

Just be a second. I wanna briefly look through my notes, if I may.

Thank you, Mr. Mallam.

THE COMMISSIONER: Thank you.

All right, we'll take our break now. And we'll come back in 10 minutes.

CLERK: All rise.

Recess

CLERK: Please be seated.

UNKNOWN FEMALE SPEAKER: Right.

THE COMMISSIONER: All right. Edmund Martin.

MR. SMITH: Good Morning. Harold Smith, I represent Mr. Martin, and I have a few questions – not very many.

Now like my learned friend, Mr. Ralph, you have to pardon my ignorance. From my understanding, is – when you're doing a project – and I'm trying to be a little simplistic perhaps, but you can correct me if I'm wrong or add the more detailed information. But when you're doing a project, the first thing you do is you create a base cost of the project. And you do that by looking at your engineering, identifying the materials you're going to need, identifying the equipment you're going to need to buy. And then you price that out and get a base cost. Is that a correct –?

MR. MALLAM: Yes. Yes.

MR. SMITH: That's correct.

MR. MALLAM: Mm-hmm

MR. SMITH: Okay. Now, my understanding is that that base cost has no P-factor associated with it, at all.

MR. MALLAM: No, I disagree with that. When you're preparing that estimate, there are all sorts of assumptions you have to make. And the most difficult sites to prepare an estimate for – or most difficult type of generating plant – is a hydro plant.

Thermal plants are relatively easy because – I don't want to oversimplify it – but it's much like going out and buying a Honda generator. You buy the thing, you set it up, turn it on and away you go. Now it's obviously more complicated

than that, but the point I'm trying to make is thermal plants are much less susceptible to site conditions than hydro plants are – hydro plants are all about the site location.

So I've talked previously about the levels of studies that you do, so imagine with a screening study, you would work from topographic maps. You need to know what the terrain looks like to see where you have to dig holes, where you have to build dams and such. The accuracy of topographic maps is always suspect.

So you'll do a study and the results are going to be at a very low level of confidence. To increase the level of confidence, you actually have to go out in the field and you have to do surveys, where you actually send survey crews out and they measure the actual topography. Now you can really estimate the quantities involved in building a dam and excavating a site for a powerhouse – that costs money, takes time.

To go to the next level of accuracy you want to know what the subsoil conditions are, so you have to go with backhoes and dig test pits, you send drilling crews out and they drill hundreds of boreholes all over the area to see what the rock and soil conditions are. That brings you up to another level. So you know, you'd use the term base cost and that's not a term that I would use in engineering.

There's a – you start with a cost estimate based on certain assumptions. That'll have – that'll imply a certain level of accuracy. If you want to improve the level of accuracy, you spend more money on research and engineering and that takes you to the next level, and so on, until you arrive at the highest possible accuracy you can achieve.

MR. SMITH: My understanding – and I'm trying to work my way through this – but my understanding is that it is virtually impossible to do an assignment of the probability factors without doing a formal risk analysis.

MR. MALLAM: Yes.

MR. SMITH: Okay. So that's correct.

MR. MALLAM: Correct.

MR. SMITH: Okay. And we heard some testimony before this Commission that part of that process is what's referred to as a Monte Carlo. Have you dealt with that process before?

MR. MALLAM: A Monte Carlo analysis is used to assess the information that comes out of the risk analysis. And it's a statistical technique. On a project – especially a large project – there are numerous individual little subprojects, is probably a way to look at it – little events, little activities – and each of those has a risk assigned to it. And on any project, not everything that can go wrong is gonna go wrong; but it's equally true to say not everything that can go right will go right.

MR. SMITH: Right.

MR. MALLAM: So the Monte Carlo simulation is a statistical method of assigning a probability to how many things are likely to go wrong on this project.

MR. SMITH: And my understanding is that the Monte Carlo will produce – and we've heard some evidence to this effect – a curve.

MR. MALLAM: It produces a bell curve, yes.

MR. SMITH: A bell curve. And then from that bell curve it identifies the probability factors and the costs associated with that probability factor when run. In other words, you could either pick a P75 and find that the \$5 billion base cost that you thought was gonna be the case is really 6.5 billion.

MR. MALLAM: Yes.

MR. SMITH: Okay? Or you could pick on that bell curve 50 per cent or, sorry, P50, okay, and that could be, on a \$5 billion project, \$5.6 billion?

MR. MALLAM: Yes.

MR. SMITH: Right. And it's on that basis that you actually find the P-factor based upon the risks and project costs?

MR. MALLAM: That's one way you can do it, and that's the classic way to do it. However, based on experience – for instance, I mentioned

this hierarchy of studies – I know, based on all the studies we've done of literally dozens of power plants, and constructing a dozen to 15 of them, that if you no fieldwork and you're working from topographic maps, the result of that cost estimate is gonna be about a P50 – perhaps worse. If you go into the field and do a certain amount of work, you can raise that to a P70. And it doesn't require a Monte Carlo analysis. It's just based on experience; from having done it.

MR. SMITH: Can I ask you: When you said that Hydro essentially worked within the P75 area –

MR. MALLAM: P70 to P90 was typical.

MR. SMITH: – P70 to P90, did you do the formal Monte Carlo analysis to get to the P75?

MR. MALLAM: No, we did not. It was based on experience of work done; from that we would calculate a contingency consistent with a, say, a P70, P90. The project was built and based on a contingency that we used, I can look back and say: Yeah, that was an accurate assessment.

MR. SMITH: So effectively, in terms of your experience with Hydro, the concepts of statistical analysis, on what we call the Monte Carlo, was not a – is not a factor that you used?

MR. MALLAM: We'd use it occasionally. I know the last couple of studies that we did, we used it. Portland Creek power plant was one of the ones that was proposed for the Isolated Island case. I remember we did a Monte Carlo on that one and it's been used for others, but which specific ones – I can't remember.

MR. SMITH: And did it result in a P75 – that you selected?

MR. MALLAM: I don't remember what was put in the model.

MR. SMITH: And – but you don't see anything particularly adverse or wrong with looking at the base price – what – the best estimate?

MR. MALLAM: A P50 level you mean?

MR. SMITH: No –

MR. MALLAM: No.

MR. SMITH: – just a best estimate.

MR. MALLAM: Okay.

MR. SMITH: And then running a Monte Carlo and choosing from the Monte Carlo analysis.

MR. MALLAM: Oh, yeah, that works as well. Sure.

MR. SMITH: But that – there’s nothing wrong with that process.

MR. MALLAM: No.

MR. SMITH: Okay, that’s an acceptable engineering process.

MR. MALLAM: Yes.

MR. SMITH: Now, I’ll move then to EPCM. You indicated you had some experience dealing with the EPCM contractor approach. In other words, you move the engineering procurement management of the project – construction management project over to an EPCM contractor.

MR. MALLAM: Yes.

MR. SMITH: Have you ever had an experience where the EPCM contractor was not functioning or not working the way that was in the best interest of the project?

MR. MALLAM: I don’t think so, no.

MR. SMITH: No. So you had no cause to, from experience, to deal with that?

MR. MALLAM: No.

MR. SMITH: Okay.

What about if a situation arose where the EPCM contractor was underperforming and not doing the job that the person – the group is contracted for, what would be your approach as a manager, as a VP?

MR. MALLAM: Well, the first thing to do would be to bring it to the attention – our

complaints to the attention of the EPCM contractor and have them correct it.

MR. SMITH: Right. And if you fail to correct them?

MR. MALLAM: You’d have to look at another methodology. You could take it over yourself, you could hire an external project management firm to take over that function. There are several alternatives.

MR. SMITH: Several alternatives. But effectively, if the EPCM contractor is not performing you remove the EPCM contractor.

MR. MALLAM: Well, not necessarily remove the contractor. You might take that one portion of the work –

MR. SMITH: Okay.

MR. MALLAM: – and give it to somebody else. Whether it’s in-house people or another firm, it doesn’t matter, you – the work has to be done and you have to get it done somehow.

MR. SMITH: Thank you very much.

That’s all the questions I had.

THE COMMISSIONER: Yeah.

Kathy Dunderdale, I don’t – yes?

MR. GRANT: No questions.

THE COMMISSIONER: No questions.

Former Provincial Government Officials ’03-’15.

MR. T. WILLIAMS: No questions, Mr. Commissioner.

THE COMMISSIONER: Charles Bown and Julia Mullaley?

MR. FITZGERALD: No questions.

THE COMMISSIONER: Robert Thompson?

MR. COFFEY: No questions.

THE COMMISSIONER: Todd Stanley and Terry Paddon?

MS. VAN DRIEL: No questions, Commissioner.

THE COMMISSIONER: Consumer Advocate?

MR. HOGAN: Good morning, Mr. Mallam.

My name is John Hogan, I'm counsel for the Consumer Advocate.

If we could first turn to – turn back to P-00501, please? We can just scroll back down. Ms. O'Brien took you to this document and this email earlier today. You recall it?

MR. MALLAM: Mm-hmm.

MR. HOGAN: When Mr. Budden was asking you questions he asked you about the, I think, the executive at Nalcor and you said that they had little to no experience in hydroelectric projects. Is that correct?

MR. MALLAM: Yes, that's correct.

MR. HOGAN: Okay.

So I just want to go through the list of people that attended this meeting with you and ask you just about them individually. So the first person was Ed Martin, you said, who we know was the CEO. What's your knowledge of his experience with hydroelectric projects?

MR. MALLAM: That he has none. His entire career, I believe, was in the oil and gas business.

MR. HOGAN: Okay.

The next person is Gilbert Bennett, and do you know what his title and role is?

MR. MALLAM: He was – I think he was vice-president of the Lower Churchill Project at that time.

MR. HOGAN: Okay.

And what's your knowledge of Mr. Bennett's experience with hydro –?

MR. MALLAM: None. I believe he worked his career in the cable television business.

MR. HOGAN: I think you said Brian was Brian Crawley. Do you know what his role and title was?

MR. MALLAM: He was some kind of government liaison. I don't recall exactly what the title was.

MR. HOGAN: Okay.

MR. MALLAM: And as far as I know he has no background in hydro.

MR. HOGAN: Was he a government liaison – he worked for the government or he worked for Nalcor and liaised –?

MR. MALLAM: He came from the government –

MR. HOGAN: Came from the government.

MR. MALLAM: – and he was working for Nalcor.

MR. HOGAN: Okay, but no experience as well.

MR. MALLAM: That's my understanding.

MR. HOGAN: And Paul Harrington?

MR. MALLAM: Again, someone from the oil business; as far as I know he had no involvement in hydro projects.

MR. HOGAN: Okay.

Ron Power.

MR. MALLAM: Ron Power did. Ron Power worked on at least two power projects that I'm aware of and I think he spent a fair bit of time in the oil business as well.

MR. HOGAN: Okay.

Do you know what his role was with regards to this meeting and this project?

MR. MALLAM: I don't remember his title. He was a – I wouldn't like to guess his title.

Something to do with project management or – I better not say, I don't know.

MR. HOGAN: Okay.

MR. MALLAM: I'm sure you can find that out from records somewhere.

MR. HOGAN: Oh, we're just asking what you know. But, yeah, I'm sure we can find it out.

And Lance was Lance who?

MR. MALLAM: His last name escapes me – Clarke, Lance Clarke; again, from the oil business. No hydro experience to my knowledge.

MR. HOGAN: His role and title, do you recall?

MR. MALLAM: No, I don't.

MR. HOGAN: Okay.

Greg Fleming.

MR. MALLAM: Greg Fleming was involved with the transmission side of the project. He also came from the oil business with no hydro experience.

MR. HOGAN: And Mark Peddle.

MR. MALLAM: I don't know his background.

MR. HOGAN: Okay.

Sorry, there's one more. "Myself," which would be Jason Kean.

MR. MALLAM: Jason Kean also came from the oil business with no experience in hydro.

MR. HOGAN: Okay.

Is that – do you find that unusual that, I think, everyone – except one person there you listed – had no experience with hydro?

MR. MALLAM: It was a first for Hydro.

MR. HOGAN: It was a first for Hydro.

MR. MALLAM: First for Hydro.

MR. HOGAN: Of all the projects you've been involved with this is the first time it's been –?

MR. MALLAM: Every project that Hydro did prior to this one was staffed by highly experienced people in the utility business.

MR. HOGAN: Okay.

Was that – I mean, I've been through your report – was that something that was mentioned specifically in your report as a risk factor at all?

MR. MALLAM: No, it wasn't because the point that was made that these people were only doing high-level project management; that all the detailed project management and engineering was being conducted by SNC-Lavalin, who staffed the project with very experienced people.

MR. HOGAN: I just want to take you through a couple of things that Mr. Budden asked you about as well. I'm just gonna read a little bit from your transcripts from your interview with Ms. O'Brien.

At one point you said to her: "Well, after spending a career with Newfoundland Hydro some people might think that I was interested in getting the project approved, and that's not the case. Over my career with the company, we have always had a number of generation expansion plans, and everybody involved in preparing those plans could be said to have an interest in them. But our goal was always to provide least-cost electricity to the province. And that's what – that's how we governed ourselves." Okay?

Does that sound familiar with (inaudible) –?

MR. MALLAM: It does, yes.

MR. HOGAN: Okay.

That's probably a theme of your career anyways, is it?

MR. MALLAM: Yes.

MR. HOGAN: Okay.

A couple of questions on that – a couple of different topics really. You say there are a number of generation expansion plans and you talked about a registry, correct? So is that what you're referring to there?

MR. MALLAM: Yes.

MR. HOGAN: So this would be a registry of all potential and possible hydro.

MR. MALLAM: All potential generating sites which would include hydro, thermal, wind, anything you can think of that produces electricity we looked at.

MR. HOGAN: You looked at, okay.

MR. MALLAM: Mm-hmm.

MR. HOGAN: In terms of – now you said that Muskrat Falls became sort of a priority, I guess – I don't wanna put words in your mouth – after the creation of Nalcor, is that fair to say?

MR. MALLAM: Yes, I would say so. For the people within Nalcor, yes, it was the only truly large, active project they have. So, yes, for them it would've been.

MR. HOGAN: So looking back at this registry that you have, looked at everything, was Muskrat Falls a new approach?

MR. MALLAM: Muskrat Falls itself was, but interconnection to the Island was not a new approach.

MR. HOGAN: Right.

MR. MALLAM: When I started with the company in 1975 there was a schedule there then to interconnect by 1978, and interconnection has been looked at quite seriously several times during my career.

MR. HOGAN: Yup.

MR. MALLAM: But every time it was compared with the alternative, which was the Isolated Island case, and if it didn't make economic sense it was just put back on the shelf.

MR. HOGAN: And it was always put back on the shelf.

MR. MALLAM: And it was always put back on the shelf.

MR. HOGAN: I just want to read something out from the transcript on that issue then. You say: "What this was about was there were two generation expansion scenarios that had been – well, there probably started with many more than that ..." which is, I guess, what you're talking about, the registry.

MR. MALLAM: Yeah, when I said generation expansion plans –

MR. HOGAN: Yes.

MR. MALLAM: – there's always one current one, but if you think back over the years, depending on changes in the price of oil, changes in the price of hydro equipment, the generation expansion plan from one year to the next in the Isolated case would look different.

MR. HOGAN: Okay, that's what I want to ask you about because you go on: "... it had been narrowed to two scenarios." So is that what you mean, the Isolated Island Option would change as you go forward in time?

MR. MALLAM: No, what I meant there was the two scenarios were interconnection and the current Isolated Island expansion plan.

MR. HOGAN: Right, the current plan.

MR. MALLAM: The current one.

MR. HOGAN: So that Isolated expansion plan throughout your career changed.

MR. MALLAM: Oh, yes, yeah.

MR. HOGAN: Okay; 1980 could've been these plants and wind plus conservation.

MR. MALLAM: Exactly.

MR. HOGAN: In 1985 it could be something different.

MR. MALLAM: Yes.

MR. HOGAN: And, obviously, the one that was presented to compare to Muskrat Falls was a plan in itself as well.

MR. MALLAM: Yes, and that – so the plan that was always compared against the Isolated system plan was always the one that was considered to have the least cost.

MR. HOGAN: 'Cause you said in your transcript: "... we had numerous cost estimates for various Isolated expansion projects." Correct, right?

MR. MALLAM: Correct.

MR. HOGAN: So how did it come to be this plan that we're using to compare to the Interconnected Option? Can you elaborate on that?

MR. MALLAM: Yes, in that plan, I haven't seen the most recent one that was used in that comparison so I don't know what's in it, but there probably would've been six or eight plants to be constructed over a period of maybe 30 years. I'm guessing.

But I can tell you that below that, that we considered over the years, there are probably a list of, I would say, anything up to 80 plants of various types that were looked at.

MR. HOGAN: You're saying plans or plants?

MR. MALLAM: Plants.

MR. HOGAN: Plants.

MR. MALLAM: Separate generating plants.

I know we looked at five or six different configurations for Holyrood. We looked at – we've looked at a coal-fired plants at one point. A new coal-fired plants in one location. We looked at repowering Holyrood with different kinds of fuel. We looked at hydro plants all over the Island and, at one point, we did a study of small and mini-hydro plants and I believe there were 60 or 80 plants in that study.

So, among all that mass of plants, you'd have a cost assigned to each one – cost estimate. An – well, capital cost estimate, operating cost and

power output and energy output. And all those would go into the model and in their mathematical model system planning would say: Okay, take all this information and if I need so many megawatts over the next year in new power plants, which ones gives us the least cost. And they'd do that.

And you'd – so you'd have a – I mentioned a third year period, let's say you had six plants on that. So you have six plants and they come in an order. This is the first – the least expensive one you build first and they go up in order of cost. And then they'd run sensitivity analysis because these are all studies that are P50 or perhaps worse. And you'd say: All right, plant A looks like it's the first one we should build.

What happens if the actual cost of that plant is 25 per cent more than we think it is, even though it's got a healthy contingency? Does that change the ranking? And you do that for all these plants, and you do it for other characteristics like what if we can't get as much energy out of the plant as we thought we could because the topographic maps from which the studies were done are not that accurate. So, you say: All right, maybe we have 10 per cent less energy, what does that do to the ranking?

If there's a plant in there that burns oil you'd ask the question: Well, what happens if the price of oil goes up 20 per cent more than the forecast that we purchased from some expert firm says it will? What does that do to the ranking? And you're continually working this mass of different plants to arrive at the least-cost generation expansion plan for the Island.

MR. HOGAN: Okay, so I just have another question then. Once it was decided to proceed through DG2 with the Interconnected Option, you're still comparing it to the Isolated Option that was presented – that it was compared to at that time, is that correct?

MR. MALLAM: I don't know. Because I –

MR. HOGAN: 'Cause it sounds like to me, it's always going to be a moving target then. I mean, if the Isolated Option –

MR. MALLAM: Oh, yes.

MR. HOGAN: – can always change –

MR. MALLAM: Yes.

MR. HOGAN: – how do you know what Isolated Island Option you're comparing it to, to make the decision to proceed with the Interconnected Option?

MR. MALLAM: And that is the problem we've had to deal with always, that every utility has to deal with –

MR. HOGAN: That's your career is it?

MR. MALLAM: No, it's not.

If you look back over the last 40 years, at some point in time we made a decision to build Hinds Lake. Hinds Lake was the very best decision – or the very best plant to build at that time.

MR. HOGAN: Yeah.

MR. MALLAM: However, by the time it got built, it may be that the price of oil dropped to the floor and we should have put another unit at Holyrood. That's the problem you deal with in utility planning. You have to look ahead four or five years because with the construction time and the lead time for engineering and the environmental studies, that's how long it takes to build a plan.

So you make your decision based on the best information you have on hand at the time, and three years later, you could be proved to have made the wrong decision. There's not a thing you can do about it.

MR. HOGAN: Right. Okay.

Just back to the first part of your transcript I read out to you when you said that you were always governing yourselves by getting the least-cost electricity to the province.

MR. MALLAM: Yes.

MR. HOGAN: Was there any concern in doing this review that Muskrat would not have provided the least-cost option, especially to the ratepayers of the province? Did you have any concern, I should say?

MR. MALLAM: As a member of that study committee?

MR. HOGAN: Yes.

MR. MALLAM: I had no idea. 'Cause all we saw were the estimates that were going in for Muskrat Falls. We had no view into the Isolated Island Option. We had no idea what the cost of that was.

MR. HOGAN: Yes. So did you have any idea what the cost would be in terms of kilowatt hours to produce electricity at Muskrat Falls?

MR. MALLAM: No idea.

MR. HOGAN: Do you have any idea what would be too much, as a cost?

MR. MALLAM: No, because you have to compare it to the Isolated Island plan. I don't know what those numbers are.

MR. HOGAN: Okay. I just wanna ask you a couple of questions about your experience at Bay d'Espoir and Cat Arm.

MR. MALLAM: Mm-hmm.

MR. HOGAN: Is it possible that more capacity could've been obtained from there?

MR. MALLAM: Bay d'Espoir capacity, but not energy.

There is provision in Bay d'Espoir to build an eighth unit. There are seven units there right now, but that would just use the existing water flowed through a new turbine so you could get more capacity, but there'd be no energy associated with it.

The original concept for the Bay d'Espoir development was the diversion of the Lloyd's River over into the Bay d'Espoir watershed. But as of about 19 – sometime in the 1980s, that became environmentally unacceptable to do. So you could – while you can get more power out of Bay d'Espoir, you can't get more energy.

Cat Arm –

MR. HOGAN: Just explain the between power and energy then?

MR. MALLAM: Oh, okay. Let's use the analogy of a car.

MR. HOGAN: Mm-hmm.

MR. MALLAM: Power is determined by the size of the engine; energy is determined by the size of the gas tank. Power is megawatts; energy is kilowatt hours. So at Bay d'Espoir, we can – you can introduce a large – another turbine – an eighth turbine, and you can produce more peak power, but there will no energy associated with it, no new energy.

MR. HOGAN: So why is there no new energy?

MR. MALLAM: 'Cause there's no additional water to flow through it.

MR. HOGAN: Okay.

MR. MALLAM: It's the same quantity of water now going through eight machines instead of seven machines.

MR. HOGAN: And what about Cat Arm?

MR. MALLAM: Same issue with Cat Arm. There is no additional water there.

MR. HOGAN: Did your team or you – did you have any concerns with the Muskrat Falls Project about water capacity?

MR. MALLAM: I don't understand the question.

MR. HOGAN: I don't know if you've been following along about the management issue (inaudible).

MR. MALLAM: Oh, the water management issue.

MR. HOGAN: Yes.

MR. MALLAM: Yes, yeah.

MR. HOGAN: (Inaudible.)

MR. MALLAM: We were aware of that. And I don't know if we mentioned in the report or not, but that was just part of the analysis that the management had to make. Their assumption was that they would have an acceptable water management agreement, which would allow them to optimize the output of the plant. We were not in any position to judge whether that was correct or not.

MR. HOGAN: Okay. So you were aware of it but it wasn't – you didn't make a recommendation one way or the other on it –

MR. MALLAM: No.

MR. HOGAN: – or didn't think it was your responsibility to do so.

MR. MALLAM: No, because even – and if they didn't have an acceptable agreement, that's not to say that the energy cost that would flow out of the plant at the reduced output would be –

MR. HOGAN: Sufficient.

MR. MALLAM: – unacceptable or not. We had no way of knowing.

MR. HOGAN: Now, you were asked about Holyrood and you agreed that it was sort of, held together with bubble gum.

MR. MALLAM: Not my words, but I didn't argue with them.

MR. HOGAN: It's my understanding that upgrades have been done to Holyrood.

Are you aware of that?

MR. MALLAM: Yes, upgrades in capacity were done in the 1990s on two units, that's correct.

MR. HOGAN: What about since then?

MR. MALLAM: I wouldn't call them upgrades; repairs.

MR. HOGAN: Okay. When were they done, that you know of? What are the ones you know of, the repairs?

MR. MALLAM: Oh, I wouldn't attempt to state those; every year there is a significant capital program at Holyrood to do repairs, and they've touched virtually every part of the power cycle out there.

MR. HOGAN: Do you have any idea on the cost on those (inaudible)?

MR. MALLAM: No, I don't.

MR. HOGAN: Okay, all right.

That's all the questions I have. Thank you.

THE COMMISSIONER: Thank you.

Former Nalcor Board Members? I don't think she's here.

Newfoundland Power, or, I'm sorry, Nalcor. Sorry.

MR. SIMMONS: Thank you Commissioner.

Can we go to exhibit P-00491, please? I think that's the right one. Page 3.

THE COMMISSIONER: That's tab – try – get that for you now.

MR. SIMMONS: Mr. Mallam, I think this was identified before; it should be available on your screen there, just that one page.

MR. MALLAM: I have it here.

THE COMMISSIONER: Okay.

MR. SIMMONS: This was the presentation that was done following the first IPR, the one that was done prior to Decision Gate 2. And there's a grey box on the lower right hand side, there, of that sheet and it said: "IPR IS: a high level independent expert assessment," "IPR IS NOT an audit or validation of the work product."

First of all, did – do you agree that that statement applied to the work that you did in the IPRs at DG2 and 3?

MR. MALLAM: Yes.

MR. SIMMONS: Can you maybe explain to me a little bit more what the difference is between what it says the IPR is and what it says the IPR is not, there.

MR. MALLAM: It's probably best to start with what it isn't. It's not an audit or validation of the work product. Think of the capital cost estimate that was – that we were asked to review. I've never actually seen the entire documentation for it, but I would imagine it would fill numerous boxes if it was ever printed.

The – this project is multi-faceted. It has a huge number of different elements, and all of those would have a detailed estimate. To ask a – or to expect that a group of three or four people could even begin to validate those estimates over a period of a couple of days is impossible. For one thing, we didn't have the time. And for the other thing, we didn't have the expertise. Perhaps I could have commented on the cost they had in for turbines and generators, but for other costs I had no experience.

And the – as I said, the calculations that are there are voluminous. So you can't possibly validate what they've done. All you can do is assess the methodology used to perform the work. And if the methodology is consistent with good utility practice, you're satisfied.

MR. SIMMONS: Good, thank you.

Can we go please to Exhibit P-00504, page 41?

This –

THE COMMISSIONER: Tab 30

MR. MALLAM: Okay.

MR. SIMMONS: Yes.

MR. MALLAM: Okay.

MR. SIMMONS: Okay. You've got that on the screen.

This is the presentation that was given following the second IPR review, which was in the lead-up to Decision Gate 3. And I think – this was presented, I believe in September of 2012?

MR. MALLAM: I think actually it was the last day of August, I believe.

MR. SIMMONS: It was the last day of August.

MR. MALLAM: Yeah.

MR. SIMMONS: Okay. And we know that project sanction was actually in December. So this would have been several months before that.

And you've gone through this page – this is where we're dealing with project risk, execution and risk management plans, management reserve and schedule reserve. And we come down to the very last bullet there where it says, "The IPR Team concurs with the expectations set by the LCP Project Execution and Risk Management Plans that adequate provisions for Management Reserve and Schedule Reserve be included in the Project Sanction Costs and Schedules."

Do you recall what the project execution and risk management plans were or what that's a reference to?

MR. MALLAM: Yes. They had documentation which outlined how they were going to handle –

MR. SIMMONS: Mm-hmm.

MR. MALLAM: – that area.

MR. SIMMONS: Mm-hmm.

MR. MALLAM: What resulted from that was a report. And the report was not made available to us. So they had – they showed us the methodology they were going to use to produce the risk analysis. We just never saw the analysis.

MR. SIMMONS: Right. So you did have an opportunity to have a high-level review of the process and methodology that was being employed, but similar to the detail in the cost estimate, you didn't have the results of how those contingencies were being analyzed?

MR. MALLAM: That's correct.

MR. SIMMONS: You've described to us in your evidence, your description of P-values for estimates that in your experience have been used

for either projects – and you gave us some evidence about what type of range of contingency you'd expect to attach to a P70 or a P90 for example.

In the presentation that was given following this second IPR – that was given to the gentlemen whose names we've seen on the list – was there any actual presentation to them about those numbers that you used? Did anyone talk about using a contingency in the range of 10 or 15 or 25 or a P-value of 50 or 70 or 90? Was that part of what was done in that meeting?

MR. MALLAM: No. I don't think we ever mentioned specific numbers. All we said was that you must use an appropriate contingency with the estimate at this P-value and that the contingency that they had – the 10 per cent – was not appropriate.

MR. SIMMONS: And did you know at that time that it was a 10 per cent contingency or did you have a number that you knew?

MR. MALLAM: I think we were told at the time that it was a P50 estimate with a 10 per cent contingency. I think we were told that.

MR. SIMMONS: And I think you've also told us that, in your view, the – I may be paraphrasing so correct me if I'm wrong – that the best way to determine the contingency to be applied to the cost estimate, was to do a detailed risk analysis, that I understood from you would have an analysis of different types of risks that could occur and separate determination of how likely those risks were and what kind of impact that could have on the project.

Am I getting that right?

MR. MALLAM: No, that's exactly correct. Yes.

MR. SIMMONS: Can you tell me a little bit more about what that process might be and what that kind of risk analysis would look like?

MR. MALLAM: What I would have expected to see was – they had a detailed project schedule –

MR. SIMMONS: Mm-hmm.

MR. MALLAM: – and if you think of a project schedule, there are all these activities listed and they go down into excruciating details so you wouldn't expect the minor ones to be reviewed. But there might be one there called powerhouse excavation. And I would expect to see a discussion about the risk associated with that – weather delays, equipment delays, labour delays and so forth.

MR. SIMMONS: Mm-hmm.

MR. MALLAM: Running into subsurface conditions that were unexpected. All these things have the potential to cause delay. There'd be a discussion about those and then there'd be a conclusion to the effect of – for this activity we would expect to add another 30 days. And you do that for all the significant activities in the project.

Now, you don't add all these things up because some of these run in parallel. So, in the analysis, you add up all the ones you think are likely to occur and at the end of it you'll say – okay, for this project we need another – pick a number – 150 days.

MR. SIMMONS: Hmm.

MR. MALLAM: Or whatever.

MR. SIMMONS: Right. And so do I understand correctly then, that if you go through this detailed process the outcome of that would be the information you would use to put a contingency amount on the project rather than just take a ballpark range of 15 to 25 or 20 to 30, that that would kind of substitute for the –

MR. MALLAM: That is correct, yes.

MR. SIMMONS: Yeah, okay.

The presentation of the second IPR analysis for DG3 was done, as you've said, at the end of August. And do you know or did you have any information about how or to what extent or if at all these recommendations were acted on or the concerns that were raised in the report were acted on before the project was sanctioned in December of 2012?

MR. MALLAM: No, I have no feedback whatsoever after that date.

MR. SIMMONS: Okay, fine.

Thank you very much, Mr. Mallam. I don't have any other questions.

THE COMMISSIONER: I'll redirect.

MS. O'BRIEN: Just a couple of items arising; one, I just want to just clarify. Mr. Mallam, you had said, I think, in response to one of the questions by Mr. Budden, that one person in the senior management group had hydroelectric experience. And then in response to questions from Mr. Hogan you identified Ron Power. So that's the one person you were referring to earlier?

MR. MALLAM: Yes, that's the only person I know for certain has had previous experience with hydroelectric projects.

MS. O'BRIEN: Okay.

And then also in your discussions with – or your – the questioning by Mr. Hogan, you were talking about Bay d'Espoir and Cat Arm and expansion and how that could – would add capacity but not energy to the system.

MR. MALLAM: Yes.

MS. O'BRIEN: And this, obviously, a very complicated area for people who haven't worked in the area that you have for your career to understand. Just, if you are – so, obviously, it's on the very coldest days in winter that we need more energy.

MR. MALLAM: We need both power and energy –

MS. O'BRIEN: Right, so that's when –

MR. MALLAM: – capacity energy.

MS. O'BRIEN: – our energy need peaks?

MR. MALLAM: Yes.

MS. O'BRIEN: Okay, on the coldest days of winter.

So if you added on an extra turbine, say, at Bay d’Espoir or Cat Arm – so on that coldest day of winter assuming there was water in the reservoir, you could run it through and generate the energy to meet the peak demand. And that may save you from having to burn fuel at Holyrood, say.

MR. MALLAM: Oh no, you’ll be burning fuel in Holyrood as well. The issue is capacity and, in fact, that’s the way the system is run right now. If you think of the Bay d’Espoir – well, don’t just think of Bay d’Espoir, all the hydraulic units on the Island have reservoirs.

MS. O’BRIEN: Okay.

MR. MALLAM: So if you think of all the water stored, that’s like a big fuel tank.

MS. O’BRIEN: Yes.

MR. MALLAM: So what happens generally is you hope that in the fall you get lots of rain and the fuel tanks are full and then you run Holyrood. Now, Holyrood is run at times – well, the units come on and at times you need them for capacity, but you also need them for energy for the winter. Because the – I’m going to have to go dig into my memory here. I think we have enough energy on the Island from hydro sources and wind to satisfy about 80 per cent of the need, the rest of it has to come from Holyrood in one form or another.

MS. O’BRIEN: Okay.

MR. MALLAM: So in the summertime, if you drive up Conception Bay Highway you’ll notice that there are no units on in Holyrood. And what we’re doing then is drawing down the reservoirs; we don’t need the capacity of Holyrood. In the wintertime, you absolutely need the capacity from Holyrood and you need the energy it can produce.

MS. O’BRIEN: Okay.

So if – and here’s the question that I have for you: If you added to the – if you added the extra turbines at Cat Arm, Bay d’Espoir, would that possibly enable you to add more wind generation to the system?

MR. MALLAM: No.

MS. O’BRIEN: Okay.

MR. MALLAM: There’s another constraint with wind. There are several rules of thumb out there depending on the type of electrical system you operated – you operate. On the Island Isolated electrical system it’s roughly about 20 per cent that you can have wind. And that’s not 20 per cent of capacity; it’s 20 per cent of the load you have on the system at the time.

So in the summertime when the load is low, if you had additional wind available you couldn’t use it because the system could not absorb it. If you tried to put it in the system the system would become electrically unstable and you’d wind up with outages. So you’re limited on how much you can put into the system.

I’m aware that in some systems – Germany, I think, is an example. I think it’s Germany where they have a very large industrial load, so their average load throughout the year is very stable. They’ve been able to introduce renewables like wind and solar up to close to 40 per cent. We could not do that on the Island.

MS. O’BRIEN: Okay, so just to summarize, what would be the advantage then of adding extra turbines at Bay d’Espoir, Cat Arm?

MR. MALLAM: Well, none. That’s why we haven’t done it. It buys you capacity only, not energy.

MS. O’BRIEN: Okay.

The next question – I want to go back. I had asked you earlier in my direct examination about the – about whether you had included everything in your DG3 report. And I just want to bring you to something, I – on the break I was able to find it in the transcript. I want to bring that to – bring you to a passage here.

You recall being interviewed by me under affirmation on August 27, 2018?

MR. MALLAM: Yes.

MS. O’BRIEN: Okay, I’m just going to read out to you here.

MR. MALLAM: Uh-huh.

MS. O'BRIEN: And then what I'm going to do is I'm going to read it out to you and I'm going to tell you does that – you know, do you agree with that now? Does it concur with your memory here today?

So you said after the interviews those of us who were involved immediately would make our notes about – then compare notes and – about what we thought of the interview. And then, later on, we met as a group and discussed them. And from all of these lists of comments and concerns we had, we developed – we were asked to develop a presentation – inaudible – thoughts on there somewhere in the PointPoint presentation which listed our concerns.

But there are also some things, as I recall, that we were asked not to record but to address verbally. And I think that the cost and schedule were sensitive areas, I believe, that we were asked not to put too much in writing.

And then I asked you: And who would've asked you not to put too much in writing? And you responded: It probably came – well, it came through Derek Owen. I'm assuming it would have been either Paul Harrington or Ed Martin that asked that.

So I'm reminding you of what you said to me on that day this past summer. Is that still an accurate memory for you or do you want to disagree with or change what you said then?

MR. MALLAM: No, I have that vague memory of us being asked to be brief and that's really all I can say that. Whether it came through Derek, that's probably one source, it may have been someone else. And it may have even been a remark someone made in jest, but there is that vague memory of being asked to be brief in our criticisms.

MS. O'BRIEN: Okay and, particularly, with respect to cost and schedule?

MR. MALLAM: No, I think what I was referring to there that those are very sensitive areas. And maybe I'm thinking that's what it was directed towards, I can't remember exactly, but there is that vague memory.

MS. O'BRIEN: Okay. Thank you for clarifying.

Those are all my questions.

THE COMMISSIONER: Just one moment.

No, that's fine. Thank you.

You can step down.

MR. MALLAM: Okay.

THE COMMISSIONER: All right, Ms. O'Brien.

MS. O'BRIEN: Thank you.

Our next witness is Derek Owen.

THE COMMISSIONER: Derek Owen.

MR. OWEN: Are we using the same (inaudible).

MS. O'BRIEN: Yes, I ask you, Mr. Owen, when – in your testimony, you refer to the binder that's already on the table. You can just set your documents aside there –

MR. OWEN: Okay.

MS. O'BRIEN: – while you give your testimony.

Thank you.

MR. OWEN: Yeah.

THE COMMISSIONER: All right.

And do you – Sir, do you wish to provide your evidence under oath or affirmation? Either one is equally acceptable.

MR. OWEN: Affirmation.

THE COMMISSIONER: Affirmation?

CLERK: Thank you.

Do you solemnly affirm that the evidence you shall give to this Inquiry shall be the truth, the whole truth and nothing but the truth?

MR. OWEN: I do.

CLERK: Please state your name for the record.

MR. OWEN: Ronald Derek Owen.

CLERK: Thank you.

THE COMMISSIONER: You can be seated there, Sir.

All right, Ms. O'Brien.

MS. O'BRIEN: Thank you.

Yes.

MR. OWEN: Okay.

MS. O'BRIEN: And you can just bring the microphone towards you there, Mr. Owen (inaudible).

MR. OWEN: Okay.

MS. O'BRIEN: Thank you.

Will – Mr. Owen, I understand you were also a member of the Independent Project Review team at both DG2 and DG3. Is that right?

MR. OWEN: That's correct. Yes.

MS. O'BRIEN: Thank you.

I'm going to ask you to begin with a summary of your education and work experience.

MR. OWEN: Uh-huh.

I graduated in 1962 from the University of Nottingham in the UK with a bachelor's degree in mechanical engineering. Further professional – I am a Fellow of the Institute of Mechanical Engineers in the UK and a chartered engineer. That level of, actually, fellow is the highest level in the UK institute of, actually – of engineers. Through that, I'm a chartered engineer and I also am a P. Eng. here in Canada.

MS. O'BRIEN: Okay and with respect to your work history?

MR. OWEN: Work history, overview first: Close to 51 years in the oil and gas industry broken down into probably three segments, which will be the easy way to bridge the 51 years.

The first 18 years or so, I held senior project positions in major EPC contractors in the UK, Netherlands and Germany. In 1981, I joined Mobil Oil in London and was involved with large megaprojects at the business manager level and also the project manager level. Projects of note during that time would have been project general manager for Hibernia for the first three years or so, project manager for the Sable Offshore Energy Project in Nova Scotia and miscellaneous refinery projects that were executed in Germany.

Up towards the end of that period, Mobil and Exxon merged and, at that time, I was appointed by ExxonMobil as the overall project manager for the development projects for Eastern Canada. And that would have included projects that were under development – not under the operations but under development. So that would have been phase two for Sable, Hebron at that stage, the final stages of, actually, Terra Nova. I held that position for two years before retiring from ExxonMobil in March of 2002.

So after 2002 I then went into consultancy and in – when I gained my permanent residency in 2005 I set up my own incorporated company – at that time I was living in Bedford – my own incorporated company, which is still in existence. So, broadly, it was 18 years of senior positions in engineering, procurement, construction contractors, 20-plus years with Mobil – ExxonMobil, and since 2000, I suppose, that leaves 16 years of actual consultancy.

Main areas with regard to consultancy have been cold eyes review, independent project reviews, team effectiveness workshops, coordination of those workshops and even facilitating some of them, providing project advisor services to various organizations, Nalcor Oil and Gas for instance. I'm currently advising MUN with regard to their Core Science Facility building.

The other clients during the consultancy have been many of the majors, so Husky, Chevron, Petro-Canada in its former life. I was also,

during that period of time, the general manager for Maple LNG which was an LNG facility in Nova Scotia that went through its full approval processes, but didn't materialize into a project.

So looking at the IPR and the cold eyes reviews, I can give you a broad outline of those if you would like to have that.

MS. O'BRIEN: We're going to get to there in just a moment.

MR. OWEN: Okay.

MS. O'BRIEN: A couple of things I want clarify out of the evidence that you just gave us. You said the first third of your career was with EPC contractors.

MR. OWEN: Yes.

MS. O'BRIEN: So this would be engineering, procurement and construction –

MR. OWEN: Yes.

MS. O'BRIEN: – contractors.

MR. OWEN: Yes.

MS. O'BRIEN: So to put it – and give us some examples that those of us in this Inquiry would understand – that would be similar, like – the SNC-Lavalins of the world. Is that –?

MR. OWEN: It would be similar to those. Yes.

MS. O'BRIEN: Okay.

MR. OWEN: Yes. Yes.

MS. O'BRIEN: And then you say you got your – I think your residency status in Canada in 2005.

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

And the consulting firm that you started, I believe you said in 2002, that was RDO Consulting ...?

MR. OWEN: I started that consulting firm after I became a permanent resident. So that was incorporated in the – like somewhere in November, December of 2005.

MS. O'BRIEN: Okay, so RDO Consulting Limited or Inc., is it?

MR. OWEN: Limited.

MS. O'BRIEN: Limited. Thank you.

MR. OWEN: Uh-huh.

MS. O'BRIEN: Sorry, I didn't have the note here. And are you the only employee of RDO Consulting Ltd? In other words –

MR. OWEN: Yes.

MS. O'BRIEN: –you just do your consulting through this corporate structure?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

Now, we know that– before we get to your work on the Independent Project Review, I want to go back to – a little further than that in time.

Can we bring up Exhibit P-00476, please, tab 2 of the book in front of you, Mr. Owen.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So this is an email – we're going back to 2006 – March 30, 2006.

MR. OWEN: Yes.

MS. O'BRIEN: And it's an email from Paul Harrington to Ed Martin and Gilbert Bennett, and the subject matter is: Role for Derek Owen.

So before we get into the subject of the email –

MR. OWEN: Yeah.

MS. O'BRIEN: – can you please – did you already know Paul Harrington? What was your relationship with Mr. Harrington?

MR. OWEN: Yes, I first met Paul Harrington on a project that I was the business manager and Paul was doing – I’m not sure – probably the mechanical completion, I would think, aspects of a Norwegian project in 1981 or 1982.

MS. O’BRIEN: Okay. And had you worked with –

MR. OWEN: And Paul had worked in my projects on Sable, for instance, and also on Hibernia.

MS. O’BRIEN: So Paul had worked for you previously.

MR. OWEN: He didn’t work directly for me –

MS. O’BRIEN: Okay.

MR. OWEN: – but through the rank, basically, he was working for someone who was reporting directly to me, yes, yes.

MS. O’BRIEN: Okay so he worked under you but not a direct report.

MR. OWEN: Exactly.

MS. O’BRIEN: And that was on at least two other projects or three –

MR. OWEN: Well, it would’ve been –

MS. O’BRIEN: The original project in ’81, ’82?

MR. OWEN: Yes, it would’ve been Norway certainly, I think, and Sable, I know, and I believe Hibernia, but I’m not a hundred per cent sure for Hibernia.

MS. O’BRIEN: Okay.

So you had a long-time business relationship spanning many years back to the early ’80s.

MR. OWEN: A business relationship, not – he worked on projects like, you know, many of the people that I meet and see these days here, many of them have worked on projects where I was the project manager. So that’s the type of ...

MS. O’BRIEN: Right, but you knew him professionally –

MR. OWEN: Yes.

MS. O’BRIEN: – since 1981?

MR. OWEN: Yes. Yes, I did.

MS. O’BRIEN: And –

MR. OWEN: Yes.

MS. O’BRIEN: Okay.

MR. OWEN: Yeah.

MS. O’BRIEN: Did you have a social relationship as well, or was it just –

MR. OWEN: No.

MS. O’BRIEN: – the work connection?

MR. OWEN: Only work connection.

MS. O’BRIEN: Okay.

MR. OWEN: And it wasn’t continuous. I mean, it was depending on the project which was happened to be working at that time.

MS. O’BRIEN: Okay.

MR. OWEN: Yeah.

MS. O’BRIEN: All right, so here we see Mr. Harrington is writing Ed and Gilbert – Martin and Bennett – noting you have – that you have, so: “Derek has provided some useful input and I appreciate his experience, I would not say that his time commitment to us has been extensive to date. I believe ... Derek has something further to offer in specific areas. I suggest that we agree on the areas that Derek is invited to be involved” with “and, with your agreement, I would like to be the” – Newfoundland and Labrador Hydro – “NLH single point contact for Derek in the future.”

And he talks about that he likes you but wants to have a clear – clear areas of review –

MR. OWEN: Hmm.

MS. O'BRIEN: – set out for you. And he gives, here, a – suggestions of areas in which you might work.

MR. OWEN: Yeah.

MS. O'BRIEN: There's a number of them here, I won't read them all out loud.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: But I take it these would all be having to do with the Lower Churchill Project, would they?

MR. OWEN: Yes, yes.

MS. O'BRIEN: Okay.

And he says here: "Setting aside the Audits and Independent Reviews" – which are listed in this list – "I would expect Derek to expend something in the order of an average of 3 to 4 days per month for the rest of the year."

He says he's attaching terms of reference, which he does. And they are here as a general description of the services to be provided.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Now, if we go to the next – before I ask you a question on this I want to take you to the next exhibit, which is at the next tab in your book, tab 3. It's Exhibit P-00477.

And here we see – this is a – the email we just looked at was March 30, 2006, now we're a few months ahead in 2006, July 26. And this is an agreement for consulting services related to the proposed Lower Churchill hydroelectric project. And it's between Newfoundland Hydro and RDO Consulting Limited, which is your company, representing you as the consultant and then there is a contract set out.

And, Madam Clerk, if you can just go to the last page, page 7, please. And it sets out a statement of work that Mr. Harrington would be the single point of contact. It gives a duration: To the end of the year with a renewal option. It provides a description of services: To provide advice to the Lower Churchill Project team in matters relating to project execution, contract strategy, project

delivery methods, organization design. The advice will be provided in the form of – and it lists the various forms.

And it gives the average time commitment per month for the work described above in the order of two to three days at eight hours per day. Monthly timesheets to be submitted to the NLH single point contact, so that would be Mr. Harrington. I'm just noting that the contract we have here is not signed. So let's go back now to when these documents were done. Was this –?

MR. OWEN: I have a signed copy.

MS. O'BRIEN: You do have a signed copy. We'll get you to provide that on the break and we will –

MR. OWEN: Well, I don't have it with me but ...

MS. O'BRIEN: Okay, well we'll get you to provide it in follow-up and we'll file that –

MR. OWEN: Yes, yeah.

MS. O'BRIEN: – just for completion.

MR. OWEN: Okay.

MS. O'BRIEN: Thank you very much, Mr. Owen.

MR. OWEN: Yeah.

MS. O'BRIEN: So this contract was ultimately signed?

MR. OWEN: Yes.

MS. O'BRIEN: And did you do work under this contract?

MR. OWEN: Yes.

MS. O'BRIEN: Okay, so can you just give us, generally, what type of services were you providing as advisement services to the Lower Churchill Project through 2006?

MR. OWEN: Yeah, can I just refer to my notes on that?

MS. O'BRIEN: No, you can't have notes at the table with you so ...

MR. OWEN: Okay, well, you'll have to rely on my memory then.

MS. O'BRIEN: Yes, that's fine.

MR. OWEN: Okay.

Okay, let's start right at the beginning. There was a session in January of – sometime in January of 2006 which was prior to this agreement. And I believe that work was executed, possibly under a sort of simplified purchase order. It was a discussion with Ed Martin and with Gilbert and Paul Harrington with regard to the execution of the project, how the project should possibly be set up with regard to the execution of that.

Then in – now, I'm just trying to remember. So let me back up a little bit from DG2 which was 2010, right? So if I can just back up, because it'll help me –

MS. O'BRIEN: Absolutely.

MR. OWEN: Yeah.

MS. O'BRIEN: And I'm looking at the period before you were asked to go on the IPR team for –

MR. OWEN: Yes, okay.

MS. O'BRIEN: – DG2 and get a sense of ...

MR. OWEN: Yeah.

MS. O'BRIEN: And I understand this contract that we're looking at, the one you're going to provide the signed version of –

MR. OWEN: Yes, yeah.

MS. O'BRIEN: – did that get renewed –

MR. OWEN: Yes.

MS. O'BRIEN: – in subsequent years?

MR. OWEN: Oh yes, yes.

MS. O'BRIEN: Okay, so –

MR. OWEN: Yes, yeah.

MS. O'BRIEN: – during those – and were you consistently working at the, you know – was this about the – approximately the time effort that you were putting into the – per month, two to three days per month? Would that be –

MR. OWEN: Yeah, that was more like an average. There would be some months when there wouldn't be any work at all and there'd be other months that would be ... so, yeah. So there was that work in the – as I say, in January of 2006.

There was other activity. We did a pre-Gate 2 cold eyes review which indicated that the project would not be ready at that moment in time to go to Gate 2. But that's quite a normal process, that if you're approaching a significant Gate, then several months or possibly half a year in advance of that, you would then do a cold eyes review to assess whether or not there were major gaps that had to be filled before you got to the Gate.

MS. O'BRIEN: Okay.

MR. OWEN: So that work was done.

And then I think we're at – I think we're then roughly at Gate 2. So there wasn't a lot of activity between, say, 2006 and 2007 up until the preparation for Gate 2, basically.

MS. O'BRIEN: Okay.

So you said one of the things you were being consulted on is how the project should be set up?

MR. OWEN: Yes.

MS. O'BRIEN: So we know that a lot of the project team had a lot of documentation setting out their policies, procedures –

MR. OWEN: Uh-huh.

MS. O'BRIEN: – those types of things, some of which has been filed in evidence and some –

MR. OWEN: Yeah.

MS. O'BRIEN: – which will be to come. Would you have been consulted with respect to some of those foundational-type documents?

MR. OWEN: More to the overall concept of whether the project – there's various ways of executing projects.

MS. O'BRIEN: Okay.

MR. OWEN: And Lower Churchill did look very closely at the best way to formulate the owner's team, the contracting strategy. And it was decided, amongst other options – but it was decided that it would be – a substantial owner's team would be put into place and it would then contract with a major EPCM contractor.

But there were other options that were looked at, but during that time that was the configuration that they came up with. Another option would've been to have a limited owner's team and then have a managing contractor in between the owner's team and the EPCM contractor.

And history tells us that is not a very effective way. It reduces the speed of decision-making because you've got this operating – you've got this managing contractor in between the contractor that's doing the work and the owner's team. And what we tried to do was we tried to shorten those lines of communication such that we get quick decisions made.

But that was an option that we looked at, but we put that on – we decided that was not the option to go with. So the option to go with was to have a strong owner's team and a strong EPCM contractor.

MS. O'BRIEN: Okay, so those are the types of things you would've –

MR. OWEN: Those are the types of things that we were discussing and –

MS. O'BRIEN: – been consulted on in that period?

MR. OWEN: Yes, absolutely.

MS. O'BRIEN: Okay, so that you'd be giving input.

And I do know – there will be further evidence to come, but I do know that they – that at one point the project configuration was Gull Island first. And there was some Decision Gate 2 work done on that configuration of the project before they ultimately switched to the Muskrat Falls Project first.

MR. OWEN: Yes. Yeah.

MS. O'BRIEN: So would you have been involved in that Decision Gate 2 work to the extent it was done for the Gull Island first scenario, as well, during this period?

MR. OWEN: I wasn't heavily involved with any decisions around that. I was aware of the fact that at that time, in those years, Gull Island was going to be the way to go and then it was changed to Muskrat Falls.

MS. O'BRIEN: Okay. Thank you.

So that would bring me up, Commissioner, to the work that Mr. Owen did at DG2 and DG3, getting into that time. We're just about at 12:30, so probably a good place to stop.

THE COMMISSIONER: All right, so we'll take our break here then. And, Mr. Owen, we'll ask you to come back at 2 o'clock today.

MR. OWEN: Okay.

THE COMMISSIONER: Just in reference to your notes, I just want to mention that if you were going to be using your notes, we would all have to have had them ahead of time.

MR. OWEN: Okay.

THE COMMISSIONER: So we don't have them to review, so what you can do without your notes we'd appreciate it. If you feel that there's a need – at some point in time that you need to look at a note or something, you'd advise counsel and then we'll see how we're going to deal with that.

MR. OWEN: Okay.

THE COMMISSIONER: All right?

MR. OWEN: Yeah.

THE COMMISSIONER: All right, so we'll adjourn then until 2 o'clock.

CLERK: All rise.

Recess

CLERK: This Commission of Inquiry is now in session.

Please be seated.

THE COMMISSIONER: All right.

Ms. O'Brien?

MS. O'BRIEN: Thank you. Okay.

Mr. Owen, I understand that you were the lead member of the IPR team for both DG2 and DG3.

MR. OWEN: That's correct.

MS. O'BRIEN: We heard from another member of that team, John Mallam, late yesterday and this morning. Did you hear any of Mr. Mallam's testimony?

MR. OWEN: I think I heard most of it. I wasn't sure about yesterday's piece.

MS. O'BRIEN: You heard it today?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

So as you will know that Mr. Mallam has already described for us in general terms what the IPR team did.

MR. OWEN: Yes.

MS. O'BRIEN: Now, prior to working on the IPR team for Muskrat Falls Project, had you ever been involved in an IPR – Independent Project Review – previously?

MR. OWEN: For the project or for –

MS. O'BRIEN: No, in any other one?

MR. OWEN: Yes, yes. I did – not necessarily called IPR, but cold eyes review. One of the first

ones I did was for CNRL – that is Canadian Natural Resources – a small one for them. That would have been in around about 2004 probably.

Then a fairly extensive one for Petro-Canada in those days for their Fort Hills project, which subsequently was stopped. But that was a IPR for that Gate 3, which was Decision Gate 3.

For Husky, for the SeaRose project, a series of cold eyes reviews, probably five or six reviews throughout the life of that project. And while staying with Husky, participating in cold eyes reviews for Husky West White Rose Project, which is currently ongoing. And that has been through several phases, so we did – or I actually participated with Husky in Decision Gate 2 of that project, and also, more recently, in Decision Gate 3.

MS. O'BRIEN: Okay.

MR. OWEN: I also did the – and led the IPR for Nova Scotia Power Maritime Link at Decision Gate 2 and Decision Gate 3. And I do minor cold eyes reviews for MUN for the new Core Science building facility, so those are the main ones basically.

MS. O'BRIEN: Okay, so with the exception of the Maritime Link and your more recent work for Memorial for the –

MR. OWEN: Yeah.

MS. O'BRIEN: – Core Science building –

MR. OWEN: Yeah.

MS. O'BRIEN: The other projects that you were involved in doing cold eyes reviews for, would they all be in oil and gas?

MR. OWEN: Let me think. Yes, they were all oil and gas. Yes.

MS. O'BRIEN: Okay.

And so then you did – did you do the Maritime Link cold eyes reviews – do you know if they were before or after you did the equivalents for the Muskrat Falls Project in this province?

MR. OWEN: I believe that the Decision Gate 2 for the Maritime Link was around about the same time as Decision Gate 3 for the main project. And Decision Gate 3 for the Maritime Link was some time after that.

MS. O'BRIEN: Okay, so their Decision Gate 2, you're saying, coincided approximately at the same time as our Decision Gate 3?

MR. OWEN: Approximately – if my memory serves me correctly, yes.

MS. O'BRIEN: Okay, all right.

Now, you then heard the testimony of Mr. Mallam. He described for us generally how the IPR procedure process works –

MR. OWEN: Yes, yeah.

MS. O'BRIEN: – for the teams doing a tier for the Muskrat Falls Project –

MR. OWEN: Yeah.

MS. O'BRIEN: – at Gate 2 and Gate 3.

Were you generally in agreement with his evidence or is there anything you'd add or clarify or differ from in terms of the process?

MR. OWEN: No, I think how he described it was basically really following the actual decks that have been issued or really put together describing the process. I will emphasize – as he did – but further emphasize what the IPR is not because there is a degree of confusion with regard to the role of the IPR.

As is described and as is prescribed in the charter, the IPR's done over a really concentrated period of time. We preview the (inaudible) documentation ahead of time, and then the IPR is really completed in about four or five – well, maybe five or six days depending on the Gate. So obviously, there is not time to audit or to validate any of the actual delivery products that are coming out of the project team, so detailed schedules, estimates, execution plans, risk plans, risk analysis.

What we're looking for, fundamentally, is their processes that they have used in order to develop

the project deliverables, because there is a list of deliverables that the projects have to provide in order to get through the respective Gates, and those deliverables change from Decision Gates 2 to 3.

So we look at whether or not those deliverables have been started, whether or not they're finished, whether or not they are close to being finished, whether they are – as we showed in Decision Gate 3, whether or not the deliverable is an absolute requirement to have – to be in place to go through the Gate or whether or not there's some latitude with regard to that deliverable certainly being required, say, within 60 days of the Gate.

So that's the role of the team. We do – and I'm not sure Mr. Mallam expanded on the, sort of, the process. When we have prepared the – our actual report – when the team has really prepared that report, we do communicate that report to the project team and to some of the key individuals who we have interviewed in advance of finalizing our report, which then goes to the Gatekeeper.

MS. O'BRIEN: Okay.

MR. OWEN: The reason we do that is that we – as I explained, we are only, you know, looking at this in a very short period of time, and we want to ensure that we've not misunderstood something or we've got something out of context and therefore potentially come to a wrong recommendation or a wrong observation.

MS. O'BRIEN: So you do that before the final presentation on your last day, when you present it to Ed Martin and Gil Bennett and the other people who are there?

MR. OWEN: Correct.

MS. O'BRIEN: Okay.

MR. OWEN: We normally try to do that the afternoon or the evening before. However, we usually run out of time to tell you the truth, and we end up doing it on the morning, let's say, before we make the presentation to the Gatekeeper in the afternoon.

MS. O'BRIEN: Okay.

Couple of points in terms of the process. Mr. Mallam didn't quite remember, so I'm gonna ask you.

MR. OWEN: Yeah.

MS. O'BRIEN: He described the documents being provided to him approximately a week before through an FTP or some other file-transfer site.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: One of the questions I had put to him – we went through the various focus areas –

MR. OWEN: Yes.

MS. O'BRIEN: – that you were being asked to look at in the individual charters.

MR. OWEN: Yeah.

MS. O'BRIEN: I asked him if the documents were organized for him –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – by focus area or was it just a big mass of documents there –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – to filter through. Do you recall how the documents were organized when you received them?

MR. OWEN: What we try to do, and we're reasonably successful in doing it, is that we would like to see the documents longer than one week before. And therefore they start to populate the system that they're going to actually download those actual documents so that we can see them remotely. And we like to try to start that process as soon as they've got a reasonable number of documents available so that we don't get hit with 100 documents with only a week to look at.

We also encourage them to provide the documents in the – like, batches associated with a theme or a focus area so that we don't – so hopefully we would get, say, maybe 60 per cent

of the documents for a particular area which then enables us to have a more thorough review. Because what we find is when we take one document from a certain area, it invariably references other documents of that same area and, therefore, if you don't have the other documents it's very difficult to review that one document because you need all the other documents.

So that's what we encourage the team to do. We're at the mercy of the team in preparing those documents and getting them into the system such that we can actually review them but, generally, they do really quite well. Any documents that are not filed in advanced are made available then by hard copy in our workroom once we start the review. So we still have an opportunity to further review any documents that they haven't provided to us.

We don't want to hold a mass of those, obviously. So we have an opportunity then to – and also, at that same time, if there's any document that we believe is referenced which they haven't provided and we would like to see, then we request that that be made available as a hard copy when the team gets assembled.

MS. O'BRIEN: Okay.

So just then you were speaking very generally of they. I just want to be clear, so in the case of the reviews you did for Nalcor Energy for the Muskrat Falls Project at DG2 and at DG3 –

MR. OWEN: Yeah.

MS. O'BRIEN: – the documents, were they provided to you in this – the way you've just described there? Many of them in advance, maybe a little even more than a week in advance.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Organized generally by category –

MR. OWEN: Yeah.

MS. O'BRIEN: – then with further documents being provided along the way, and even some

documents being provided during your review, if requested.

MR. OWEN: Yes. Yes.

MS. O'BRIEN: Okay.

All right and another question that I put to Mr. Mallam –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – had to do with the interviewees.

MR. OWEN: Yeah.

MS. O'BRIEN: So we heard a description that, as part of that intensive week when the team gets together, that you would have reviewed – sorry, interviewed people –

MR. OWEN: Yes.

MS. O'BRIEN: – with respect to the different focus areas. Was it the – and let's talk really now about the two processes you did for Nalcor that we're talking about today. Was it the IPR team who identified the people who you wanted to interview or was it Nalcor who would have said, you know, these are the people to interview in this area?

MR. OWEN: I played a considerable role in ensuring that the individuals that I felt, based on the focus areas that we needed to interview, were made available. So it was very much at my direction that those interviews were actually set up.

And we worked from an organization chart, obviously. And we looked at the responsibility of the individuals and the focus areas. And I would start with the coordinator and map out who I believed we should be talking to. And then once we got that to a sort of 90 per cent, then once the team were assembled, we would do a final review with the whole team to say, look, this is the structure, these are the interviews we've scheduled so that they would be brought up to speed on how we were going to cover interviews relative to the focus areas.

MS. O'BRIEN: Okay.

And you said just then work with the coordinator, so I would take it this would be the IPR team coordinator who would be someone within Nalcor essentially assigned to assist the IPR team.

MR. OWEN: Correct.

MS. O'BRIEN: Okay.

MR. OWEN: Because that coordinator would then go and arrange the timing of the interviews, because not all people would be available in the sequence that we may like to have them. So that coordinator would arrange the timing for the interviews and would track that on a daily basis. Obviously, we had some minor adjustments as we went along because of – these people, the team members that we were interviewing, they had a day job. Their job was to run the project and, therefore, we used to, obviously, adjust our schedule a little bit to their schedule.

MS. O'BRIEN: In terms of the people you did interview –

MR. OWEN: Yeah.

MS. O'BRIEN: – Mr. Mallam's recall was that you interviewed, obviously, a lot of people from within Nalcor, that he also recalls interviewing people from within SNC-Lavalin –

MR. OWEN: Correct.

MS. O'BRIEN: – who were involved in the project.

MR. OWEN: Yeah.

MS. O'BRIEN: Did you – do you recall – was there anybody else on the interview list outside of those two companies?

MR. OWEN: Not outside of those two companies, no.

MS. O'BRIEN: Okay. Thank you.

MR. OWEN: I was just thinking that whether or not we interviewed Ed Martin and Gilbert. I'm not sure. I'm not sure if we did. It's not unusual for those individuals to be interviewed with regard to strategies, for instance, right?

MS. O'BRIEN: So the most senior people in the company.

MR. OWEN: Yeah.

MS. O'BRIEN: Okay.

MR. OWEN: But I would have to go back and check the interview list. But that's not unusual, that we would go to the Gatekeeper for instance.

MS. O'BRIEN: Okay.

Now, so you just described a role that you played in setting up who the interviewees would be. And I'm taking it that you would have done that a little different than Mr. Mallam because you were the lead of the IPR team. Is that –

MR. OWEN: Yes.

MS. O'BRIEN: – correct?

MR. OWEN: Yes, yes.

MS. O'BRIEN: Okay.

So can you just describe to us: In what other respects was your role as the lead of the team, how would that differ from that of the other members of the team?

MR. OWEN: Obviously, at the end of each day we would have a session at, let's say, 5 o'clock in the evening after we had completed the interviews for the day. I would lead that session and I'd really chair a round-table discussion on – because – on the various interviews that had taken place because not all team members would have attended all of the interviews. So that would be really one part of it.

Then culminating in the – how the observations were – the observations and the conclusions were formed, I would lead that, such that we had consensus amongst the team. And then just general interfacing and general feedback to the team that I may have, based on experience really, on how we should be structuring the next day or ...

Because we used to look – at the end of each day, we used to look forward also because you learn certain things in a day that you may want

to revisit. And, therefore, if there was a case that some of the team members had been in a session and came out of that session and felt, well, we'd like to revisit that, then this would be discussed, and then I would try to get consensus and then coordinate with the coordinator to arrange a further discussion on that particular topic. It's a living exercise, basically.

MS. O'BRIEN: Okay.

And – now, who asked you to lead up the IPR team? And if it differed between DG2 and DG3 please let us know.

MR. OWEN: It came from Paul Harrington; however, Paul, as far as I know, had that cleared by – certainly by Gilbert, and most certainly by Ed, I would think.

MS. O'BRIEN: Okay.

And in terms, just generally speaking – the work that you did on the IPR for Muskrat Falls at DG2 and DG3 –

MR. OWEN: Mmm.

MS. O'BRIEN: – comparing that to other cold eyes reviews or IPR teams that you'd –

MR. OWEN: Mmm.

MS. O'BRIEN: – worked at for the various other projects you've –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – already outlined, –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – more or less a similar-type procedure that would've been followed, or were there any significant differences?

MR. OWEN: A very similar procedure. The charters that are developed for Lower Churchill Project are somewhat more detailed and more specific than some of the charters I have seen. For example, I think the charter runs into, I dunno, maybe five or six pages. I've seen charters coming out of other majors that would be one single page.

MS. O'BRIEN: Okay, so we'll look at those charters in a moment. Okay so that's –

MR. OWEN: Yeah.

MS. O'BRIEN: – one difference; very detailed charters.

MR. OWEN: Yeah, that's then that is one difference. The composition of the teams also varies.

MS. O'BRIEN: Okay.

So in –

MR. OWEN: (Inaudible.)

MS. O'BRIEN: – this case at DG4 there was a – or sorry, DG2 – there was a team of four.

MR. OWEN: Yes.

MS. O'BRIEN: How would that – you know, is that a typical size for an IPR team?

MR. OWEN: It's a typical size and a workable size that Nalcor felt was the right size. I have been involved in other cold eyes reviews where the teams have been considerably larger.

MS. O'BRIEN: Like, how large?

MR. OWEN: Oh, nine or 10 people. Mostly those reviews – where those numbers of people are involved – the individuals in the cold eyes team, cold eyes review team, are individuals from within the organization but external to the project.

So they are individuals either out of a corporate structure, where the various disciplines may be involved, or they are individuals working on other projects within the organization, that are totally external to the project that they're being – that they are actually reviewing.

So the team composition varies depending on how that particular owner wants the cold-eyes –

MS. O'BRIEN: Okay.

MR. OWEN: – review done.

MS. O'BRIEN: Okay.

So we – let – we'll look at DG2 now for the moment –

MR. OWEN: Okay.

MS. O'BRIEN: – so we know who the three other members were, and that was Richard Westney, Bernie Osowy, and John Mallam –

MR. OWEN: Yes.

MS. O'BRIEN: – whom we've heard from.

MR. OWEN: Yes.

MS. O'BRIEN: Did you – were you consulted in the selection of those other members?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

So who consulted you?

MR. OWEN: Paul Harrington.

MS. O'BRIEN: Okay.

And, a few minutes ago, you said here, Nalcor felt that a four-person team was adequate. Were you consulted as to whether you, you know, felt there should be additional members to the team, or if the team was adequate?

MR. OWEN: What we looked at, quite frankly, was the focus areas and whether or not the focus areas could be covered by a team of four, depending on the experience level and the background of the four individuals.

And, certainly, at DG2, we felt that those four people could adequate – could more than adequately cover the focus areas for the – for that Gate review.

MS. O'BRIEN: Okay.

Okay, let's bring up the DG2 charter; P-00481, Mr. Owen – tab 7 in the book before you.

MR. OWEN: What's the tab again, sorry?

MS. O'BRIEN: Seven.

MR. OWEN: Okay.

It's on the screen, right?

MS. O'BRIEN: It's gonna be on the screen – absolutely.

MR. OWEN: Okay, fine. Okay.

MS. O'BRIEN: And this is – sorry – this is a draft.

So this is going back to December 20, 2006. So this is – sorry – this is an earlier one that you were involved with in 2006. This was an earlier version of the charter, and this is back in the period, actually, we were speaking with before lunch today. So you were giving some feedback on – this is a very early format of a charter and it's still under the Hydro.

So, at this time – I take it back here – you were being consulted with a – with respect to a – to the form of the charter.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Okay, so you say – Paul forwards it to you, you'll give your comments by December 20, and then I think you come back at the top here and say, please see my few comments on the charter.

So even back in 2006 you were being consulted with the proper form for a Decision Gate IPR review charter?

MR. OWEN: Yes.

Could you – I'm just a little –

MS. O'BRIEN: Yeah.

MR. OWEN: – bit confused with regard to –

MS. O'BRIEN: Tab 7 of the book in front of you may assist.

MR. OWEN: Okay. I'm just a bit confused –

MS. O'BRIEN: It's the full – you'll have the full document there.

MR. OWEN: – with regard to the timing there.

MS. O'BRIEN: Yes, I think this was very early on – a document we found very early on. This would be part of your work –

MR. OWEN: What was the tab again, sorry?

MS. O'BRIEN: Seven.

MR. OWEN: Seven, okay.

Yeah, it looks like a – I was just wondering whether or not it was a sort of pre-, pre-, but the charter looks very similar to what the charter would be for a Decision Gate 2.

MS. O'BRIEN: Yes, there are certainly differences between this and the charter that was ultimately used for Decision Gate 2 but a point, I guess here, is even back at this time in 2006 Mr. Harrington was consulting with you as to the proper form of a charter.

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

And then if we can go please – tab 12 of your book, Exhibit P-00486?

MR. OWEN: Yup.

MS. O'BRIEN: So here – sorry, I seem to have the wrong number here.

So we saw earlier today when Mr. Mallam was testifying, that there was a draft charter and you forwarded it out to the various other members of the team, asked them to give their focus areas – primary and secondary focus areas.

MR. OWEN: Yes.

MS. O'BRIEN: Okay. And that draft charter that went out, had you had more recent input – we just looked at an email from 2006 – but had you had more recent input into getting that in a final form that was ultimately used?

MR. OWEN: Yes. I would've done, yes, yes.

MS. O'BRIEN: Okay, and would you have been working with Mr. Harrington on that primarily?

MR. OWEN: I think primarily, yes.

MS. O'BRIEN: Okay; and when you sent it out to the other members of the team and you were asking them – I believe it was for areas where they had specific expertise – to highlight that in red –

MR. OWEN: Yup.

MS. O'BRIEN: – areas where they were able to contribute, to highlight in green.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Tell me, would that be a usual way of organizing the team? And, you know, what was your reason for doing that?

MR. OWEN: First part of the question; that was a refinement that I hadn't used before.

MS. O'BRIEN: Okay.

MR. OWEN: So it was something that we felt was a very – led some structure to the review and also assisted the individuals to focus on the documents where they'd indicated that they had the specific expertise, and not to spend a lot of time focusing on documents where they felt they could provide some support. Because there's a tremendous number of documents, and it is virtually impossible for each member of the team to really spend sufficient time to get comfortable with all those documents. So that – this was a way to get the team to focus. I haven't seen that done on any other IPR.

MS. O'BRIEN: Did you find it effective and –

MR. OWEN: Yes, I did.

MS. O'BRIEN: – when you used it here? Okay.

MR. OWEN: Yes, I did. Very much so actually.

MS. O'BRIEN: Okay. And so the idea, you know, I take it, is that you don't want – you want people to be primarily reviewing areas

where they feel they have specific expertise or at least the ability to contribute –

MR. OWEN: Yes.

MS. O'BRIEN: – and not (inaudible) –?

MR. OWEN: And also – it does then also provide them a – or provide the team with a sense of teamwork, insomuch that they've identified areas where they can provide support.

MS. O'BRIEN: Right.

MR. OWEN: So it gives the other team members very good backup and a very good support, because we do – when we do the interviews, we have to split up. We always have at least two team members per interview anyway. But it does then provide the team with a sense of oh, I'm not out here on my own, I've got support of the team.

So as far as I was concerned, that's worked really, really well. And it's probably something that we will really continue to use.

MS. O'BRIEN: Okay. So – and this is an email we saw earlier. This is – you'd sent out for that feedback. We looked at the example that Mr. Mallam sent –

MR. OWEN: Yeah.

MS. O'BRIEN: – you back. I understand you would have had similar feedback from Mr. Osiowy and Mr. Westney.

MR. OWEN: Yup.

MS. O'BRIEN: And here in this email, you consolidated the information to a focus areas matrix which was attached. And we did look at this briefly earlier today.

MR. OWEN: Yeah.

MS. O'BRIEN: And it has – you know, we can see how you've got it organized here. Everyone has a red column and a green column.

MR. OWEN: Yeah.

MS. O'BRIEN: And each of the Focus Areas being covered at DG2 is included in the table.

Now, there's a couple of areas – if we could just go to page 4 of this exhibit please, Madam Clerk?

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So we have a couple of areas here where – oh, if I could just get – there we go, there's my mouse.

MR. OWEN: Yeah.

MS. O'BRIEN: If we could just – where we – they've been highlighted in yellow and that was done in the document as we had it provided, attached to this email. We haven't added that highlighting.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: And we note in these areas we don't have anyone listed with primary expertise and only one person in each case listed for that secondary expertise.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: And there's – as well, if we could just jump to page 6? So those are areas 15, 16 and 17.

MR. OWEN: Yeah.

MS. O'BRIEN: And we see one area – certainly, here in page 31, you just had someone with primary but no one with secondary, and 33 –

MR. OWEN: Yeah.

MS. O'BRIEN: – you just had someone with secondary and no one in primary.

MR. OWEN: Yeah.

MS. O'BRIEN: So looking at the final reports, I can certainly say that 17 – we'll go back to page 4, please.

MR. OWEN: Yeah.

MS. O'BRIEN: 17 was marked in your final report as NA or not applicable.

MR. OWEN: Yeah.

MS. O'BRIEN: So you didn't give a finding with respect to that number 17.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Do you recall why you didn't give a finding with respect to Focus Area 17?

MR. OWEN: I think we felt that – in terms of transmission access agreements, we didn't feel as though, notwithstanding the fact that was a focus area, that we were able to make any comment on that. The reason that we've got – and that "Yes," I think, would be John, I believe, Mallam.

MS. O'BRIEN: Yes. It would be.

MR. OWEN: Yeah. It was put down really, on that support basically, because he was from Nalcor, and we felt that maybe he would have some knowledge of the transmission access agreements, but we certainly didn't feel comfortable that we had got – that we were in a position to make any observation on that point.

MS. O'BRIEN: Okay.

But now, for the other areas – so like say 15 and 16 –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – where you – same situation – you only had one person identified with secondary, you know, ability to contribute –

MR. OWEN: If I can deal with 15?

MS. O'BRIEN: Yes. Just to be clear, you did make findings or recommendations –

MR. OWEN: Yes, we did.

MS. O'BRIEN: – in these other areas.

MR. OWEN: Yes, we did.

MS. O'BRIEN: So – yeah. Okay.

MR. OWEN: Yeah.

But the reasoning was the same there that – financing options, I put that for myself, because we could certainly get to – because that was more, sort of, under Nalcor’s direct. Although the other one is under Nalcor’s direct control, but the financing options, the team was actively working on that, so we felt that we would be able to gain sufficient information to make some comment there.

THE COMMISSIONER: What team are you talking about here? Are you talking about the IPR or are you talking about the project management team?

MR. OWEN: The IPR team.

THE COMMISSIONER: Okay, so you felt on 15 – just so I understand, ’cause I think I lost you for a minute – is that you felt that notwithstanding the fact that there was no specific expertise, but you felt that you could get enough information as an IPR team to make findings?

MR. OWEN: Yes.

THE COMMISSIONER: Okay.

MS. O’BRIEN: And that would be same for the other areas where you had – where you didn’t have any one primary expertise but still made findings?

MR. OWEN: Yes, yes.

MS. O’BRIEN: If we can just jump ahead for – to page 6 there, which is 33. Thirty-three, the focus area was: “That Shareholder requirements for equity and supporting debt have been communicated.”

Now, that is an area where you made a finding, and I can tell you – I’ll just jump ahead in the documents –

MR. OWEN: Mm-hmm.

MS. O’BRIEN: – to where we get it, but it was – you found that, you know, it was – everything was in order. It was fine to pass through the Gate on this one. If you didn’t interview or speak to

anyone from the shareholder, so Government of Newfoundland and Labrador, how was it that you were able to come to that finding? And you don’t have anyone there listed with primary expertise either.

MR. OWEN: I can’t answer that directly other than there’s a possibility that we may well have had some discussion with – possibly with Derrick Sturge or someone of his actual department, but I don’t remember specifically.

MS. O’BRIEN: But it would have been someone in Nalcor who advised you that that had been done?

MR. OWEN: Yes.

MS. O’BRIEN: Okay.

And just for completeness, I’ll just go to Exhibit P-00490, page 9. And I’ll just show you – this is a summary table that was done of your findings at DG2, and I’ll just take you to that particular one.

MR. OWEN: It was the tab –

MS. O’BRIEN: Nine.

MR. OWEN: Nine?

MS. O’BRIEN: Yeah, page 9. It’s just right at the bottom here.

MR. OWEN: Oh I see, okay.

MS. O’BRIEN: Right, this is where you had –

MR. OWEN: Yeah.

MS. O’BRIEN: – it as green –

MR. OWEN: Yeah.

MS. O’BRIEN: – so good to go.

MR. OWEN: Yeah.

MS. O’BRIEN: There it is. There’s the Focus Area listed there. And the just report is: “IPR team concurs on all points” and in terms of recommendations: “none.” So –

MR. OWEN: Yeah, that would have been based on some form of discussion – brief discussion or communication. I can't remember the detail to tell you the honest truth.

MS. O'BRIEN: But you're sure that it was someone within Nalcor –

MR. OWEN: Oh yes.

MS. O'BRIEN: – who gave you that information?

MR. OWEN: Oh, yes

MS. O'BRIEN: Okay.

MR. OWEN: Yes, yes.

MS. O'BRIEN: All right.

And just another small point – P-00493 please. Tab 19 of your book, Mr. Owen.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: The DG2 charter, IPR charter that we've seen, that you were – that you were working –

MR. OWEN: Yup.

MS. O'BRIEN: – with was stamped draft. And here's the final version that we found in Nalcor's records, and we can see that the Issued for Use is actually dated in January 2011.

MR. OWEN: Yup.

MS. O'BRIEN: 2011 – which was after you would've completed your work at DG2.

MR. OWEN: Yup.

MS. O'BRIEN: Do you know why that is the case?

MR. OWEN: I don't know specifically. I can offer an educated guess. It was issued A1 on the 4th of September, which was issued for review and comment.

MS. O'BRIEN: In September of 2008?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

MR. OWEN: And we would probably have used that version to kick the – to actually kick the review off. The fact that it was signed for use after it, is not good practice. It should've been signed off before the review was started.

MS. O'BRIEN: Okay.

MR. OWEN: But that obviously didn't take place.

MS. O'BRIEN: And I will say that the review that I've done of the document that you were working with, I haven't – I didn't notice, I can't say I did a word for word – but I didn't notice any, you know, any changes. So they look to be consistent to me, at least the most important parts that I did review. So it may just have been the – there may be no –

MR. OWEN: I think that tends to support my guess on what happened there, actually.

MS. O'BRIEN: Okay, so good practice would've been that would, obviously, be issued in its final form prior to the IPR doing its work.

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

MR. OWEN: Oh absolutely.

MS. O'BRIEN: Okay.

MR. OWEN: We like to see the final version signed off before we start.

MS. O'BRIEN: Okay.

MR. OWEN: Though having said –

MS. O'BRIEN: But you were still able to work and do your work without it? You just used the one you had?

MR. OWEN: Because we were comfortable with the document that we had at that time, yes.

MS. O'BRIEN: Okay.

All right, P-00491 – tab 17 in the book before you.

MR. OWEN: Yup.

MS. O'BRIEN: So Mr. Owen, do you recognize this document as the IPR's report on the Gate 2 review?

MR. OWEN: Yes.

MS. O'BRIEN: And we – you – I know you said you heard Mr. Mallam's testimony this morning. So he testified that this would've been the slide presentation that would have been presented by the IPR team to the Gatekeeper, Mr. Martin, and others; he mentioned Mr. – he knew that Mr. Bennett was there, and Mr. Harrington was there, and likely others. Is that consistent with your memory or do you have any different memory about it?

MR. OWEN: No, that is consistent.

MS. O'BRIEN: Okay.

MR. OWEN: We tend to use the PowerPoint as the dialogue with the Gatekeeper and not the detailed spreadsheet.

MS. O'BRIEN: Okay.

Yes, there was – that's the one I just brought to you earlier. There was, in this case – and it's in evidence – the exhibit we just looked at – I think a detailed spreadsheet had been done but when we go through this report – and was attached to some emails – but when we go through this report, the same information is all here. It's just in slightly different format.

MR. OWEN: Yes, yes, yup, yes, yup.

MS. O'BRIEN: Okay.

MR. OWEN: Yeah, but I was just want to be – in answer to your question, it's the PowerPoint section that we really use for the dialogue with the Gatekeeper.

MS. O'BRIEN: Okay, so the Gatekeeper wouldn't necessarily have seen your working spreadsheet. The Gatekeeper would have seen this final report.

MR. OWEN: Exactly.

MS. O'BRIEN: Okay, thank you.

So we've gone over this already with Mr. Mallam.

MR. OWEN: Yup.

MS. O'BRIEN: So here is your Gate 2 – your findings, observations, and recommendations and – we went through a number of them already – but to summarize, out of the 35 focus areas you determined all but nine were ready to go through Gate 2?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

MR. OWEN: I think nine were in various degrees of red and then – yeah.

MS. O'BRIEN: Okay.

Yes, I don't – the red – the red colour appeared in this working spreadsheet. In this presentation we don't see the colour red, but they're still identified as the ones that still need further work.

MR. OWEN: Yes, yes.

MS. O'BRIEN: So in substance it's the same.

Okay, so we looked at this already, but in terms of – did your – did the team – IPR team work together to prepare this slide show? You know, how did that work? Did you work on it as you were doing the review each evening or – how did it come into existence?

MR. OWEN: No, we worked on it – let's just say that we were presenting to the Gatekeeper on Friday afternoon, as an example. We would try to work on this on Thursday from noon onwards, because there's quite a lot of detail in here. We would work as a team. We'd have one individual, who would happen to be Mr. Westney, who was a – who was really compiling it.

And we would have it up on the screen and we would go through one by one. We'd agree on the finding, we would agree on the observation and

the recommendation, and we would wordsmith it as a team to ensure that it was as concise and accurate as we possibly could get it.

MS. O'BRIEN: And in all points did the team come to unanimity? In other words, when you put it in a presentation, were you all agreed?

MR. OWEN: Yes. Yes, we were. Although there'd been quite a lot of dialogue in its preparation, of course; because, you know, there's – various team members, you know, have a perspective, or there could well have been a situation – which is not unusual in a team – whereby one team member – well, I wasn't sure I heard it that way. I mean – but all that dialogue was – really took place in the composition of the findings (inaudible).

MS. O'BRIEN: Okay.

We've gone over some of them already with Mr. Mallam; there are a few I will want to go over with you as well. And if – can we please go to page 18.

Now, this is one that we went over with Mr. Mallam already this morning; and this had to do – so he's already read this into the record, so we've had a detailed review but – this is – this was one where there was some concern being expressed by the IPR team that the Joint Review Panel, the environmental assessment panel that was assessing the Muskrat Falls generation project and the Labrador transmission assets had not at this point been advised of the switch to Muskrat Falls first.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Mr. – we – what's on the paper, we've all understood from Mr. Mallam; but I'd ask, is there anything in that – that happened in the discussion, in – when you presented this to the Gatekeeper, or further observations that you'd like to make or highlight with respect to the finding on this focus area?

MR. OWEN: No, I think the project team and the Gatekeeper were fully aware of the observation. I mean the observation came out of our observation of their work, and the status of that. So I was not aware that – well, let me turn it around – as far as I can remember there was

no pushback or there was no comment from the team or the Gatekeeper with regard to the recommendation that we were making.

MS. O'BRIEN: Okay.

Can we go to page 23, please, Madam Clerk.

I'll just note that there was – by far the most focused areas, the conclusions of the IPR team, was that they were ready and good to go. I'm not going to review those now. I did –

MR. OWEN: Yeah.

MS. O'BRIEN: – but they're there, they're on the record. And so by highlighting some of the ones that were not ready, I don't want to give an unbalanced presentation of what the document itself says. It's important to look at the document in full.

But for the sake of saving time I'm going to go right to the most important matters –

MR. OWEN: Yup.

MS. O'BRIEN: – for our work here at the Commission.

So this is focus area number 7 – and this has to do with the development of the project contracting strategy. And this is the – Mr. Mallam this morning already read this information in, but this is where the IPR team was expressing some concern about the schedule, recognizing now that this was at DG2. And at this point, according to this document, you were anticipating sanction in October 2011.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: I'd like to ask you if you remember anything further about what the – any concerns that might've been expressed by the IPR team to management, to the Gatekeeper, when you finally presented this that are not necessarily recognized on this slide.

MR. OWEN: No, I think – I believe our recommendation was really clear and I believe it was understood by the project team and the Gatekeeper that there was still work to do. And a detailed plan and scope for phase 3 engineering

was necessary, obviously, and to complete it to meet Gate 3 requirements. So I think there was a common understanding by the project team and the Gatekeeper with regard to this recommendation.

MS. O'BRIEN: So are you saying that at the meeting it was your – I know you can't say exactly what they – what was in their minds, but in terms of the way that you interacted with them, was your – was it your understanding that they recognized that there was –

MR. OWEN: This was no surprise to them.

MS. O'BRIEN: No surprise to them, they recognized that they might have trouble meeting the schedule date they had set out –

MR. OWEN: Yes.

MS. O'BRIEN: – for themselves.

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

Page 25, please, Madam Clerk.

All right, don't – I'm sorry; I've got the wrong page. Sorry, page 26, my apologies.

So down here another one that I also – whoops – reviewed with Mr. Mallam. This is – the focus area here was: "That a project cost and schedule estimate in the appropriate range of accuracy is available." And the finding here was that – the summary of the finding was that: "The IPR Team was not provided with a definitive probability" – or P-value – "for the cost estimate nor its level of accuracy."

And then the observation was: "There appears to be some ambiguity around the appropriate P-value to be used for the Gate 2 decision, as well as the correct way to utilize the latest Risk Analysis to determine accuracy."

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So we know we're back here at – coming up to Decision Gate 2, but can you please –

MR. OWEN: Yeah.

MS. O'BRIEN: – explain to us – we certainly –

MR. OWEN: Yeah.

MS. O'BRIEN: – had lots of evidence here in the hearing room about P-values – can you explain for us what was behind – you know, what was the concern that the IPR team saw here and why were they making this observation and recommendations to the – to management?

MR. OWEN: At this stage, other than through – I believe other than through the process of interviewing, we did not obtain a clear understanding of the status of where the project was with regard to the analysis of the estimating work and the scheduling work that they had done.

They had done a certain amount of work, but we believed that the analysis of that was still somewhat outstanding. And that's why we made the recommendation: Prepare a current analysis of the estimate probability value and accuracy.

So whilst they may have – I believe that they had some risk analysis done, but they had not really analyzed the output from that analysis to the degree that they could say, well, okay, this is what the P-whatever looks like and this is what this one looks like.

That's my memory, basically.

MS. O'BRIEN: Okay.

And in term of P-value and how that fits with – in terms of the accuracy of cost estimates, I'm – we're – I understand different people sometimes have slightly different understandings of what that means. And so sometimes you have to ask the questions for someone to find out when they use it what exactly they mean.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So can I ask, when you talk about a P-value –

MR. OWEN: Yes.

MS. O'BRIEN: – and where you're saying that, look, we weren't provided with a definitive P-value and there's some ambiguity about the appropriate P-value to use –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – can you please explain for the Commissioner that – what does that mean for you?

MR. OWEN: Okay.

This is going to be quite a long explanation, I feel, if it's okay.

MS. O'BRIEN: That's fine. We want a –

MR. OWEN: Okay.

MS. O'BRIEN: – full explanation, please.

MR. OWEN: Okay.

Firstly, the accuracy of the estimate and the P-value are two different things – totally different things. So I'll go back and explain the way that risk analysis work is done. The – and it's – and what I'm about to describe basically applies both to cost and to schedule, although there could be some slight differences once we talk about the output from the risk analysis, how those things are dealt with but ...

So the first thing that we start with is a base estimate or a base schedule that has been produced by the team. And that base estimate is made up to the best of the team's ability using the appropriate information that they have. And they have a document that guides them through that called the basis of estimate.

So the basis of estimate will describe – let's say we're talking about the dam, just as an example. The basis of estimate will describe the values that will be used in terms of productivity. Density of rebar, cubic metres of concrete to be placed and all that will be built up into the base estimate.

Now, the base estimate will cover all aspects of the project. It'll cover the engineering, the procurement of equipment, the construction, the owner's costs which will be the owner's team

insurance premiums: All those items, a long list of items are actually developed to form the base estimate. Now, within that base estimate, there will be some allowances put in because there will be some aspects – and, again, depending on the level of, actually, definition – so you've got a slightly different scenario for DG2 versus DG3.

MS. O'BRIEN: Yeah.

MR. OWEN: So the base estimate will contain some good, solid cost numbers and some good, schedule durations. It'll contain something that is not quite as good and, therefore, there will be potentially an allowance added into that particular cost factor where we – where they determine that, to the best of their knowledge, it looks like this, but they could be a little bit different or the information that they have to derive that unit of cost is such that it's not 100 per cent so they will add an allowance.

MS. O'BRIEN: So they add – so different, even base estimates, depending on the information that you're working with to generate how detailed –

MR. OWEN: Yes.

MS. O'BRIEN: – the information you're working with to generate the base estimate, some base estimates are more accurate than others.

MR. OWEN: Yes.

MS. O'BRIEN: So if –

MR. OWEN: It – yes.

MS. O'BRIEN: So, if you did, it just – if you were talking about a hydro dam, so you're having to, you know, drain the riverbed and work on a riverbed, until you take the water out you don't necessarily know what's on the riverbed, how much excavating you're gonna have to do –

MR. OWEN: Yeah.

MS. O'BRIEN: – et cetera. So –

MR. OWEN: Exactly.

MS. O'BRIEN: – if you're working from topographical maps as Mr. Mallam was –

MR. OWEN: Uh-huh.

MS. O'BRIEN: – an example he gave –

MR. OWEN: Yup.

MS. O'BRIEN: – this morning, you might expect a less accurate estimate. If you've gone in and done your boreholes and tested and seen what exactly is there underground, you have a more –

MR. OWEN: Exactly.

MS. O'BRIEN: – likely – get a more accurate base estimate.

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

MR. OWEN: And, therefore, if you haven't done that level then you would include some money that would be an allowance.

MS. O'BRIEN: Right in the base estimate, okay.

MR. OWEN: Those allowances are above the line.

MS. O'BRIEN: Above the ...?

MR. OWEN: Above the line, in the base estimate; they're not in contingency. I'll come to contingency –

MS. O'BRIEN: Okay. They're in the –

MR. OWEN: – in a moment.

MS. O'BRIEN: They're in the base estimate, but you're saying above the line?

MR. OWEN: Well, what I mean is they are in the detail –

MS. O'BRIEN: Yes.

MR. OWEN: – not in contingency.

MS. O'BRIEN: Okay, all right.

MR. OWEN: So there's a line between the detail –

MS. O'BRIEN: So they're included in the base estimate?

MR. OWEN: There's a line between the detail and actual contingency. So what we say is, okay, those allowances are above the line and they are allowances that we know we will spend.

MS. O'BRIEN: Okay, sorry. Is contingency below the line?

MR. OWEN: Yes.

MS. O'BRIEN: Okay. So they're above the line with the –

MR. OWEN: I give you another example is that major pieces of actual machinery, at the time that an estimate is done, particularly GD2 [sp DG2], that purchase order may not be – they may have gone out for bids and they've got bid prices, but they don't have a purchase order price.

So what they would do is they would add a level of allowance to that bid price in the expectation that when they come to place the purchase order, it won't quite be the same.

MS. O'BRIEN: Mmm.

MR. OWEN: So, okay.

So the most important thing with regard to risk analysis is how good is that base estimate? Okay? So, we've got the best base estimate that we can get. Now, so then they do the risk analysis, and it is normal to use, although, there are some major companies who use their internal risk management department to do the risk evaluation, I prefer that it's done by a third party, and Lower Churchill used Westney Group.

So, the risk analysis consultant will come in and they will work from the base estimate. They will then carry out a series of interviews of the individuals that prepared the base estimate. And they will look for a – not a detailed breakdown,

but a substantial breakdown of the individual cost components that make up the base estimate. Going right through from engineering, procurement, construction, owner's cost insurance, whatever.

They will then carry out a series of interviews and they will then take a cost component and interview the estimator that prepared that and interview the engineer that has got responsibility for the execution of that portion. They will then, through a series of (inaudible) discussions, they will then determine from the interview, okay, here is the base price for this component. How bad can it be and how good can it be? And what they're trying to determine really is they're trying to determine the range so that they can put those ranges together and run the Monte Carlo.

MS. O'BRIEN: So, when we say how bad can it be? How good can it be? Are we talking dollar amounts?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

MR. OWEN: Or even time. You know, how early could we have this complete or how late could we have this complete?

MS. O'BRIEN: Okay. So, if it's a schedule that you're assessing then it would be time –

MR. OWEN: Yes.

MS. O'BRIEN: – and if it's for trying to determine how much contingency it would be dollar amounts.

MR. OWEN: Yes.

MS. O'BRIEN: Okay. So –

MR. OWEN: Now –

MS. O'BRIEN: Okay. No, please continue.

MR. OWEN: Yeah. So one of the biggest challenges that I've had through the years of experience that I've had is to get this range wide enough.

MS. O'BRIEN: Okay.

MR. OWEN: I go back to – which was a very interesting observation and presentation made by Dr. Flyvbjerg when he talked about the human beings being optimistically hard wired. And that triggered something in my mind that coincided exactly with the challenge that I've had to get the ranges wide enough because people – and he spelled it out in a particular way which I really found fascinating – to get people to think broadly and get off the optimistic side and get the correct range.

MS. O'BRIEN: So, if people are being optimistic they may be underestimating the worst-case scenario. Is that the idea?

MR. OWEN: The range gets too narrow.

MS. O'BRIEN: Okay.

MR. OWEN: And I'll come to that in a moment.

MS. O'BRIEN: Okay.

MR. OWEN: So now we've got the base estimate done and we've got the risk analysis inputs ready, in so much that all these cost components, they've all got an individual value, they've all got a high side, low side. Those are put into the input for the risk analysis.

And because not all of the highs and lows for each unit are going to occur because there's a probability around them, they run a Monte Carlo analysis, which can probably – some of the most sophisticated ones probably run 50,000 iterations.

MS. O'BRIEN: Sure, so this is all done on computer?

MR. OWEN: All done on computer.

And what we get out of that is we get this curve, which is the curve that we see with regard to probability and the dollar amount or the schedule time. And if the ranges are too narrow of the individual items, then the curve becomes really quite steep.

So if you then think in terms of if the curve is steep and we look at, okay, if we look at the base estimate because we always plot the base

estimate on the curve, whether it's the schedule or the cost. So let's assume that the cost base was a P10. To move from a P10 to a P50, you've got to add some money, which is a contingency that we would add.

Now, if the curve – if the ranges are not wide enough, then that curve is really quite steep. So the amount of money you add from a P10 to a P50 is less if you have the ranges wider and the curve was sloping more, you would add more money to get from a P10 up to a P50.

MS. O'BRIEN: Okay, so just to summarize that, and this will make – we will be looking at this type of evidence more than once in the course of this Inquiry. So it's –

MR. OWEN: Yeah.

MS. O'BRIEN: – your explanation is helpful. But what your – and, please, I'm not trying to put words in your mouth Mr. Owen, I'm just trying to summarize –

MR. OWEN: Sure, sure.

MS. O'BRIEN: – and if I've got it wrong you correct me, okay?

But the idea being that for the value of this risk, the QRA, the quantitative risk analysis –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – that are done with the Monte Carlo simulations.

MR. OWEN: Yeah.

MS. O'BRIEN: In order to get a good accurate result out of the other end, it is very important that whoever the people are coming up with the worst-case scenario dollar amounts, best-case scenario dollar amount are accurate. If they are too optimistic in setting their – or if they're optimistic –

MR. OWEN: Optimistic, yeah.

MS. O'BRIEN: – optimistic in setting their ranges, in other words, they think the worst-case scenario isn't going to be that bad; they underestimate how bad it's going to get and that

gets reflected in the ranges. Ultimately, when you do your simulation and you find out, okay, we have to add this many dollars to get us up to a P50 – that number of dollars will, in fact, be too low.

MR. OWEN: Correct.

MS. O'BRIEN: Okay.

MR. OWEN: Absolutely correct.

MS. O'BRIEN: All right.

MR. OWEN: You end up with the low level of added contingency.

MS. O'BRIEN: Okay.

MR. OWEN: And the big problem is – quite frankly – is how good is your base estimate? If that base number is, for various reasons, is – if that in itself is optimistic, let's say in terms of productivity. I mean, this project has got major, major work that is going to be carried out in Labrador, in very difficult conditions. And if the base productivity that has been assumed in that base is wrong, then your whole system will be – really to a degree – flawed. Because you're working from a base that is not reflective of the conditions under which the project will be constructed.

So when we start to look at all the projectors – the projectors – 50 per cent – you know, 50 per cent over the sanction budget, the first question that I ask myself is that: Was the sanction budget right? And if the sanction budget wasn't right, if that should've been – if let's just say we got a major factor, such as the productivity factor wrong, just as an example, then that base budget was too low.

MS. O'BRIEN: Okay.

MR. OWEN: And therefore, you know, everyone is blaming the end cost. But in actual fact you've got go back and you've got to look at: Well, how good was that base estimate? And what I'm missing – because I've been through the decision support packages –

MS. O'BRIEN: Yes.

MR. OWEN: – what I’m missing in those packages is – apart from the end analysis describing – and we heard a little bit from the board members yesterday – what I was missing in those packages is a description of the – or the level – the probability level. I don’t think any of those packages – and maybe I missed it – talks about the probability of the cost and of the time – the schedule.

MS. O’BRIEN: So the P-value – it that what you’re (inaudible)?

MR. OWEN: I don’t see anything in that support package.

The other thing that should be in the support package is benchmarking. There should be benchmarks in that support package benchmarking this project against any other project that we have.

Now, with regard to placing concrete in Newfoundland and Labrador – albeit slightly different type of concrete – but we had – but prior to – let’s just think of the projects that were done involving large chunks of concrete – Hibernia. There should’ve been some benchmarking for the type of activity – similar activities should’ve been benchmarked in the decision support package. I see none of that.

MS. O’BRIEN: Okay. So we –

MR. OWEN: Which really, really surprises me because without it, the support package doesn’t give any indication of cost or schedule certainty.

MS. O’BRIEN: So these are the decision support packages. There was one done at DG2 and –

MR. OWEN: Yes.

MS. O’BRIEN: – there was one done at DG3 and we reviewed these yesterday in the evidence before the board of directors for Nalcor.

So that’s where you saw them?

MR. OWEN: That’s where I didn’t see what I was looking for.

MS. O’BRIEN: Okay. I see. That’s when you had a chance to review them.

When you were working on the Independent Project Review team –

MR. OWEN: Yeah.

MS. O’BRIEN: – were the Decision Gate packages provided to the review team for your team to look at it and say whether or not you thought they were in good order?

MR. OWEN: No, they were not.

MS. O’BRIEN: Okay.

MR. OWEN: And, however, they were not – but in accordance with the decision support package plan, it says that they would be. But they were not.

MS. O’BRIEN: Okay.

MR. OWEN: The Independent Project Review team did not see the decision support packages.

MS. O’BRIEN: Okay.

And in my – and again, just to summarize, to make sure it’s clear – and I’m not – certainly –

MR. OWEN: Yeah.

MS. O’BRIEN: – not trying to put words in your mouth. But I’m understanding your evidence to be that had you been provided the Decision Gate support packages that we looked at yesterday you would have not considered them adequate or appropriate – not enough information there?

MR. OWEN: If – absolutely correct. Because there was no cost analysis in terms of accuracy or P-value or – and there was no benchmarking, there was no expression of estimate confidence or schedule confidence, all these things which, quite frankly, all the majors, all the majors do, I mean all the major oil companies do.

MS. O’BRIEN: Okay. So all the major companies you’ve worked with would’ve done that.

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

Okay, I'm just checking the time.

Okay, I just wanted to take you to one more – with respect to the Decision Gate 2, page 27, which I believe is the next page. And this is number 22 here, Mr. Owen, there on the bottom.

MR. OWEN: Okay.

MS. O'BRIEN: It's one we reviewed with Mr. Mallam earlier today. And this had to do with a concern that the project management team was having trouble – “letting go” are the words that the IPR used in its observations there.

MR. OWEN: Yeah.

MS. O'BRIEN: So can you, please, describe for us what the concern was there from your point of view?

MR. OWEN: Mm-hmm.

This was Decision Gate 2, right?

MS. O'BRIEN: Yes.

MR. OWEN: Which is 2010?

MS. O'BRIEN: Yes.

MR. OWEN: They were my notes from March of 2012.

MS. O'BRIEN: Pardon?

MR. OWEN: They were my notes from March –

MS. O'BRIEN: Okay.

MR. OWEN: – of 2012 –

MS. O'BRIEN: Okay.

MR. OWEN: – which dealt with – it was a mini cold eyes review.

MS. O'BRIEN: Yes, we will get to that in a few –

MR. OWEN: Yeah, yeah.

MS. O'BRIEN: – minutes in the evidence.

MR. OWEN: No, I –

MS. O'BRIEN: Okay.

MR. OWEN: No, I'm just going through the thought process.

MS. O'BRIEN: Yes. No, that's fine.

MR. OWEN: Okay. Fine.

Yeah, at this stage of Decision Gate 2 it was still – now Decision Gate 2 was September –

MS. O'BRIEN: Yes. Decision Gate 2 was September 17, I believe, was the date where you gave your report.

MR. OWEN: Yeah. And could you refresh my memory?

MS. O'BRIEN: Yeah. Decision Gate 2 report –

MR. OWEN: Yeah.

MS. O'BRIEN: – you gave on September 17, 2010.

MR. OWEN: 2010.

MS. O'BRIEN: Yes.

MR. OWEN: And could you – do we have a date by which the EPC contract was signed?

MS. O'BRIEN: The EP – hmm – I can get that for you on the break. I should have it in my head.

MR. LEARMONTH: February 1, 2011 – around there.

MS. O'BRIEN: Around February 1, 2011.

Thank you to my co-counsel.

MR. OWEN: That's what I thought it was.

MS. O'BRIEN: Okay.

MR. OWEN: Because what I got fixed in my mind was that this observation was made before the EPCM was officially signed.

MS. O'BRIEN: Okay.

MR. OWEN: Because there were some large-scale movements between Decision Gate 2 and Gate 3 – which we'll come to.

Yeah, what this really says is that – a lot depends very much on the composition of the owner's team. If I – if one takes – just as an example – the Chevrans and the ExxonMobils of this life, then they have a large number of highly qualified project management specialists, who do nothing else but manage their worldwide projects. So they know exactly what their – what they – what their responsibility is and what their accountability is because they're doing it every day, 365 days a year.

When you put together, like – and this is not only for Lower Churchill, but I've seen it for other organizations who don't have this substantial group of individuals who are brought up doing megaprojects – project management, megaprojects – but have a megaproject and then have to put the organization in place to manage that megaproject.

Another example is Canadian Natural Resources with their Horizon project in the mid-2004-2005 – mega, megaproject. They had never managed a project of that size. They didn't have the organization which I described that ExxonMobil, Shell and BP and Chevron have. So they had to build the organization. And where were they going to build the organization from? Same with Lower Churchill to a degree. People with the level of background and experience that you need for megaprojects, they're not out on the street, they're employed.

So when you build a team, you end up with some individuals who have got owner experience – inbred owner experience – you've got some individuals who have come out of contractors, and therefore in many cases have been working on the other side of the activity. And that then leads to quite some difficulty with regard to the owner's team, to get a common understanding of how they're going to manage the upcoming contractors.

Because you've got some people who are used to behaving like an owner and you've got some people who have come out of the engineering and procurement organizations who have been used to behaving as an EPCM contractor would behave. And that's where this is coming from; is that some of those individuals find it difficult to adopt the role of the owner.

In addition – and that's why I wanted to know when the contract was signed – because in addition, which we will see later – which you mentioned this morning, SNC had difficulty filling the positions that they were supposed to fill. But that wasn't at this stage because the contract hadn't been signed. Although I think probably – I think probably SNC did have a feed contract at this stage?

MS. O'BRIEN: Did have an earlier contract.

MR. OWEN: They had an earlier contract.

We saw continuously that they were having difficulty filling the positions. So what happens is, then, that if the contractor has difficulty filling the position A, in terms of an individual – or, an individual with the appropriate level of experience – what happens is, is that the owner's individual, who's got a responsibility for that portion, will dive in. Because nature doesn't like vacuum, right.

MS. O'BRIEN: (Inaudible.)

MR. OWEN: They will dive in; and I think this is – I don't think; this is what this is talking about – and this is why it's very – it's really quite a challenge for an organization that doesn't have the cadre of project management expertise that the major oil companies have, where they've gotta build a team, to manage a megaproject of this size.

MS. O'BRIEN: Okay, thank you; and we'll revisit this again, I know, in our work in the –

MR. OWEN: Yup.

MS. O'BRIEN: – in-between of DG2 and DG3 and also in – with respect to –

MR. OWEN: Yup.

MS. O'BRIEN: – the DG3 recommendations.

MR. OWEN: Okay.

MS. O'BRIEN: The next – no, before we leave the DG2 report, I'd like to ask you what's your best recall of how the management team – Ed Martin, Mr. Bennett, et cetera – received the IPR's report at DG2?

MR. OWEN: At DG2, it was well-received and I don't think there were any major surprises. When we perform the Independent Project Reviews it is unusual that there's a major surprise that comes out of the review. What comes out of the review is more a cold eyes review and a better description of where the activity is and where the – and what's – how what the gap is, basically. Because the individuals working closely to that task really don't – you know, they don't necessarily see the gap.

But it's very unusual to have an IPR report where you go to the Gatekeeper and some of the other lights come on. So it was well received and I don't think there were any major surprises. They were appreciative of the detail and the extra look that we brought because it then gives the Gatekeeper some clear directives where the project has to move in order to get to Gate 3.

MS. O'BRIEN: Okay. Thank you.

One more on this topic, can we go to P-00489? This is tab 15 of the book before you, Mr. Owen.

And it's just an email – a really short email – from you to the other three members of the team congratulating them on a job well done. The question I have for you relates to this sentence here where you wrote: "John and I will keep you posted on the Project team's suggested changes."

MR. OWEN: Mmm.

MS. O'BRIEN: And then you wish Mr. Osiowy and Mr. Westney a safe journey home.

MR. OWEN: Okay.

MS. O'BRIEN: So what was it that you were referring to here? What would the project team be making suggestions on changing?

MR. OWEN: Okay.

The process is, as I mentioned, before we go to the Gatekeeper, that we run the things – we run the findings through the project team. We didn't hear anything back from the project team when we did that, but sometimes it can be that there's been a slight misunderstanding or we haven't got full information; therefore, we could have come to a conclusion or a recommendation that really wasn't reflective of what the actual situation was. And sometimes the project team will say: Oh well, you know, that's not quite right.

That would be, probably, what I was referring to there, was the opportunity for the project team to look at what we recommended – not change the recommendation but to comment if, in fact, they felt that we'd got the wrong end of the stick or something of that nature.

MS. O'BRIEN: Okay.

And did you ultimately hear anything from –

MR. OWEN: No.

MS. O'BRIEN: – the project team with respect to DG 2?

MR. OWEN: No, no, no.

MS. O'BRIEN: Okay. Thank you.

Commissioner, I'm about to go to a new area. We're at about 20 past 3, so I don't know if you want to take the afternoon break now.

THE COMMISSIONER: We can do it there.

MS. O'BRIEN: Okay.

THE COMMISSIONER: Yup.

MS. O'BRIEN: Thank you.

THE COMMISSIONER: So we'll take 10 minutes here now.

CLERK: All rise.

Recess

CLERK: Please be seated.

THE COMMISSIONER: Ms. O'Brien.

MS. O'BRIEN: Thank you.

Before I begin with the next question for the witness, we have another exhibit I'm looking to enter. It's P-00607.

Commissioner, this is – relates to, actually, Mr. Jason Churchill's testimony back in our first week of the Inquiry. It's notes that he had taken in support of one of his interviews. They've now been entered, or they will be if you give the order.

THE COMMISSIONER: I think that's the one that's the interview of Ms. Dunderdale?

MS. O'BRIEN: That's correct.

THE COMMISSIONER: Okay. So, yes, that will be marked then as P-00607.

MS. O'BRIEN: Thank you.

Okay, so I'm going to look in the in-between period between DG2 and DG3, Mr. Owen. I know that you were engaged in some work for the Lower Churchill Project, specifically with respect to SNC-Lavalin and Nalcor.

Could we bring up Exhibit P-00094? It's tab 20 of the book before you.

CLERK: (Inaudible.)

MS. O'BRIEN: P-00494? Thank you. I seem to have a chronic number-dropping problem.

Okay. Thank you very much.

So this is an email chain that sort of sets out this work. And I'm just going to actually go to the bottom of the email chain just to review it quickly so that it makes some sense to us here. It should be on page 4, yeah.

Okay, so this is where it starts, I believe. So the subject line – this is from you to Paul Harrington. This is – I believe it's March 2, 2012, and it is: Re: Project Effectiveness Programme.

And you are telling him: Paul, as discussed this morning – sorry – I am pleased to manage the project effectiveness/alignment program for the LCP. You say that you'll start on a scope of services, et cetera, and you talk about getting in touch with Stan Genega and I believe Richard is – and I believe it might have been Richard Westney being discussed at the time.

So the email chain continues on from there and you ultimately do provide some – a scope of services and for what is called a: Project Alignment/Effectiveness Programme. And we can see from this email chain that you're looking at getting two other people involved with it: Paul Gendreau is one person and then, I believe, Stan Genega as well.

So the emails here, I'm not going to read it all in, but can you just describe to the Commissioner what exactly this was? What's this project effectiveness program that you were working on? What was the issue that had arisen?

MR. OWEN: Yeah, the issue arose as a result of a mini-cold eyes review that I led in February of that year, so a few weeks or not so much longer, earlier than this. And that review is my notes from the 9th of March, which was mentioned here – just sent the notes, okay?

MS. O'BRIEN: Okay.

I can take us to those notes. That might be helpful because you're saying that cold – mini-cold eyes review you did came first before this scope of work.

MR. OWEN: Yeah, yes. Yeah.

MS. O'BRIEN: I just – what happened here was we see Mr. Harrington is asking you – earlier in the email chain he asks you to send the notes to his personal email address as opposed to his one for Nalcor Energy. And, initially, we didn't have the notes. After our interview you were able to find them for us.

Could we bring up P-00522, please? And that's at tab 42 of the book in front of you.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Who asked you to do this mini-cold eyes review?

MR. OWEN: Paul Harrington.

MS. O'BRIEN: Okay.

And what – do you know why he asked you to do that?

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Okay.

MR. OWEN: It was in anticipation of the Decision Gate 3 review that was going to be done later in the year. And Paul wanted to have as many cold eyes done in advance of that in order to identify any serious or potential gaps that would need to be addressed prior to the Decision Gate 3 review.

That's a best practice, quite frankly, which is adopted by many organizations that they will do mini reviews before the – before the major review just to make sure that things are moving in the direction which they need to move. So this occurred, as you can see, in quite a short period of time from the 24th to the 29th of February. And there was myself, there was Stan Genega from the Westney group and Paul Gendreau from SNC-Lavalin. And we reviewed, fundamentally, the engineering and project controls procurement, et cetera, at a very, very high level because it was a very short review.

MS. O'BRIEN: Okay.

MR. OWEN: But even with a short review, it is quite – it is not easy, but it is – it does enable one to identify any obvious gaps, basically –

MS. O'BRIEN: Okay.

MR. OWEN: – without getting into an awful lot of detail. And so part of this review – and if we could go further down to point 3, I think?

MS. O'BRIEN: Yes, absolutely.

I'm gonna ask, Mr. Owen –

MR. OWEN: Yeah.

MS. O'BRIEN: – can you bring your mic a little bit towards you there to help pick up the audio. Okay, thank you.

Yes. Your findings of the review are here.

MR. OWEN: Yeah.

MS. O'BRIEN: And so – and the one I would like to focus on the most, because I think it's the one that led to the further work, is this one on the third point on resources. And I know at the very – oh no, sorry, on organizational alignment. In one of these, I know, you do suggest doing this further alignment workshop?

MR. OWEN: Yeah.

MS. O'BRIEN: I think it's actually on the last page here. Here we go –

MR. OWEN: Yes, but –

MS. O'BRIEN: Right.

MR. OWEN: – if I can go back to – because I'd like to give a little bit more background before I – if I –

MS. O'BRIEN: Okay.

MR. OWEN: – could go back to 3?

MS. O'BRIEN: There you go.

MR. OWEN: Okay, right.

“SLI have several senior positions open,” – but – “at this stage of the project is a very serious concern. Furthermore, several positions are on the third incumbent which, severely impacts team performance.”

So SNC-Lavalin were having difficulty filling some of the major positions in the organization, in accordance with their obligation. They were having difficulty keeping people. As you can see, there was one position – which I can't remember exactly what the position was – well, there were several – where they were on the

second, third incumbents, like, people who'd come in, and then they'd, for various reasons, would actually go out.

So it was a review looking at resources – and organization later – where the organization was struggling, quite frankly, to get sufficient people, right people, in the positions that they needed to be in.

So that was one of our major findings. So as a result of that, we did recommend in Gate – in number 4 that: “In the opinion of the review team this needs to be addressed with a comprehensive plan over the life of the project to ensure Project Effectiveness and Alignment is achieved and sustained as the project changes phases and new ... contractors are brought on.”

So that was the recommendation that we made, and it was a combined recommendation, bearing in mind that it was one of the individuals who was a senior individual from the home office of SNC-Lavalin. So there was a common agreement that one way to help to solve this would be to have a team effectiveness and alignment program that was going to build a – through a series of workshops – would build a better organization that would understand the – their responsibilities and accountabilities.

MS. O'BRIEN: Okay.

So if we can now go back to P-00494, which is tab 20 for you, Mr. Owen.

Go to page 4, please, Madam Clerk.

So this what you had – oh sorry, it's – I had the wrong reference here. I just – I wanna go to the last page. Here we go.

MR. OWEN: Yeah.

MS. O'BRIEN: I've got us here. So this is page 7.

So this is what you drafted for a description for this Project Alignment/Effectiveness Programme that you were referring to.

MR. OWEN: Yes.

What Paul Harrington asked me to do was that he felt that the senior people within his organization didn't have time to coordinate this effort.

MS. O'BRIEN: Okay.

MR. OWEN: And therefore, he asked me if I could do the coordination of this effort, not necessarily run the workshops or actually facilitate the workshops but run the coordination of the effort. So the intention is – or was – here to really solicit bids from capable organizations that could provide this service and to contract with one of those organizations to carry out the team effectiveness program.

MS. O'BRIEN: Okay.

MR. OWEN: And I would do the coordination and be the interface between that consultant and the project team.

MS. O'BRIEN: Okay.

And were bids solicited?

MR. OWEN: Pardon?

MS. O'BRIEN: Were bids solicited?

MR. OWEN: Yes, yes, we –

MS. O'BRIEN: And who was the successful bidder?

MR. OWEN: Yeah, we used the expression of interest process, which is expression of interest first, and then we got expression of interest, and we had four bidders: three Canadian bidders and one US bidder. Quite to my surprise, we – the three Canadian bidders had a substantial – not only Canadian content obviously, but they had a substantial either Atlantic provinces content or even St. John's.

So we found a bidder that was predominately here in St. John's using predominately local people with some assistance out of Ontario. And I was quite surprised to find that, because the tendency is for this type of service to look south of the border first, and I'd like to go on record and say you don't have to go south of the border.

There is expertise locally here in Newfoundland to provide these services.

MS. O'BRIEN: And in this case that expertise was Deloitte. Is that right?

MR. OWEN: This was Deloitte.

MS. O'BRIEN: Okay.

So Deloitte was retained to do this work. The –

MR. OWEN: Yes.

MS. O'BRIEN: And so I take it, it's – you know, they were running workshops; meeting with people on the team, both SNC, Nalcor; finding out where the problems were; and working to correct those to get a more effective team, is that a –

MR. OWEN: Yes.

MS. O'BRIEN: – fair way to put it?

MR. OWEN: Yes, absolutely.

MS. O'BRIEN: And now, in terms of the role you played in that, so once Deloitte was executing their contract –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – to do this work, were you still working as a coordinator for this work?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

MR. OWEN: I coordinated the work, and I think the work ran through – we had a bit of a gap, and it sort of was quite intensive. I think the contract with Deloitte was signed probably in June of 2012, and the work was quite intensive throughout that year up 'til the end of the year, and then there was a bit of gap, and then we kicked it off again, and I think ultimately, the last work by Deloitte was probably done in probably the second quarter of 2013, I think.

MS. O'BRIEN: And so particularly – so as this was going on in – through 2012 – you said it went through 2012, then there was a gap and

then it started again in 2013 – but in the 2012 period, so would you – in your role as coordinator, for example, when the workshops were being held –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – would you have been present at the workshops?

MR. OWEN: At some of the workshops.

MS. O'BRIEN: Okay.

MR. OWEN: Not all of the workshops.

MS. O'BRIEN: Okay.

But a significant number or just one or two or – just to give us some sense of how involved you –

MR. OWEN: Probably 50 per cent of them.

MS. O'BRIEN: Okay.

MR. OWEN: Yeah.

MS. O'BRIEN: All right.

MR. OWEN: But I acted as a coordination between Deloitte and the project in order to – more in order to assist Deloitte in background so that they had a very short learning curve because they had me to be able to explain the organizational structure, why it was like that, and the interfaces and the technical content.

MS. O'BRIEN: All right.

So you were there. Okay. So that's helpful.

We're now going to go to P-00499, please. Tab 25 for you, Mr. Owen, if you want to have the hard copy.

And this is just to review the – this is just – we've already seen this in evidence earlier today. So these are the members of the DG3 team, which I'll just scroll through, but it's everyone who was there at DG2, plus the addition from Tim Leopold from Emera.

MR. OWEN: Yeah.

MS. O'BRIEN: Did you have any input into the selection of this team for DG3?

MR. OWEN: Yes, I discussed it with Paul, and we decided that certainly the four key – or the four members that did DG2 were fine to cover the actual focus areas. We felt that on transmission side we were a little bit light, and so we talked to Nova Scotia Power, and Tim Leopold, who was at that time working in Halifax in their head office – had got substation transmission experience, and so he was brought onto the team.

MS. O'BRIEN: Okay.

Did – do you know whether Mr. Leopold had worked at all with the Maritime Link?

MR. OWEN: I believe subsequent to this. I believe that he did transfer to the Maritime Link. But it was after this actual review.

MS. O'BRIEN: Okay.

MR. OWEN: I don't have that date in my mind but there's something in the back of my mind that – when I did the – this was 3, right? When I did Decision Gate 2 for the Maritime Link, he wasn't there, but when I did Decision 3 for the Maritime Link, he was there. I believe so.

MS. O'BRIEN: Okay.

MR. OWEN: Now whether he's still there, I don't know.

MS. O'BRIEN: Okay.

Now, are – were you aware at the time, that between Decision Gate 2 and Decision Gate 3, that John Mallam had started working on the project?

MR. OWEN: I was aware, yes, yes, yes. Yes.

MS. O'BRIEN: So with the idea that the independent – part of an independent project review team – the idea that those would be people who are independent from the project –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – did it cause you any concern at the time that now one of the members of your IPR team was, in fact, working on the project?

MR. OWEN: I thought that John had already retired when we did DG3.

MS. O'BRIEN: No, he – by the time – sorry, by the time you did DG3, he had retired, but –

MR. OWEN: Yeah.

MS. O'BRIEN: – through the period between DG2 –

MR. OWEN: Oh, between 2 and 3 –

MS. O'BRIEN: – and DG3 –

MR. OWEN: Yes, yes. Yes.

MS. O'BRIEN: – he had worked on –

MR. OWEN: Yes.

MS. O'BRIEN: – he'd worked on the project. So some of the work that you would ultimately be reviewing as the IPR team.

MR. OWEN: It didn't give me a problem. We felt that he had the best experience to bring.

We were looking – for him to look at focus areas around the operation side of it. I think what he was doing on the project was not hands-on operations, but more, sort of, looking at the design side to ensure that what they were doing was really consistent with what operations and maintenance would need to have.

MS. O'BRIEN: He was, I did understand, working at least in some – to some extent with operations and maintenance –

MR. OWEN: Yes.

MS. O'BRIEN: – there.

MR. OWEN: We still felt that – looking at John as an individual and the rest of the team, we still felt that – we didn't think there was a conflict of interest because we believed that he could adequately stand back from whatever he was

doing to fulfill the role on the IPR team, supported by the rest of the team.

MS. O'BRIEN: Okay. Richard Westney – Dick Westney –

MR. OWEN: Yeah.

MS. O'BRIEN: This is an issue that would have been there at DG2 as well as DG3 –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – because his company – Westney Consulting Inc.–

MR. OWEN: Yeah.

MS. O'BRIEN: – was the risk consultant–.

MR. OWEN: Yeah.

MS. O'BRIEN: – for the Lower Churchill Project. He himself had had some involvement and certainly his company was fairly, you know – he is the owner of that company – had significant involvement in developing the – doing the risk work in consulting on that with Nalcor. Any – was there – did you consider at the time any concern that Dick Westney was not really independent of the project in that –

MR. OWEN: We certainly discussed that with Dick. I discussed it with him, whether or not Paul was present – he may well have been – I can't quite remember. We believe that Dick had a lot to bring in addition to his expertise on cost and schedule risk. I had considerable background on cost and schedule risk and therefore we felt that there was no real exposure there.

These are highly professional people – highly professional people – and they're quite capable of working in this sort of – I won't say a (inaudible) role – but they are quite capable of really detaching themselves from what they were doing, to moving over into a review mode. I mean, they are highly professional, well-renowned individuals in the industry and certainly the risk of a conflict of interest to the degree that it would impact any of the findings are – the risk of that is zero, quite frankly. In my opinion.

MS. O'BRIEN: Okay. What about the perception of a conflict of interest?

MR. OWEN: Perception is one thing. We believe with the team that we put together, was a very, very good team. It was – four members of the five-man team did DG2. So, I was – I personally am less concerned about perception and more concerned about the professional project or the actual product – the professional product which is actually produced. That may be wrong from my side, but I stand by my experience, my integrity, and I was willing to stand by John's integrity and by Dick Westney's integrity.

MS. O'BRIEN: Okay. And on the aspect of your own integrity, if we could please bring up P-00504 and go to page 14. I'm just going to jump briefly into your report for DG3, because there's one recommendation I want to address on this –

MR. OWEN: Yup.

MS. O'BRIEN: – topic.

MR. OWEN: Okay.

THE COMMISSIONER: So tab 30.

MS. O'BRIEN: Yes.

MR. OWEN: Yeah.

MS. O'BRIEN: And if I just – I must have my cite wrong –

MR. OWEN: It's (inaudible) coming up or –?

MS. O'BRIEN: Yeah, just one moment.

MR. OWEN: And what was the tab number?

THE COMMISSIONER: Thirty.

MS. O'BRIEN: It's tab –

MR. OWEN: Thirty.

MS. O'BRIEN: – 30.

MR. OWEN: Okay, sorry (inaudible).

MS. O'BRIEN: But I had the wrong – it's page 15, I'm sorry.

If we could just go one more page. Sorry, Madam Clerk.

Okay. So you've talked about – you've talked about already – so the work that you were doing between DG2 and DG3 for Nalcor, doing this program effectiveness work –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – with Deloitte as the coordinator, I take it you would have been getting paid for that work?

MR. OWEN: Yes.

MS. O'BRIEN: Okay, so you had an hourly-rate arrangement with Nalcor –

MR. OWEN: Mm-hmm, mm-hmm.

MS. O'BRIEN: – for the work that you did.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: And I assume you would have been paid for the work you did on the Independent Project Review as well?

MR. OWEN: Yes.

MS. O'BRIEN: Okay. And so here, one of – this is just one of the findings and recommendations, and this was –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – one of the recommendations here: "Nalcor and SNC Lavalin have proactively addressed this concern, using such tools as alignment workshops and a step-by-step approach as major construction contracts are awarded. The IPR Team commends this approach and recommends its continued implementation be" – continued – "a Key Success Factor (KSF) going forward."

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So this recommendation here that you're making, is that directly – that's

directly addressing the alignment workshops that you were doing with Deloitte?

MR. OWEN: Yes.

MS. O'BRIEN: Okay. So here, one the recommendations of the IPR team –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – is to continue –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – the work –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – that you were doing, and in fact you were getting paid for?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

So do you see any conflict of interest in that, in that as a team you were saying: look, here's one of – a key success factor here is that you essentially continue on this work; you had a financial interest in that work being continued. Do you not see that as a conflict of interest?

MR. OWEN: Let me explain the background to that before I answer the question. One of the major difficulties in organizations on megaprojects is to get the project to accept and understand that they need help, external help, to help them with regard to team alignment, team effectiveness, accountability, responsibilities. And one of the best practices is that this effort starts at the beginning of the project and continues all the way through the project, so that's why the recommendation there is recommended to have it continued because it is a best practice.

This comes from my background with the Sable Project, which was probably in terms of \$96, was close to 1.5 billion, so God knows what it would cost now, where we had a totally integrated team from day one. And in order to make that team effective, we ran team effectiveness and behavioural workshops from

day one, right through to the last moment of that project.

MS. O'BRIEN: Okay.

MR. OWEN: So that's where the recommendation comes with regard to the continued implementation. It is a best practice.

It's very difficult for projects to do that. They tend to do it for a period of time, and then either they find that it's not necessary or they've perceived it's not necessary. So, the fact that I was doing the coordination for that work – maybe you could perceive it as a potential conflict, but the reason that we were suggesting that it continued was because it is a best practice. Unfortunately, they discontinued it in, I think, the second quarter of 2013.

So, in my opinion, it was not a conflict of interest. It was a recommendation from the team. The team looked at the work that was being done –

MS. O'BRIEN: Was the team aware that you were involved in and doing that work?

MR. OWEN: As far as I know they were. Certainly, Dick Westney knew because, as was indicated in that email chain that you have there, Lance Clarke mentioned to Dick Westney whether or not his organization could do it. Lance didn't know that Paul had asked me to prepare the request for bids; he didn't know that. So, certainly, Westney knew because that email records a telephone conversation I had with Dick when he called me. So, he certainly knew.

I believe the other team members knew as well, but there was no – I didn't communicate that in writing but I'm absolutely sure that when we had our internal kickoff meeting with just the team, which is what we do on the afternoon of the day that we really start, I'm sure that I would have indicated to the team that I was involved with that work.

MS. O'BRIEN: And do you recall anybody raising a concern that this was a conflict of interest? Potential conflict of interest?

MR. OWEN: No one raised any concerns about it.

MS. O'BRIEN: Okay.

MR. OWEN: I'm just disappointed that the team didn't continue beyond halfway through the following year.

MS. O'BRIEN: With the program effectiveness work that you were coordinating?

MR. OWEN: Absolutely.

MS. O'BRIEN: Okay. And when you say the team there, you mean the project management team –

MR. OWEN: The project management team.

MS. O'BRIEN: – not the IPR team.

MR. OWEN: Project management.

The way I tried to couch this for the, (inaudible) for teams, is that if they had a serious metallurgical problem, as an example, they would go out all over the world to get the specialist because it's a technical problem. It seems that there's somewhat of a mental block when it comes to organization because it's people and we deal with people all day, every day and they feel that they don't need help, when the functionality of the team is starting to suffer for various reasons.

MS. O'BRIEN: So you mean the problems that were occurring with the project management team, the problems they were having with SNC-Lavalin –

MR. OWEN: Exactly.

MS. O'BRIEN: – you felt that this is something they should have continued on to get outside help with to facilitate –

MR. OWEN: Absolutely.

MS. O'BRIEN: – that and they disagreed. They felt that they –

MR. OWEN: Well, I don't know whether they disagreed, it just sort of, you know, blah.

MS. O'BRIEN: Okay, all right.

P-00502 please, tab 28 of your book, Mr. Owen.

This is the Decision Gate 3 Independent Project Review Charter. Did you have any input into the drafting of this document?

MR. OWEN: Oh, yes, yes, yes.

MS. O'BRIEN: All right, and who would you have worked with on the preparation of this document?

MR. OWEN: Mostly Paul, I would think. Although –

MS. O'BRIEN: And that would be Paul – when you're saying Paul in this particular – it's Paul Harrington you're referring to?

MR. OWEN: It was Paul Harrington, yes.

MS. O'BRIEN: Yes, okay.

Page 7, please. Thank you.

So, here we have the Focus Areas listed and it's quite a number of pages of Focus Areas for DG3.

MR. OWEN: Yes.

MS. O'BRIEN: It looks to be much more comprehensive than what was done at DG2. Is that a correct assessment?

MR. OWEN: Yes.

MS. O'BRIEN: Okay, and I think in terms of comparing the numbers, you had 35 Focus Areas at DG2; 60 at DG3. Does that sound approximately right to you?

MR. OWEN: Yes, as we move through the Gate process, you know, from Gate 2 to Gate 3 to Gate 4, then it gets more intensive because you've got less opportunity to close out the gaps. So you – when we get to 3 we got – because then we're getting into detailed engineering, procurement and construction.

MS. O'BRIEN: You're about to start the project?

MR. OWEN: We're really in the main project, and therefore we want to get as many gaps closed as we possibly can. Otherwise, we won't get through the Gate, basically.

MS. O'BRIEN: Okay.

In terms of the process that you went through –

MR. OWEN: Yeah.

MS. O'BRIEN: – for the Decision Gate 3 IPR.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Was it similar to what you had – we talked about earlier as the process for DG2?

MR. OWEN: Yes, I don't think there was – I mean, it was the standard process. It was a document reviewed in advance of the team getting together. And then it was interviewing the team members, both from Nalcor and from SNC-Lavalin, and then consolidating our findings, et cetera; putting the PowerPoint report to the Gatekeeper, and then providing the project team with the spreadsheet where we indicate for each Focus Area, whether or not it's closed or whether or not it has to be closed within 60 days.

What we were trying to do is we were trying very much to force the project team to close the gaps and, therefore, we weren't – that's why we put a 60-day limit on it. Such that they would give it the appropriate level of attention to close the gap. If we just say it's open, it has to be closed. It doesn't force them to get it closed, so that's why we put the 60-day limit in there.

MS. O'BRIEN: Okay.

Can we go to P-00503, please?

So this is the Schedule. We looked at it briefly with Mr. Mallam this morning and I'm gonna go through it in just a little more detail with you now.

So, this is the Schedule for – starting on August 20 – Sunday, August 26.

MR. OWEN: Yeah.

MS. O'BRIEN: So this would've been your kickoff meeting.

MR. OWEN: Yeah.

MS. O'BRIEN: The IPR team coming together. M. Peddle and S. Lundrigan, I understand these were the coordinators who were assisting.

MR. OWEN: Those were the coordinators. And we had them in our kick-off meeting. This was just the IPR team. We had them in there because they were effectively assigned to the team to assist us with the documentation.

MS. O'BRIEN: Okay.

And then we go through – here's a day. So you have a kick-off meeting with the – so you met with the project team. So this would have been the Lower Churchill Project management team that you were meeting here?

MR. OWEN: Yeah.

MS. O'BRIEN: Some of these are names I recognize. Certainly, Normand Bechard was from SNC-Lavalin.

MR. OWEN: Correct.

MS. O'BRIEN: The other names, I believe, are Nalcor names.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: And so we go through and each – you have different areas that you're working with and you talk about who's present at the meeting, and we can see here people identified from SLI, being SNC-Lavalin Inc. And it goes on like this over the – through the course of the week.

Can we please jump to page 9, please?

So this is the Thursday, and we – the day before you gave your final presentation. So here we see the IPR team draft report writing and presentation. So that's, I guess, 1 p.m. to 4 p.m., so that's you and the other three holed up together, putting your report together?

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Okay.

And then you have a meeting together where you, I guess, to finalize it. Then we have one: Debrief PMT.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So this would be the project management team. So is that where you would have told – advised the project management team what your findings were?

MR. OWEN: Yes. Is the – could you just scroll up to the previous day for me?

MS. O'BRIEN: Yes.

MR. OWEN: Thank you. We debriefed –

MS. O'BRIEN: Oh, every day.

MR. OWEN: – the project management team at the end of each day –

MS. O'BRIEN: Okay.

MR. OWEN: – just in case we found anything that was relatively serious that we wanted to really communicate. But it was more in terms of giving them an update to who we'd spoken to and what the plan was for the next day. So if we go back again, I think there was an – there would be, I believe, another meeting –

MS. O'BRIEN: There will be on page 10 please, Madam Clerk.

MR. OWEN: Yeah, okay. That's what I was looking for. Thank you.

MS. O'BRIEN: Here we go. It's Friday morning, I believe. Is that what you're looking for?

MR. OWEN: Yeah, yeah. There you go.

MS. O'BRIEN: Okay.

So here on Friday morning, you meet – met with Paul Harrington, Jason Kean, Ron Power, Greg Fleming, Lance Clarke and Normand Bechard. And this was to present your draft findings and observation to the project management team?

MR. OWEN: Correct.

MS. O'BRIEN: So you would have gotten their feedback from them and at – would that have been their opportunity to correct anything that they felt was missing and whatnot?

MR. OWEN: Yes, yes.

MS. O'BRIEN: Okay.

So then you would have, I guess, prepared then for your – for the final presentation?

MR. OWEN: Yes.

MS. O'BRIEN: Okay.

And then we see – after lunch, this is where you did the – presented to the Gatekeeper here.

MR. OWEN: Yes.

MS. O'BRIEN: And these are the people listed here who were present for that.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: Okay. We have – I'm – oh I see, yes, the –

MR. OWEN: Yeah, I see where the initials –

MS. O'BRIEN: – initial (inaudible). Yes.

MR. OWEN: – have ended up.

MS. O'BRIEN: Confused me there for a second. Okay.

All right, so generally speaking is that the – is this the schedule you followed for the DG3?

MR. OWEN: Yes it is, yes.

MS. O'BRIEN: Okay.

Sorry.

P-00501, please; tab 27 of your book, Mr. Owen.

No, I'm sorry, I have the wrong – sorry, P-00504, tab 30.

MR. OWEN: Okay.

MS. O'BRIEN: Okay.

So would the full IPR team have been there to do that presentation to the individuals listed we just –

MR. OWEN: Yes.

MS. O'BRIEN: – looked at?

MR. OWEN: Oh yes, yes, yeah.

MS. O'BRIEN: All right.

MR. OWEN: Yeah.

MS. O'BRIEN: So is this the – could we go to page 1 of the document please.

Okay.

So do you recognize this as the final report or the report that you gave to the Gatekeeper on August 31 of 2012? And it is –

MR. OWEN: (Inaudible.)

MS. O'BRIEN: – in the book before you there, tab 30.

MR. OWEN: Could you just go to page 14, please?

MS. O'BRIEN: Go to page 14, please.

MR. OWEN: And page 41?

Yes. The answer's yes.

MS. O'BRIEN: Okay.

Now, when you presented this to Ed Martin on April [sp August] 31, 2012, did you consider that you were presenting a final report or a draft report?

MR. OWEN: Final report.

MS. O'BRIEN: Now, we have reviewed some of the findings already with Mr. Mallam this morning –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – and I'm not gonna revisit all of them, but there are a few that I do want to visit with you.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: If we – now, but one thing I wanna note here: When we talked – when we looked at the DG2 report, there –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – was this discussion of the P-factor, right, that was one of the observations we looked at not too long ago just before the break, where the concern was raised by the IPR team than an appropriate P-factor –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – and a P-factor had not yet been selected –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – by the project team.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: In this DG3 report, we don't see any mention of a P-factor, and in this case, we don't have a spreadsheet like we did for DG2. What we really –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – have is your final report.

MR. OWEN: Uh-huh.

MS. O'BRIEN: Were you aware of what P-factor was being used by the project at Gate 3?

MR. OWEN: At DG3, shortly before the review, I believe – I don't know how long before but shortly before, and I don't know whether the Westney report is an exhibit or not. I don't – I went through the exhibits and I –

MS. O'BRIEN: It will – it certainly will be if it's not in evidence yet. We will be looking at that document.

MR. OWEN: I don't remember seeing it. Anyway.

There was a risk analysis report that was done for the project. Maybe a month or a few weeks before the DG3. That report wasn't given to us, but in interviews, we did get information from, probably, Jason Kean with regard to what that report was showing. And Jason did say, and I think it's confirmed in an email from – which you may get to but it's in the binder from Paul to me saying that the risk analysis was dated and it would be redone.

MS. O'BRIEN: We will get to those.

MR. OWEN: Yeah. Fine.

At that meeting, although we didn't see the report –

MS. O'BRIEN: Do you know why you didn't see the report? Why didn't you get the (inaudible) –

MR. OWEN: I think probably because they felt that –

MS. O'BRIEN: Who's they?

MR. OWEN: The team.

Paul's team felt that they got the report and they were going to get another analysis done so therefore, you know, they didn't need to give us a report. I don't know exactly but based on the information that is there that they were going to – I do remember Jason saying that we are going to get a new risk analysis done. That I remember, so I could – anyway – so that could be a reason why they didn't give us a report.

However, we did discuss with them the output from the report, and we did glean at that time that from schedule perspective that there was a very low probability of meeting the 2017 date.

And also we did understand, verbally, from Jason Kean, that they did have – from the risk report, they did have an indication of what the strategic – the value of the strategic risk and the value of contingency was. And that's why you will see, in one of the recommendations that we make – I think it's the last one on page –

MS. O'BRIEN: Yeah. We will go to that –

MR. OWEN: Yeah. Yeah.

MS. O'BRIEN: – in just a moment.

MR. OWEN: Yeah. Okay.

So we did understand – in not so much broad terms, but in some specific terms – what the output from that risk analysis was and that that output was available to the project team.

MS. O'BRIEN: Okay.

Did you know what P-value the – that had been chosen to use for the numbers to assess the project at sanction? What P-value were they using?

MR. OWEN: Not at that time.

MS. O'BRIEN: Okay.

MR. OWEN: Not at that time. But we didn't know because they hadn't completed their (inaudible) decision package, which is (inaudible), and therefore they hadn't selected – because basically the Gatekeeper really selects which P-level –

MS. O'BRIEN: Mm-hmm.

MR. OWEN: – you know, does he want to sanction the project at a P50, or a P70 or a P90. But what we did know very, very clearly was that the P-level for the schedule was extremely low.

MS. O'BRIEN: Okay.

You're saying it's the Gatekeeper who picks whether – in this case – he wants to sanction at a P50, P70 –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – et cetera. Did anyone seek the input from the IPR team as to what your team would've considered to be the appropriate P-level on which to make a sanctioning decision?

MR. OWEN: No. The only discussion that we had in the presentation of our findings with Ed was around the 2017 date –

MS. O'BRIEN: Okay –

MR. OWEN: – when we indicated that – we indicated in that session, verbally, that we understood there was going to be a new risk assessment done. But the risk assessment that the project team currently have indicates a low probability. Now, I don't know if that was a surprise to him or not, but we felt that we – and that is –

MS. O'BRIEN: Yeah, we will get to the –

MR. OWEN: Yeah, yeah.

MS. O'BRIEN: – your reporting.

MR. OWEN: Yeah.

MS. O'BRIEN: But I'm trying to get – so – okay. So the – in terms of P-factor on which to sanction, you use – I understood earlier, from your evidence, that you heard Bent Flyvbjerg's testimony before the Inquiry 'cause you referenced that earlier.

MR. OWEN: Yeah.

MS. O'BRIEN: And you heard Mr. Mallam's testimony earlier today.

MR. OWEN: Mm-hmm.

MS. O'BRIEN: So, you know, we've had a number of people give an assessment of what the – they would consider the appropriate P-factor –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – to be used to make –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – a decision on sanctioning for –

MR. OWEN: Yeah.

MS. O'BRIEN: – a project of this magnitude –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – for a company like Nalcor –

MR. OWEN: Mm-hmm. Mm-hmm.

MS. O'BRIEN: – whereas really the – it's one significant project.

MR. OWEN: Yeah.

MS. O'BRIEN: In your assessment – I know you've done a lot of work in this area over the years, what would you consider the appropriate P-level to be?

MR. OWEN: I don't know because I would have to look at – as I explained earlier – I'd have to look at the base estimate, and look at the base schedule, and then to look at the curve and to assess whether or not that curve is going to be representative of what the contingency level should be.

The only thing I can say is that – and I believe – that when you take the contingency that was derived, or quoted, and then convert that as a percentage, I believe that comes out as 7 per cent. I could be wrong but even if it's 7 or 10, in my opinion, for a project of this nature, with the risk associated with this project, that is far too low.

MS. O'BRIEN: So you're saying you would've used essentially a higher P-factor. Is that another way of saying what you just said?

MR. OWEN: Providing I had confidence that the curve was giving me the – that was going to generate the reasonable amount of dollars, because what we do is we look at the curve, we say moving to a P50 is this amount; moving to a P70 is that amount. Now, when we then – and I talked about benchmarking earlier – when we then go back and benchmark that as a percentage and come up with a ridiculously – not ridiculously, but with a very low percentage we say: Is there something wrong here? It doesn't – that curve was not generating the dollar amounts in contingency that this project required.

In addition to that, when we look at probability of schedule, the risk analysis – and I haven't seen Westney's risk analysis, but in general the

risk analysis will quantify in dollar terms what it will cost to move the schedule from a P50 to a P90. It will provide a cost associated. It all has to be inputted but most of the analysis will generate a dollar value for moving the end date from – let's say – the middle of 2017 to the middle of 2018. It will generate a dollar value and that dollar value then has to be added to the cost, such that every cost estimate and its contingency – and we may get to management reserve in a moment – and its contingency, has got to be tied completely to a schedule.

MS. O'BRIEN: Okay –

MR. OWEN: It's got to be tied to an end date. You can't have an end date out here and have an unrelated cost. Is that –

MS. O'BRIEN: Yes.

MR. OWEN: – am I making that clear?

MS. O'BRIEN: Yes.

MR. OWEN: Yeah.

MS. O'BRIEN: Thank you.

Okay, and so I just want to – before we get into some of your findings – I just want to highlight that – if we just go to, for just one moment, P-00502, tab 28 in your book, but page 10, Madam Clerk.

MR. OWEN: Yeah.

MS. O'BRIEN: Just give me one moment, I'll –

MR. OWEN: Okay.

MS. O'BRIEN: (Inaudible.)

Okay, so under Project Controls. Yes, okay.

So it's the – this bullet here – I just want to point out – as we're going to go through some of your findings, but this was one of your focus areas here that you were required to determine: "That adequate and realistic cost and schedule allowances had been determined and included in the Project Sanction costs and schedules and appropriate range of accuracy has been determined."

MR. OWEN: Yeah.

MS. O'BRIEN: So I just wanted to highlight that for one moment before we went into some of the findings themselves. Okay.

And I think you've answered my next question already, but that was about the schedule. So you were aware – as I'm understanding your evidence today, although Westney's work had not been presented to the IPR team, the quantitative risk analysis work that they did, you understood from interviews that the schedule date was being used – had been shown by that work to be a very low P1 value. Is –

MR. OWEN: Very low.

MS. O'BRIEN: Okay.

MR. OWEN: Yeah.

MS. O'BRIEN: All right.

MR. OWEN: And that was made aware to Ed Martin.

MS. O'BRIEN: Okay. And we'll get to that in just one moment when you present the report.

If we can go back to that report at page 15 – so P-00504, page 15. Oh, I'm going to back, actually, to page 13. No – here we are, this is good.

Okay so this – I want you to just review this finding number 5 here and I know –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – you've already been touching on it –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – but if you can just explain what was communicated to Ed Martin and his team with respect to the adequate and realistic cost and schedule allowances. And I know there are other slides that speak to this –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – and we can go to those –

MR. OWEN: Mm-hmm.

MS. O'BRIEN: – if that's helpful to you.

MR. OWEN: Mm-hmm.

Well, what we observed was that the team were in possession of the risk analysis work that was – that had been done. Notwithstanding the fact that they said it was going to be redone. And by the way, the IPR team did not see the risk analysis that was redone because that was after the IPR team work was closed out. Okay, so we only got verbal from what was done just before the actual review.

MS. O'BRIEN: Do you know for a fact that the risk analysis work was redone?

MR. OWEN: I don't know. I know it was said it – that it was going to be done.

MS. O'BRIEN: Okay.

MR. OWEN: But I don't know if it was. Certainly, Paul Harrington would know and also Westney would know. But what this is really saying is that the project team knew – have had a risk analysis done, albeit you may want to have it redone, but you've got it done.

That risk analysis has indicated to you contingency levels, strategic risk, management reserve, schedule probabilities; you have sufficient information available to you, to determine how that will be put into the project sanction.

But we, as a team, couldn't say that it would be included or it should be included.

MS. O'BRIEN: So if we go to page 41 –

MR. OWEN: Yeah.

MS. O'BRIEN: – we have another slide here that may assist you.

MR. OWEN: Yeah.

MS. O'BRIEN: So this is – we looked at it again this morning – but this is – these are the findings and observations, and here, these are findings and recommendations the IPR team is

providing concerning the use of management reserve and schedule reserve.

MR. OWEN: Yes.

MS. O'BRIEN: To account for the strategic project risks associated with megaprojects such as LCP –

MR. OWEN: Mmm.

MS. O'BRIEN: – and Mr. Mallam read these in for us this –

MR. OWEN: Yeah.

MS. O'BRIEN: – morning, but I know this last one here does deal with: “The IPR Team concurs with the expectations set by the LCP Project Execution and Risk Management Plans that adequate provisions for Management Reserve and Schedule Reserve be included in the Project Sanction costs and schedules.”

MR. OWEN: Yes.

MS. O'BRIEN: So yes, so if you can just – I think that's what you were in the course of explaining, but I just wanted to bring you to that finding on the slide.

MR. OWEN: Yes.

The key there is that, the expectation set by the Lower Churchill Project Execution and Risk Management Plan, the expectations of that plan is that adequate provisions for management reserve and schedule reserve be included in the project sanction cost and schedules. So their own plan were calling for those: management reserve – which covers strategic risk –

MS. O'BRIEN: Yeah.

MR. OWEN: – and schedule reserve – be included in the project sanction cost and schedules. Their own plan called for that.

MS. O'BRIEN: Okay. And –

MR. OWEN: That's all we were saying, basically.

MS. O'BRIEN: Okay.

And do you know, ultimately, whether – in the final DG3 numbers that were announced – whether the – anything for management reserve or schedule reserve was included in the \$6.2 billion that was announced at sanction?

MR. OWEN: I haven't studied it, but from what I've read or seen, there was no strategic risk. There was only contingency included, no strategic risk. I could be wrong. And – but the strategic risk would have been covered under management reserve.

MS. O'BRIEN: Okay.

MR. OWEN: Normally management reserve – and various – I'm sorry to belabour this point, but I think it is quite important that I try to put some of these things into perspective. Management reserve is handled differently with different owners. The vast majority of the time, management reserve is funded at sanction.

MS. O'BRIEN: And when you say is funded at sanction, what does that mean?

MR. OWEN: It's included in the sanction cost that is then approved. It may well be – frequently – it is a management reserve, as it says, that is held by management and not held by the project team. And it is usually for very discrete risks – strategic risks. And it is used when management determine that one of those risks has been incurred and can't be mitigated, and therefore the project has got to put money in to solve that risk.

But that is done very, very – in a very, very controlled manner by the corporations, by the management. The project team will go and say, look, we have this identified strategic risk, it's such money, we've incurred the strategic risk and they request management to release that money into the project. That's how management reserve works, generally. So it is – a project that is sanctioned without management reserve begs the question, well, where is the management reserve money going to come from?

MS. O'BRIEN: Okay.

MR. OWEN: It can be handled differently. It can be handled as a separate account, but then it

needs to be identified that it's going to be handled that way.

MS. O'BRIEN: You said earlier that you had raised, particularly with, I know you said the P1 schedule, as you had that information from Jason Kean that you did raise this with Ed Martin when you – the IPR team presented its report.

MR. OWEN: Yes, yeah.

MS. O'BRIEN: What was the reaction that you received from Ed Martin and other members who were there?

MR. OWEN: I felt that Ed Martin was surprised. I mean, he didn't say he was surprised. I don't remember him saying he was surprised, but I felt from his body language and his reaction that he had not been made aware by the project team that that's what the risk analysis was showing for the schedule of the 2017 – mid-2017 date.

I firmly believe he was surprised. And from that, the only conclusion that I can come to is that the project team had not yet communicated that information to him. Maybe they had plans to communicate it to him, but certainly at that time I had the feeling that he didn't know that that was one of the outputs from the risk analysis.

MS. O'BRIEN: Okay.

And one of the points raised by Mr. Mallam earlier today in his memory – and I understand you may have an independent memory and it may differ from his, and you're here to tell the Commissioner what you believe to be the truth, so ...

MR. OWEN: Mm-hmm.

MS. O'BRIEN: But he recalls that you raised at that presentation that the amount of contingency was too low, that that was raised before Ed Martin in part of the presentation.

MR. OWEN: I don't remember us talking about the contingency being too low, quite frankly.

MS. O'BRIEN: Okay.

MR. OWEN: The thing that's crystal clear in my mind is that bit about the schedule.

MS. O'BRIEN: Okay.

MR. OWEN: I could be wrong, because there was a lot of dialogue and maybe it was within the context of, you know, the output from this risk analysis. Well, certainly, I remember very, very clearly the schedule side of it.

MS. O'BRIEN: Okay.

MR. OWEN: But John may well be right from the other side.

MS. O'BRIEN: Okay.

MR. OWEN: Yeah.

MS. O'BRIEN: Thank you.

Commissioner, I know we're at just about 4:30 now, so would you like me to continue or break for the day?

THE COMMISSIONER: What's your – how much more do you have to go through?

MS. O'BRIEN: I have a little bit more to do. It would be – we'd be here – for me to get to the end, there's a – you know, we'd – it's not just a few minutes.

THE COMMISSIONER: So tomorrow I think the plan was we would have the presentation on the Emera agreements.

MS. O'BRIEN: I do believe we'd have – still have time to get to that in a day; we were anticipating not going the full day tomorrow. Just to let you know that our plan with Mr. Brockway is that tomorrow, Mr. Learmonth will be leading him through his paper on Emera. And that's all we would be doing, his paper and cross-examination on that paper tomorrow. And then his second paper on the PPA and the FLG would be coming on Friday. So I do believe we'll still accomplish that, if that assists you.

THE COMMISSIONER: Okay.

MS. O'BRIEN: I – so ...

THE COMMISSIONER: Right. As long as we keep to the schedule, you know me.

MS. O'BRIEN: Yes.

THE COMMISSIONER: All right, so we'll adjourn then for the day and we'll start tomorrow morning at 9:30.

So, Sir, you are – just to remind you, you're being questioned at this time so the less you say about this to anybody at this point in time might be better for you. And we'll have you back tomorrow morning at 9:30.

MR. OWEN: Okay. Thank you.

THE COMMISSIONER: Thank you.

MS. O'BRIEN: Thank you.

CLERK: All rise.

This Commission of Inquiry is concluded for the day.